INTEREST GROUP CAMPAIGN CONTRIBUTIONS: GROUPS WITH COMPETING AND HOMOGENOUS POLICY PREFERENCES

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ABSTRACT

A theoretical model is constructed and tested to describe how some interest groups affect each other's campaign contributions to legislators. The model extends Becker's (1983) reaction functions for pressure groups with competing policy goals to reaction functions for pressure groups with homogeneous policy goals. The model is empirically tested by estimating interest group donations made to the 104th U.S. Congress by four categories of interest groups. Empirical results indicate that interest groups with competing policy goals exhibit positively sloped reaction functions while groups with homogeneous policy goals experience negatively sloped reaction functions. Finally, the estimated contributions are used in determining a probit estimate of roll-call voting data from the 104th U.S. House of Representatives. The probit estimates provide some evidence that interest groups are effective in influencing policy through campaign contributions.

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INTRODUCTION

Since the advent of the public choice school, the organization of congress and the transactions with its agents are often defined using economic tools. Empirical evidence has supported theoretical models that interest groups are influential in determining the outcome of congressional votes on public policy. The questions addressed herein are: How do interest groups allocate political resources when other interest groups with homogeneous and competing policy goals are involved? Does an interest group affect the pressure exerted by other interest groups with campaign contributions? For example, how do contributions made by environmental groups affect those made by groups with similar policy goals, such as the maritime unions? At the same time, how do contributions made by the same environmental groups affect those made by groups with competing policy goals, such as pro-industry groups?

The purpose of this research is to construct and test a model that will represent the pressure exerted by interest groups with homogeneous and competitive policy goals. The theoretical model is based on Becker (1983) and draws extensively from public choice and oligopoly theory. A model for estimating reaction functions is derived for interest groups with competing and homogeneous policy goals,

respectively. The testable hypothesis is that groups who compete have positively sloped reaction functions and groups who cooperate have negatively sloped reaction functions.

The model is empirically tested by estimating interest group donations made to the 104th U.S. Congress. Contributions are estimated by both three-stage least squares and two-stage Tobit techniques. Finally the estimated contributions are used to estimate roll-call voting data for legislation aimed at lifting the Alaska Oil Export Ban by applying a limited dependent variable econometric procedure. The results from the vote estimates using three-stage least squares are compared to the results obtained when contributions are estimated using the two-stage Tobit method.

Empirical results are based on an analysis of contributions to members of the U.S. House of Representatives by four interest groups, oil producers, oil refineries, the merchant marine, and environmental organizations, and on six votes in the 104th U.S. House of Representatives during 1995. The results using the three-stage least squares model were highly encouraging. Evidence of cooperation exists among those interest groups opposed to lifting the Alaska oil export ban and evidence of competition exists between these groups and the group who stood to gain from lifting the ban. The two-stage Tobit

estimate of contributions was less convincing. However, when Tobit estimates for contributions were used in the Probit estimate of votes, the hypothesis that interest group contributions affected policy is supported.

Varying interest groups may have several different policies about which they are concerned and contributions may have been directed at influencing other bills. This may have influenced estimates of the reaction function slopes and the effect of contributions on the vote estimates. However, evidence was found that politicians, at least, are able to distinguish between policies and their effects on interest groups and that interest groups are effective in influencing policy through campaign resources.

Chapter 1

LITERATURE REVIEW

1.1 Introduction

The application of economic analysis to political structures has helped researchers understand the political process. Explaining regulation the first problem addressed in this way, most notably by Public Choice economists such as George Stigler, Sam Peltzman and Gary Becker. Others such as Chappell (1981, 1982), Kau and Rubin (1982) and Kau, Keenan and Rubin (1982) provided empirical evidence to support the postulation that interest groups play a significant role in influencing the outcome of legislation. Essentially, political participation can be analyzed from an economic perspective in which economic agents are acting rationally in order to maximize utility.

The economic solution to the question of the nature of political organization begins with the work of Downs (1957) and Buchanan and Tullock (1966) who examined the nature of bureaucratic organizations. Both described political agents as rational, that is, they seek to maximize their utility subject to constraints. Application of this assumption at the legislative level depicts representatives voting in such a way as to increase their likelihood of reelection. Constituents go about making electoral decisions in a similarly rational fashion. They will devote resources,

i.e. time, money and effort, to the elective process up to the point that marginal cost is equal to the marginal benefit brought about by a candidate's victory. Previous approaches to explaining political behavior either fell short or were not supported by empirical research.

1.2 Previous Theories of Regulation

The Normative Analysis as Positive Theory (NPT) of economic regulation postulates that the government will intervene and regulate a market when the potential for failure exists within a market. An example of this is a market in which the costs are arranged so that a natural monopoly is the only market structure under which the product will be supplied. Another instance is when an externality occurs as a result of production. The externality can be either positive or negative. So, according to the NPT school, regulation will occur to improve social welfare via granting monopoly rights or price setting or through imposing taxes or subsidies. The NPT School uses normative analysis to generate a positive theory of regulation. In other words, NPT uses what ought to be to explain what is occurring in the market.

The shortcoming of NPT is that while it can provide an explanation of the existence of regulation, it fails to offer an explanation of the mechanisms occurring to bring

forth that regulation. NPT alleges that regulation occurs through the legislative process in response to demand for it generated by the market failure. However, NPT neglects to address the political dynamics under which the regulation evolves. The potential net welfare gains which induce legislators to design and pass legislation are not addressed under NPT. NPT explains how but not why. Other criticisms of NPT include historical accounts of regulation occurring in an industry when a market failure does not exist. If NPT were to hold true, these regulations should not have existed and firms would have not lobbied for and supported legislation. Additionally, others have shown regulation to be ineffective. The NPT attempted to correct itself by saying that regulation was originally implemented to correct market failures but is mismanaged by the regulatory agency. However, this new explanation is still subject to the same criticism.

The Capture Theory (CT) of regulation responded to the insufficiency of NPT to explain regulation in absence of market failure. The theory presumes that regulation does not occur in response to market failure and may even promote market failure. CT states that regulation is supplied by legislators in response to the industry's demand for regulation. Eventually, the regulator becomes controlled, or captured, by the industry over time. CT merely supposes

that the regulator is controlled by the industry but does not describe how the industry is able to do so. CT fails to take into account those markets in which industry does not benefit from regulation and subsequently does not support it. Also, the theory fails to take into consideration the other interest groups involved in regulation such as consumers, labor unions, and political activists. Finally, it fails to explain why industry is regulated and later deregulated.

1.3 Public Choice

The first researchers to bring forth economic explanations to political questions used a positive analysis that sought to dissect voting rules (Black 1958), political institutions and the economic underpinnings of constitutions. Their ideas belong under the auspices of Public Choice. Concisely stated by Buchanan (1979),

> Public Choice theory essentially takes the tools and methods of approach that have been developed to quite sophisticated analytical levels in economic theory and applies these tools and methods to the political or governmental sector, to politics, to the public economy.

These revolutionaries constructed their theories with the premise that voters, legislators and interest groups act rationally and strive to maximize utility. Unlike previous theories, Public Choice takes into account the non-quantifiable aspects of utility maximization. For example,

representatives can vote consistent with their own ideology and gain utility through intrinsic satisfaction (Kalt and Zupan 1990). Additionally, political transactions result in clearly defined, all-or-nothing winners and losers. Unlike market transactions, which occur at the margin, a political transaction, in the form of voting, does not provide every participant with the desired outcome.

To define who would be regulated and what form the regulation would take was first addressed when George Stigler applied economic analysis to regulation. He presupposed that agents act to maximize their own utility and that the basic resource of the state is its power to coerce. (Stigler 1971) So, in order to improve its well being, the interest group attempts to persuade the state to use its power to force regulation toward the position favored by the interest group.

Sam Peltzman (1976) expanded on Stigler's theory by defining which industries will realize the bulk of benefits from regulation and consequently, what regulations will be implemented as a result of the interest group's influence. Like Stigler, Peltzman assumed that legislators, interest groups and voters behave to maximize their own utility. He put constituents on the demand side and legislators on the supply side of the market and explained why small interest

groups dominate regulatory policy by relating group size with the costs of political action.

In the Stigler/Peltzman world, legislators choose policy to maximize political support that is derived from constituent votes and interest group finances. A legislator must decide upon the group to benefit from legislation and secures support from that group. Support can be either resources, which includes campaign contributions and granted services from members, or direct votes. Other interest groups will resist the policy and the legislator will be met with opposition at the voting booth. The net effect of the legislator's chosen policy is the political support that is maximized for the interest groups' level of resources.

The Peltzman model concludes that regulation benefits small, well-organized interest groups with strongly felt preferences. The cost of regulation is born by the larger, less organized interest groups with relatively lower per capita costs than smaller, more organized interest groups. The point at which marginal cost is equal to marginal revenue determines who will gain from legislation. Their theory explains why much of regulatory policies benefit industry while not necessarily maximizing social welfare.

The next central collection of Public Choice literature consists of econometric models to explain the determinants of congressional votes. Chappell (1981, 1982) tested

various single equation and simultaneous models for their explanatory power. Binary dependent variable techniques such as Probit and Tobit are more useful than OLS techniques modeling congressional votes and campaign contributions due to the constrained values of the dependent variables (Chappell 1981). Using a simultaneous Probit-Tobit model to estimate the propensity to vote in an interest groups favor, he determined that interest group donations possess inconclusive explanatory power (Chappell 1982). The argument that constituent ideology yields more clout with the voting congressman is substantiated by the research. Chappell, however, only includes one interest group as possessing influence for each of the congressional votes tested when in reality more than one interest group may have a stake in the passage of any one policy. Others such as Kau and Rubin (1978), Kau, Keenan and Rubin (1982), Peltzman (1984), and Pashigan (1984) found evidence supporting the influence of interest groups on legislative votes by testing roll-call data.

The next noteworthy theoretical proposition describes the mechanism by which organized interest groups compete for political influence. Gary Becker (1983) developed a relationship between organized interest groups rooted in the work of Stigler, Peltzman and Posner. Like those before him, he points out that interest groups, or pressure groups,

are compelled to pressure legislators i.e., provide them with resources, in order to influence policy. However, Becker demonstrates that "pressure by each group reduces influence of the other (competing) group, and thereby partially or fully offsets the effect of pressure by the other group" (1983 p. 378). Positively sloped reaction curves are derived to illustrate the relationship between the pressure exerted by any number of competing interest groups.

1.4 Congress as a Firm: The Economics of Politics

If the political arena is to be explained in economic terms, the theories which illustrate the firm behavior in the marketplace should also give insight into the behavior of legislators within congress. The firm faces production decisions based on input prices and consumer demand for its final product, neither of which are fully controlled by the non-monopolistic firm. However, the firm does make decisions about how much to produce and the methods by which to employ production. In other words, the firm decides which production techniques will minimize costs at the available input prices. And, it will produce a quantity that maximizes profits subject to demand. Clearly, this can be applied to the production decisions that a legislator makes contingent upon obtainable resources. Basically, the

legislator's "profit" is the net political support of constituents realized by his legislative decisions.

The decisions made by voters at the polls are affected by various conditions. The demographic characteristics of the constituency determined by values and economic position will impel voters to support the candidate who advances a position supporting similar values. However, voters, like consumers, are rational. A voter will expend resources towards election information until the marginal cost of obtaining information is equal to the marginal benefit of having that information. For example a voter employed in the telecommunications industry will have less to risk with fishery regulation than the voter employed in a fishery related occupation. Therefore, the former voter will expend fewer resources to gain information about fishery legislation than the latter. Each voter has relatively little influence on the outcome of the election.

Congress, in order to minimize transaction costs, is organized in comparable ways to a firm. To see why, it is necessary to examine the attributes of political decision making within a community. If unanimous votes were required in deciding legislation, few bills would be up for a vote. In this scenario, subtle variations in each individual's preferences would result in extensive bargaining (Black 1958). By electing legislators, each constituent reduces

transactions costs by choosing the candidate whose political position most closely resembles his or her own. Political organization can be explained with the same reasoning by which vertical integration of a firm is explained by theories of industrial organization.

There exist unique problems to political markets not found in ordinary commodity markets that are due to the structure of our political system. A constituents decisions are made at once, during the election, while market decisions are made when each economic choice presents itself. The representation of voters by elected officials is the political solution to this obstacle. Therefore, each voter must make a collective decision about his or her position on a number of issues, whether or not the voter finds all the issues to be relevant. Decisions made by voting are made by the entire community, not only by those members who are effected by each particular legislative issue. This leads to a second defect, the misrepresentation of agents in the political market. Each community member is allowed to make decisions regarding policy, not according to whether or not that person is effected by the legislation or the extent of its effect. (Stigler 1971)

It is difficult to distinguish why a congressman votes for a specific piece of legislation, so problems plaguing informal contractual agreements within congress include

imperfect observation and incomplete contracts. The incentives for casting a particular vote can be multiple and each member of Congress has 434 potential trading partners with which to enter into an agreement. Suppose that several legislators agree to support the each other's preferred bills, but those bills are scheduled for a vote at different dates. This process of deal making within congress, logrolling, is often conducted explicitly and results in ratification of bills that otherwise would not be approved (Tullock).

To exacerbate the situation, the non-simultaneity of congressional votes leads to difficulty in enforcing logrolling agreements. Once the vote is conducted on one member's bill, that member has little incentive to follow through with the agreed upon vote for subsequent bills. So, there is no explicit ex post incentive for the legislator to follow through on a logrolling agreement after the preferred bill is passed. However, this is a repeated game in which past results can effect the strategy of players in subsequent rounds. So, if one player fails to follow through on a previous voting agreement, the other participants may be reluctant to engage in future agreements with that individual. This constitutes the incentive for legislators to follow through with vote agreements (Weingast and Marshall 1988).

Chapter 2

LEGISLATIVE HISTORY OF THE OIL EXPORT BAN

2.1 Introduction

The twenty-two year ban prohibiting the export of Alaska's oil was the product of a tangled web of legislation. The ban was bred from the Export Control Act; a piece of cold war legislation that banned the export of materials deemed strategic to sustaining national security. The Alaska Export Ban was explicitly put into place prior to construction of the Trans-Alaska Pipeline. Amendments to the export control act reinforced the ban by explicitly referring to the oil produced from Alaska. Subsequent legislation prohibiting the export of Alaska's oil is replete and contained wording that further prevented foreign shipment of Alaskan oil. These laws include the Anti-Arab Boycott of Israel Act, the Outer Continental Shelf Act and, most significantly, amendments to the Export Administration Act.

The existence of the export control act effected several interest groups and became the subject of controversy for over a decade. The drive to lift the ban was led by Alaska's congressional delegation through the introduction of amendments aimed at lifting the export ban on their state's largest resource. Their arguments for lifting the ban were manifold and the team of Senators Frank

Murkowski and Ted Stevens and Congressman Don Young were successful in obtaining the go ahead to export their state's oil in 1995.

2.2 The Trans-Alaska Pipeline Act of 1973

The Alaska oil export ban came into existence as part of the compromise between the Federal Government and oil companies to authorize the rights-of-way for the trans-Alaska pipeline in 1973. Upon discovery of the largest known oil field in Alaska, Prudhoe Bay, it was determined that the only feasible means of transporting the oil was through a pipeline to the ice-free Port of Valdez. The chosen route passed through federal lands, which, together with new environmental assessment requirements, made the issue one of federal interest. Debate ensued over the shipment of the state's oil since it was subject to the mineral leasing act of 1920. Right-of-way had to be granted over federal land for the pipeline's construction and the mineral leasing act states that no minerals/fuel/gas may be exported which is transferred over federal land. John Saylor (Republican, PA) sponsored a bill "to provide that no crude oil transported over rights-of-way granted under the mineral leasing act of 1920 would be exported unless congress adopted a concurrent resolution in agreement with a

presidential finding that such exports were in the national interest."

The possible export of Prudhoe Bay oil also made the pipeline an issue of national security. The nation's oil supply would be more susceptible to shifts in international relations. The trans-Alaska Pipeline Act (PL 93-153) was passed amidst concerns of an Arab oil embargo resulting from the Arab-Israel conflict in the Middle East. In the Senate, Henry Jackson (D-WA) proposed an amendment prohibiting exportation of oil to "nail down any talk or discussion that this is simply a pipeline that will be used to export oil away from the United States" (Congressional Quarterly Almanac, 1973, p. 602). A Jackson amendment prohibiting exports unless the president found such exports "would not diminish the total quantity or quality of petroleum available to the United States," was adopted on July 12, 1973 by a 92-2 vote in the Senate. This amendment was reinforced by a second vote, adopted 86-0 on July 16, 1973, that empowered the Congress to override the president's decision to export oil with a simple joint resolution. The only close vote on the matter occurred on July 12, when an amendment sponsored by Walter Mondale (D-MN) was rejected 31-62. Mondale's amendment would have substituted for Jackson's July 12 amendment permission to export oil "if the

President found it 'essential to remedy an imminent threat to national security'" (op. cit., p. 603).

In the House, John Saylor (R-PA) introduced an amendment that prohibited export of oil transported over rights-of-way granted under the Mineral Leasing Act of 1920 unless the Congress adopted a concurrent resolution in agreement with a presidential finding that such exports were within the national interest. The amendment was adopted by voice vote on August 2, 1973. It was substantially stronger than the Senate version, since it effectively gave veto power to either house of Congress. In the conference committee formed to reconcile the differences between the Senate and House versions, the House language was adopted. The final bill was approved November 12, 1973 by a 361-14 vote in the House and on November 13, 1973 by the Senate on a 80-5 vote.

The prohibition on exportation of Alaska oil also meant that any oil transported from Alaska had to be transported under U.S. flags and with U.S. crews, the result of restrictions from the Maritime Act of 1920.[1] In the House, Glenn M. Anderson (D-CA) proposed an amendment that would require any Alaska oil exported to be carried on U.S. flag

[1] This is known in Alaska as the "Jones Act" since it was sponsored by Washington Senator Wesley Jones of Seattle. The act had the effect of eliminating Vancouver, British Columbia, as a competitor of Seattle in trade between Alaska and the states (Claus-M. Naske and Herman E. Slotnick, 1987, p. 97).

vessels. This amendment was rejected by a voice vote on August 2, 1973.

2.3 The Anti-Arab Boycott of Israel Act of 1977

The congress returned to the oil export ban in 1977 while considering how to deal with the Arab boycott against Israel and against firms trading with Israel (Congressional Quarterly Almanac, 1977, pp. 352-9). In addition to creating a boycott of trade with the Arab countries, the act introduced would prohibit the export of Alaska oil for two years except for exchanges with an 'adjacent foreign state' for convenience or when the President determined exports to other nations would 'have a positive effect on consumer oil prices.'

An amendment, the so-called "swapping proposal," sponsored by Stephen J. Solarz (D-NY) would have allowed exchanges with an 'adjacent foreign state.' Under this proposal U.S. East Coast refiners could buy Alaska oil and Japanese refiners could purchase oil from the Middle East, but the Alaska oil could be shipped to Japan and the Middle East oil to the East Coast. However, the House heard a substitute proposed by Stewart B. McKinney (R-CT) to prohibit exports of Alaska oil for two years. The McKinney substitute was adopted by voice vote on April 20, 1977. The House version of the bill was passed 364-43 later that day.

The Senate was more amenable to allowing exports of Alaskan oil, with the Senate bill under consideration containing no provision to that effect. Furthermore, an amendment by John A. Durkin (D-NH) to prohibit exports to Japan for two years was tabled (killed) in a 66-27 vote on May 5, 1977. Thus the major difference between the House and Senate versions was whether or not oil exports would be allowed. The conference committee adopted the House version, which prohibited exports of Alaskan oil except under the conditions specified in Solarz' swapping proposal. It was also decided that either house could veto a presidential recommendation to allow exports. Final passage of the bill came on June 10, 1977 with a 306-41 vote in the House, following a June 7, 1977 voice vote in the Senate. Thus, effectively, the oil export ban was extended for two more years.

2.4 The Export Administration Act of 1977

The 1969 Export Control Act was initially intended to protect strategic resources during the Cold War by restricting exports and was renewed several times. The 1977 Export Administration Act, which extended its predecessor by an additional two years, included a provision that "prohibited the export of Alaskan oil for two years, except for exchanges with an "adjacent foreign state" for

convenience or when the president determined exports to other nations would "have a positive effect on consumer oil prices." Under what was called the swapping procedure, U.S. East coast refiners would buy Alaskan oil and Japanese refiners would purchase crude from the middle east, but Alaskan oil would be shipped to japan and the east cost refiners would receive the Middle East oil. The act required the President to report to Congress before allowing such exports and provided that either house could stop the action by passing a resolution of disapproval within sixty days after receiving the president's message. The amendment was defeated by roll-call vote of 61 to 340. Proponents argued that the swap would benefit the US by lowering transportation costs, improve the balance of trade, improve US relations with Mexico and ease the dependence on the Panama Canal. The amendment's opponents argued that the Alaskan oil exports would be countered by Mexican oil imports and that any improvements in efficiency due to lower costs would be absorbed as oil company profits and would not benefit consumers.

2.5 The Export Administration Act of 1979

The next major consideration of the oil export ban took place in 1979 with the reauthorization of the Export Administration Act of 1969 (PL 91-184), which extended a set

of "cold war" restrictions on trade with communist bloc nations (Congressional Quarterly Almanac, 1979, pp. 300-305). The reauthorization (PL 96-72) prohibited exports of Alaskan oil unless 1) an exchange would not diminish the total quantity of oil in the United States, 2) at least three-fourths of the savings were passed on to consumers, 3) any contract could be canceled if crude oil supplies were threatened or diminished, and 4) an exchange was necessary to protect the national interest. Senator Ted Stevens (R-AK) proposed an amendment that would drop the requirement that three-fourths of the savings accrue to consumers, a requirement he characterized as "impossible." Donald W. Riegle, Jr. (D-MI) countered, saying "the only people who stand to gain from the Stevens proposition are the state of Alaska, at the expense of the other 49 states, and the oil producers" (op. cit., p. 302). The Senate tabled the Stevens proposal by a vote of 52-30 on July 21, 1979. However, an amendment by Thomas F. Eagleton (D-MO) that would require both houses of congress to override a presidential decision to allow exports under the four provisions was supported by a voice vote after a Riegle motion to table was rejected by a vote of 34-48. In the House, an amendment by William E. Dannemeyer (R-CA) was rejected on September 24, 1979 by a vote of 61-340. The amendment would have allowed export of Alaska oil to Japan

in exchange for oil imported from Mexico unless "the major oil exporting countries have imposed severe restrictions on the export of oil to the United States" (op. cit., p. 304).

The conference report, filed September 27, 1979, prohibited exports of Alaska oil except for swapping arrangements where the four conditions outlined above were met. The Senate approved the conference bill by voice vote on September 27, 1979, and the House followed with a 321-19 vote on September 28, 1979. President Carter signed the bill September 29, 1979, just one day before the existing authority expired. As the conditions of the swapping proposal could not be met, the export ban was effectively continued.

2.6 Lifting the Oil Export Ban in 1995

Alaska's congressional delegation worked doggedly since construction of the Trans-Alaska Pipeline to show that exporting their state's oil would result in greater economic efficiency. Oil industry officials and contracted research firms testified before both the Senate and House about the merits of lifting the Export Ban. Despite their efforts, the ban remained in place until the balance of power shifted to Alaska's favor upon election of the 103rd Congress.

The Republican sweep of Congress during the mid-term November 1994 election brought to power two Alaskans as

chairs of important committees. Don Young was charged with chairing the House Resource Committee and Frank H. Murkowski assumed chairmanship of the Senate Energy and Natural Resources Committee. Furthermore, their ascendancy was preceded by a Department of Energy report which found that lifting the ban would create an estimated eleven thousand new jobs and raise GDP by a half-billion dollars by the end of the decade (Department of Energy, March 1990).

Murkowski introduced a bill to lift the export ban (S395) on February 13, 1995 in the Senate. Given the Energy Department's report, the bill was supported by the Clinton administration. The main opposition in the Senate was Patty Murray (D-WA), who attempted a filibuster to block consideration of the bill on May 15, 1995. Murkowski agreed to bring up consideration of a second bill which did not contain language that the Clinton administration would support. This ended Murray's filibuster attempt since the bill would be vetoed even if it passed. Murkowski then brought a vote to table the second version of the bill. It was tabled in an 80-6 vote on May 15, 1995, effectively killing the second bill and any chance that Murray would filibuster the first bill. On May 16, 1995, Murkowski's first version of the bill passed 74-25 in the Senate (Congressional Quarterly Weekly, May 20, 1995, p. 1416-1417). Murkowski stated after the vote:

> "For more than two decades [Alaskans] have been discriminated against by this illogical prohibition that has prevented Alaska from exporting one of its most important resource commodities. Finally, Alaska is on the verge of being treated as a full state" (Anchorage Daily News, Wednesday, May 17, 1995, p. 6.)

However, the bill passed by the Senate included a provision that exempted certain oil companies from paying royalties if they were operating in waters deeper than 200 meters in the Gulf of Mexico. The provision was placed there by J. Bennett Johnston (D-LA). Johnston claimed it was there to encourage oil production in deep water where it was presently uneconomic to produce known reserves. It would be the major source of controversy in the passage of the bill.

On July 24, 1995, the House followed the Senate by passing its own version of the bill (HR70) in a 324-77 vote. This was followed by a voice vote on July 25, 1995 in which the House substituted the text of its own bill for the text of the Senate bill to send the bill to conference committee. The major difference between the House and Senate versions was with the Johnston royalty exemption. This was opposed in the House by George Miller (D-CA), who on July 25, 1995 proposed a non-binding resolution to instruct the conferees to insist that the royalty exemption not be included in the final bill. The resolution passed 261-161. Another amendment by Miller, that would allow exports only if the

oil was in excess of that which could be used in Washington, Oregon, California, Nevada, or Arizona (not Alaska!), was also rejected 95-310 on July 25, 1995. Also rejected on July 25, 1995 was an amendment by Sam Gejdenson (D-CT) which would have required that U.S. flag vessels be used to export oil in all cases. (The bill under consideration allowed non-U.S. vessels when U.S. vessels were not available.) This amendment was rejected 117-278.

The conference committee met with the House members operating under the Miller instructions to demand removal of the royalties exemption in late September and early October, 1995. Representing the House were Don Young, George Miller, and Ken Calvert (R-CA). Both Young and Calvert supported the royalty exemption, with Young arguing that House members did not understand what they were voting on in the Miller amendment. The conference bill was reported on October 9, 1995 with the royalty exemption included. On November 8, 1995 the House began consideration of the conference bill. Miller again introduced an amendment to strip the royalty exemption from the bill. This amendment failed 160-261. The final bill was approved by the House on November 13, 1995 with a vote of 289-134. The Senate approved the conference committee bill on November 14, 1995 with a 69-29 vote. President Clinton signed the bill into law on November 28, 1995. Shortly thereafter, British Petroleum (the major

Alaskan oil producer) announced that it would begin its first exports, about four tanker-loads per year, to Taiwan in June, 1996.[2]

2.7 Interest Group Competition

The final bill had three primary effects: it lifted the oil export ban; it provided for a royalty exemption in deep waters in the Gulf of Mexico; and it provided that exports would mainly, though not exclusively, be transported by U.S. flagged vessels. The first two clearly benefited crude oil producers. Lifting the oil export ban would, however, cause prices paid by oil refineries to rise and consequently would be opposed by west coast refineries. The royalty exemption, on the other hand, would increase the supply of oil and be supported by both crude oil producers and oil refineries. While the shipping component clearly benefits the U.S. maritime industry, that industry failed to achieve what it desired in the Gejdenson amendment. So overall the maritime industry lost a share of the market. The maritime industry should oppose the legislation excluding the Gejdenson amendment. The final affected group is the environmentalist organizations. Miller's opposition to the royalty exemption was in part a desire to reduce oil drilling in the Gulf of Mexico. Supporters of this

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[2] *Fairbanks Daily News-Miner*, May 30, 1996, p. 1.

exemption such as Johnston and Young pointed out that the exemption was designed to be revenue neutral (a point challenged by Miller, who claimed it would cost taxpayers $12.9 billion), since it would only apply to wells which would not be economic without the royalty exemption. Also, the environmentalists clearly drew a connection between lifting the ban and demands for opening the Arctic National Wildlife Refuge (ANWR) for oil drilling.[3] "Once they build up demand overseas, they'll be coming back to us to say we've got to [open ANWR]," argued Patty Murray in the Senate. Thus the environmentalists are expected to oppose lifting the oil export ban.

[3] For example, the Senate budget resolution (S. Con. Res. 13) included a proposal to lease approximately eight percent of the 19 million acres of ANWR, estimated to bring in $1.4 billion in revenues to the federal government over five years. See Congressional Quarterly Weekly, May 20, 1995, p. 1416-1417.

Chapter 3

THEORETICAL MODEL

The theoretical model is based on the seminal work by Gary S. Becker (1983). In Becker's model, the policy space is defined as a single dimension (Keith Poole and Thomas Romer 1985), which Becker takes to be the per member dollar value of the transfer either to or from the interest group. This is referred to as the policy, and denoted as x.

Let there be n interest groups, and assume without loss of generality that the interest groups are ordered in policy space according to their preferences. In particular, let the preferred policy of group i be denoted as x_i^o, and the ordering be

(1) $$x_1^o \leq x_2^o \leq \ldots x_{n-1}^o \leq x_n^o .$$

Assume that the cost to group i of a policy x depends upon the distance between the preferred policy x_i^o and the actual policy x:

(2) $$C_i = \begin{cases} c_i\left(x - x_i^o\right) & x_i^o < x \\ 0 \quad \text{for} & x_i^o = x \\ c_i\left(x_i^o - x\right) & x_i^o > x \end{cases}$$

where $c_i' > 0$ and $c_i'' > 0$. Thus policy costs are symmetric, positive and convex, with zero policy costs if the adopted policy is exactly what the group prefers.

Assume that each interest group is able to exert pressure on the government to affect policy. In particular, let the adopted policy be

$$x = x_0 - \sum_{i=1}^{m} x_i + \sum_{i=m+1}^{n} x_i \,, \tag{3}$$

where x_0 is the initial policy level, x_i is the effective political pressure applied by group i, and m is the highest index of those groups attempting to push the policy to the left of initial policy. All of the n-m groups to the right of m attempt to push the policy to the right and all the m groups, those to the left of and including m, attempt to push the policy to the left. Which group is designated as m is endogenous and will depend upon the initial policy x_0 as well as the relative strengths of the n interest groups. See figure 1.

Let the cost of effective political pressure be

$$W_i = w_i(x_i), \tag{4}$$

where $w(0)=0$, $w_i' > 0$, and $w_i'' > 0$. Thus interest group i chooses x_i to minimize the sum of the policy costs and political pressure costs. Becker (1983) shows that the solution to this problem, assuming all other groups have chosen political pressure levels x_j^* is to choose political pressure x_i^* such that the objective function

$$C_i(x) + w_i(x_i) = TC_i \qquad i = 1, \ldots, n \tag{5}$$

is minizized, e.g.,

$$(6) \qquad -C_i'(x)+w_i'(x_i)=0, \qquad i = 1, \ldots, n$$

This states that the ith interest group equates marginal policy costs with marginal political pressure costs which yields

$$(7) \qquad -C_i'\left(x_0-\sum_{i=1}^{m}x_i+\sum_{i=m+1}^{n}x_i\right)+w_i'(x_i)=0, \qquad i = 1, \ldots, n.$$

The testable hypothesis concerns how the optimal political pressure level x_i^* is related to the optimal political pressure level x_j^* for other interest groups. Totally differentiate (7) for some $i > m$:

$$(8) \qquad \left[C_i'(x)+w_i'(x_i^*)\right]dx_i^*-C_i'(x)\sum_{j=1}^{m}dx_j^*+C_i'(x)\sum_{\substack{j=m+1\\ j\neq i}}^{n}dx_j^*=0$$

Thus

$$(9) \qquad \frac{\partial x_i^*}{\partial x_j^*}=\frac{-C_i''(x)}{\left[C_i'(x)+w_i'(x_i^*)\right]}<0 \quad i, j > m \text{ (or } i, j < m),$$

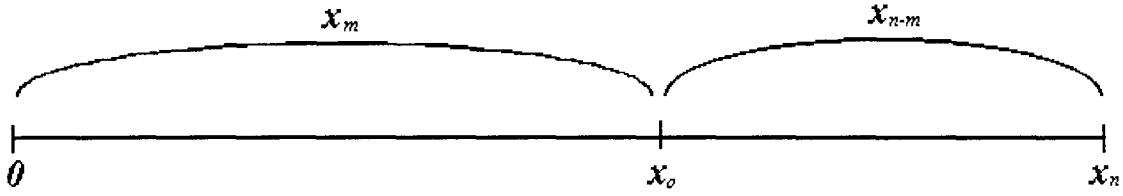
and,

$$(10) \qquad \frac{\partial x_i^*}{\partial x_j^*}=\frac{C_i''(x)}{\left[C_i'(x)+w_i'(x_i^*)\right]}>0 \quad i > m, \ j < m \text{ (or } i < m, \ j > m),$$

see figure 3.2 for pictorial descriptions of (9) and (10).

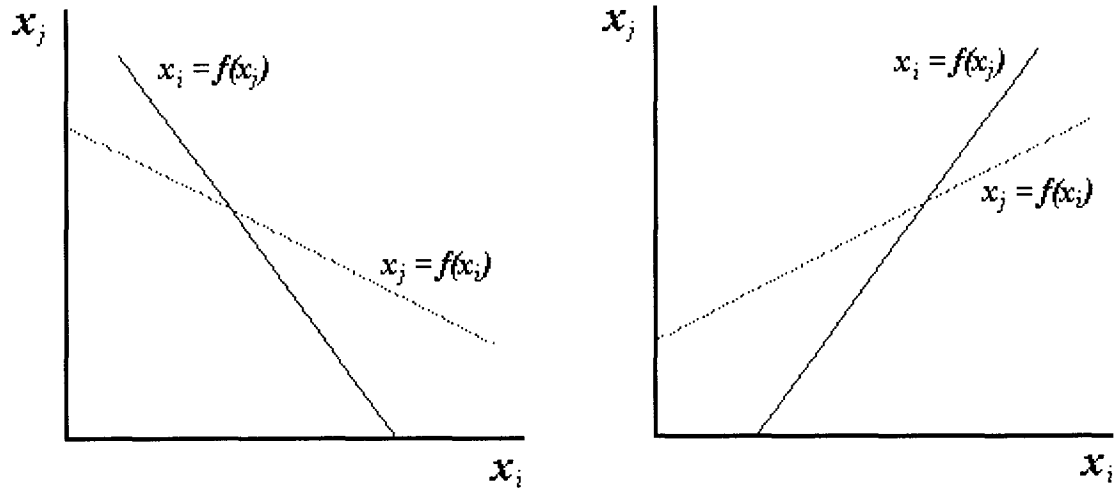
Equations (9) and (10) are simply the slopes of the reaction functions in x_i and x_j space. These equations state that an increase in political pressure by a group on the same side of an issue as interest group *i* will cause interest group *i* to reduce its level of political pressure. That is, the interest group will freeride on the efforts of the other group. Conversely, an increase in political pressure by an interest group on the opposite side of an issue from group *i* will cause group *i* to increase its level of political pressure. This is the familiar positive sloped reaction function of Becker (1983) for competing interest groups.

Figure 3.1 Graphical representation of interest group policy.



Existing policy, x_0 resides at some point along x_n possible policies. All interest groups with policies, x_m attempt to push the existing policy to the left of x_0 and all interest groups with policies x_{n-m} attempt to push the existing policy to the right of x_0.

Figure 3.2 Interest group reaction functions.



The reaction functions, for interest groups x_i and x_j, with slopes (9) and (10) depicting homogeneous and competitive policy preferences.

Chapter 4

ECONOMETRIC MODEL SPECIFICATION

4.1 Unexplained Ideology

Much has been made in the literature about whether there is slackness in the performance of politicians (Kau and Rubin 1982, Kalt and Zupan 1984, Peltzman 1984, John R. Lott and Michael L. Davis, 1992). Each congressman's unexplained ideology is measured by the residuals obtained from Zellner's Seemingly Unrelated Regression estimates of that congressman's observed ideology.

To measure observed ideology two voting indexes were used, the League of Conservation Votes (LCV) and the National Security Index (NSI). The LCV measures the percent a congressman votes in a manner desired by the League of Conservation Voters, that is, a high rating would reflect a tendency to vote for conservation issues. A high NSI rating suggests the congressman votes in favor of issues relevent to the American Security Council. The NSI was chosen to represent the argument that keeping the export ban was to maintain national security (U.S. Department of Energy, 1990, p. 28).

All congressmen elected in the 1994 elections were used in the contributions equations, and all congressmen who voted, or paired with another absent voter, or announced a position prior to the vote, in the voting equations. This

means that the votes of newly elected congressmen were included in the data set. Ratings indexes, such as LCV and NSI, are computed using votes from previous years, so there is no ratings data available for newly elected congressmen.

Incumbent congressmen are distinguished from freshman congressmen with a voting index. Since no observations on the LCV and NSI indexes for newly elected congressmen exist, a zero is substituted for the residual corresponding to the index for newly elected congressman. A dummy variable, FRESHMAN, is included and is equal to one for newly elected congressmen and zero otherwise. So, the mean effect for a newly elected congressman's unexplained (i.e., unobserved) ideology is measured by the variable, FRESHMAN.

Let the dependent variable, x_{ik} represent the ideology rating, as determined by the League of Conservation Voters (LCV) and by the National Security Index (NSI), and observed for politician k so the specification for a congressman's ideology is:

(9) $x_{ik} = \pi_i + \varphi_i X_{ik} + \psi_i P_{ik} + \mu_i C_{ik} + e_{ik}$, i=1,...,I k=1,...,K

where K is the number of observations (i.e., 344 incumbent representatives) and I is the number of ideology ratings to be estimated (i.e. 2 ratings, LCV and NSI). The independent variable P_i takes the value of one when the representative is a Republican and zero when the representative is a

Democrat. The variable, C_i is a matrix of constituent demographic measures. The matrix variable X_i reflects percentage of the population belonging to environmental groups and employed in the merchant marine, oil production and oil refining industries.

After The estimated residuals for the LCV and NSI are renamed RLCV and RNSI and are measures of the *i*th legislator's unexplained ideology.

4.2 Campaign Contributions

Let y_{ik} denote the level of campaign contributions observed by interest group *i* to politician *k*. The theoretic model suggests the following econometric specification for predicting y_{ik}:

$$(10)\quad y_{ik} = \alpha_i + \sum_{\substack{j=1 \\ j\neq i}}^{n} \beta_j y_{jk} + \gamma_i X_{1k} + \delta_i X_{2k} + \Phi_i Z_k + e_{ik} ,$$

$i = 1,\ldots,n \qquad k = 1,\ldots,K$

where K is the number of observations (i.e., 435 representatives) and n is the number of interest groups (i.e., 4 groups). For interest group *i*, the matrix X_{1k} represents observations on costs identified with the ban measured by industry concentration within each *k*th representative's district e.g., demand measures such as propensity for the congressman to vacillate on policy

(Gardner 1987). The matrix X_{2k}, represents observations on political pressure costs expressed as constituent demographics, e.g., group size of social and ethnic characteristics (Peltzman 1976, 1984) for interest group *i*. Finally, Z_k is a matrix of variables identifying differences in the politicians (Stratmann 1991, 1992a, Chappell 1981, 1982, Jacobson 1980, Weingast and Marshall 1988). As long as there exist X_{1i} or X_{2i} variables that are distinct between the interest groups, the equations in (10) are identified. As it is likely that the errors in equation *i* are correlated with the errors in equation *j*, the appropriate estimation procedure is three-stage least squares.

The hypothesis tests are with respect to the β_{ij} parameters. From equations (7) and (8) these parameters should be positive if competing or negative if cooperating. John R. Boyce (1995) has also shown that by taking into account the majority rule requirements in congress, it is possible to detect more sophisticated behavior such as Stackelberg relationships. In this case, the Stackelberg leader will have $\beta_{ij} = 0$ and the followers will behave according to (7) and (8).

4.3 Congressional Votes

In addition, if there are votes on particular bills affecting the various interest groups, the contributions should have some effect upon the votes. The model is of the following form:

$$(11)\quad v_{lk} = \kappa_l + \sum_{i=1}^{n} \lambda_{il}\hat{y}_{lk} + \eta_l X_{1l} + \theta_l X_{2l} + \varpi_l Z_k + e_{lk} \qquad l=1,\ldots,V \;\; k=1,\ldots,K$$

where $\hat{y}_{jk}$ is the predicted contribution from (10) and v_{jk} is the vote taken by congressman k on vote l=1,…,V. The expected signs of the λ_{ij} correspond to whether or not the group favors or opposes the legislation, that is, whether group $j \lessgtr m$.

Chapter 5

EMPIRICAL RESULTS

5.1 Introduction

The empirical results are based on an analysis of contributions to members of the U.S. House of Representatives by four interest groups, oil producers, oil refineries, the merchant marine, and environmental organizations, and on six votes in the U.S. House of Representatives in 1995.[1] The House votes were chosen because they offer a greater level of variation in the explanatory variables and their sample size is large enough to lend some confidence to the parameter estimates. The interest groups are defined broadly to include any firm with an SIC code in its respective industry as they are listed in the Dun's Business Rankings (1984).[2]

Table 1 shows statistics for contributions by the interest groups to congressmen elected in the 1994 elections. The distinction between oil producers (CRUDE OIL) and oil refineries (REFINERY) is the most tenuous since there are a number of vertically integrated firms. Those

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[1] Empirical results for the 1979 Dannemeyer amendment and final bill are not included since these voters were not close. Also, the estimation results for the vote to bring the 1995 conference bill to the floor, HR 256, are not reported as the vote was not close and primarily occurred along ideological lines. All results are available upon request.

[2] The groups included in each category are available. There are 35 merchant marine PACs, 95 oil company PACs, 10 refineries PACs, and 26 environmental organization PACs

refineries owned or controlled by oil producers may support legislation otherwise not supported by independent refineries. This contrary position of vertically integrated refineries is brought about the refinery's accountability to it's parent company. The contribution data covers the period from January 1, 1993 to December 31, 1994; it was the most recent period for which contribution data were available when this project began.[3] Use of this data is consistent with the Cournot assumption that an interest group's contribution decision is based upon the other groups' contributions from the previous period. Data for all 435 congressmen who were elected to the House of Representatives in the 1994 elections was used. In the contribution equations, a successful challenger was treated in the same way as a reelected incumbent.[4]

Table 1 shows statistics describing the data used in the analysis. The oil producers (CRUDE OIL) and merchant marine (SHIPPING) were the largest contributors, with congressmen averaging about four-thousand dollars each from these interest groups. The contributions by oil refineries

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[3] Contribution data is now available for the period January 1, 1995 through December 31, 1995. However, the largest share of contributions are made during the period just prior to an election (e.g., Lawrence Rothenberg and Noland McCarty, 1996), so using data during the first year of a two-year term would likely bias downwards the observed level of contributions. The 1993-1994 data represents the major recent aid given to congressmen (and challengers) by the interest groups.

[4] Below, this assumption is relaxed.

(REFINERY) and environmental organizations (GREEN) were substantially smaller, averaging around three-hundred dollars per congressman. Republicans took more money on average from oil producers and refineries, and less money on average from the merchant marine and environmentalists. Oil producers contributed to the most congressmen, with only seventy-eight congressmen elected in 1994 receiving zero contributions from crude oil producing companies. In contrast, environmentalists contributed to only seventy-five congressmen. Of these, all but 14 were Democrats.

5.2 Estimating the Unexplained Ideology

Table 2 reports the regression results for the ideology indexes against various constituency and congressman-specific variables. The residuals are used as a measure of the "shirking" or unexplained ideology of the congressman. As each independent variable is used in both ideology equations, seemingly-unrelated regression was used to correct for possible correlation in the error terms. This allows the number of observations to be equal (344) since anyone missing either or both indexes was omitted from the regression. As explained previously, all newly elected congressmen were omitted from both of these regressions due to the nonexistence of ideology ratings for these representatives. Below, they are given an unexplained

ideology score of zero, and marked by an additional dummy variable FRESHMAN to separate out the effect of unexplained ideology scores of zero owing to the unobserved unexplained ideology scores.

As is usual in previous regression models attempting to explain the voting indexes, the constituency variables plus the party of the congressman explain about seventy percent of the variation in the indexes (Kalt and Zupan 1990). If the congressman is a Republican (REPUBLICAN =1), his LCV index drops about forty points and his NSI index increases by about forty points relative to Democrats. The liberal-conservative ideology of the constituency also affects the index significantly. For every one percent increase in the vote for Clinton (CLINTON) the LCV index rises by a point and the NSI drops by a point. Refinery employment is the only significant employment measures. An increase in refinery employment (REFEMP) decreases the LCV index and increases the NSI index for the congressman. Below, the estimated residuals are denoted as RLCV and RNSI, respectively.

5.3 Contributions Equation Estimation

Two sets of regressions were run on the contribution and voting equations. Three-stage least squares was used in the first round to estimate the contributions equations.

For the second series of regressions, two-stage Tobit estimation procedure was used on the contributions equations. The estimated value of contributions obtained from these procedures are later used in the congressional voting equations.

The contribution equations, 3.9 and 3.10, were estimated to account for the correlation among contributions between various interest groups. The control variables are the employment shares of the respective industries (EMPLOY and EMPLOY2). This data is the employment share and employment share squared of the industry for whom the contribution equation is estimated. For the matter of contributions by environmental organizations, in lieu of the employment share, the number of adults per 1000 registered as members in any of six major environmental organizations was used. These variables identify the system. Following Stratmann (1991), this equation is estimated using a quadratic (e.g., EMPLOY and EMPLOY2) relationship between the contributions to a congressman by an interest group and the relative size of that group in the congressman's state.[5,6] A bell-shaped contribution equation is expected,

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[5] District data on employment by sector was not available. These are expressed as the state's share (percent) of employment attributed to each sector

[6] The environmental data is statewide per capita membership in six major environmental organizations (Audobon Society, Environmental Defense Fund, Friends of the Earth, Sierra Club, Wilderness Society, and World Wildlife Society.) Data courtesy of Mark Zupan.

implying the linear term is positive and the squared term is negative in sign. Congressmen who have a large share of a specific industry in their state are already responding to the pressure that group exerts as a voting force (e.g., Denzau and Munger, 1986). Conversely, a congressman with a minuscule share of the industry is not likely going to support the industry even with a large contribution. Furthermore, as only a majority is required to pass a bill, the expectation is that contributions are concentrated in the center.[7]

Other control variables include the party of the congressman (REPUBLICAN), the vote in the congressman's congressional district for Bill Clinton in the 1992 presidential election (CLINTON), the margin of victory of the congressman in the 1994 elections (MARGIN), whether the congressman is a member of the House Resources Committee (HRESOURCE) indexed as a one if the congressman is a member of the Committee), the per capita BTU consumption per year from petroleum sources in the Congressman's state (OILBTU), median family income (INCOME) in the district, the percent of the district that lives in a suburban area (SUBURB), the

[7] This is not entirely the case, since legislators do more than vote on a bill. They also offer support by sponsoring a bill, speaking out for a bill, or engaging in log-rolling agreements to pass a bill. Thus Stratmann (1992a) estimates a switching regression model to capture the median legislature phenomenon, and estimates a U-shaped quadratic on the right-hand side regression to capture the services effect.

unobserved ideology of the congressman (RLCV and RNSI), and the FRESHMAN variable.

5.3.1 3SLS Estimation of the Contribution Equation

Table 3 contains the parameter estimates for the three-stage least squares estimation of the contribution equation. Of the twelve reaction function slope coefficients, all but two are statistically significant and all twelve have the expected sign. That is, these results indicate that the oil producers faced opposition from the merchant marine, oil refineries, and environmentalists, while the latter three groups made contributions consistent with the theoretical predictions of equations (7) and (8).

None of the employment share variables is statistically significant. This is a problem since these variables were used to identify the system. Republicans get significantly higher contributions from oil producers, but significantly lower contributions from the other three interest groups. Members of the House Resources committee received significantly higher contributions from merchant marine, oil refineries, and environmentalists, but not from oil producers. Congressmen with a lower margin of victory in the 1994 election received lower contributions from everyone but the oil producers. Congressmen from districts with higher median family income received higher contributions

from all groups but the oil producers. The only interest group more likely to contribute to freshmen was the oil producers.

5.3.2 Two-Stage Tobit Estimation of Contributions Equations

As the contributions a congressman receives are bounded from below, a number of previous researchers used a Tobit model to estimate contributions (e.g., Chappell 1981, 1982, Stratmann 1991). As contributions by other interest groups are jointly determined, a two-stage method of estimating the equation is used. In the first stage, a Tobit reduced form model of the contributions as a function of all of the exogenous variables in the system is estimated. At stage two, the predicted values of the contributions from the reduced form equations are used as instruments for the contributions of the other interest groups' contributions.

Table 4 presents the results for the two-stage Tobit estimation of the contributions equation. The significance of the contributions variables drops substantially when using the two-stage Tobit model. Only three of the twelve contributions coefficients are significant in this case. The signs are as expected in all but the oil refineries equation, where the signs are opposite as expected for SHIPPING and CRUDE OIL, though insignificant. Again, with

these two exceptions, the signs are consistent with the theoretical model.

In the Tobit model, the employment share variables are significant in two equations, SHIPPING and CRUDE OIL. For SHIPPING, the bell-shaped relationship between contributions and employment share is found. However, for CRUDE OIL, there is simply a positive relationship between oil employment and the contributions. The remaining variables in the system behave primarily as they did in the 3SLS equation estimates.

5.4 Congressional Votes

There were seven votes recorded by teller in the House. All votes were used except House Resolution 256 (HRES256), which was the vote to move the conference bill (FINAL) to the floor for consideration.[8] For each of the votes, a "yes" vote is recorded as a one and a "no" vote is recorded as a zero. Following the standard convention, paired and announced votes are included as if they were cast votes in the intended direction. The explanatory variables include estimates from the three-stage least squares (or two-stage Tobit) contributions equations, similar constituency variables as in the contributions equations, and measures of unobserved ideology for the congressman regarding environmental and national security issues.

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[8] That vote did not have nearly the significance of the remaining votes, and was generally along party lines.

5.4.1 Probit Estimation of Voting Model Using 3SLS Contribution Estimates

Table 5 contains the probit estimation results for each of the six votes. The only two amendments which were significantly influenced by interest group competition are the two amendments by George Miller to strip the oil royalties exemption from the final bill. Both amendments were opposed by legislators who took contributions from the oil producers and from the refineries. That both groups would oppose the bill is consistent with lobbying efforts during the debate over the legislation.

The ideology variables seemed most significant in explaining the votes. Republicans and those legislators with high unexplained NSI indexes (RNSI) supported the House bill and the final bill and opposed each of the amendments. Congressmen from districts with strong Clinton support in 1992 and with high median family incomes voted against the House and final bills and for the amendments. The only interest group competition variable that is significant is the OILBTU variable which measures the amount of energy consumption per capita from oil. This variable has the same signs as the RNSI and REPUBLICAN variables.

5.4.2 Probit Estimates of Votes Using Two-Stage Tobit Contribution Estimates

Table 6 contains the estimates of the voting equations when the Tobit estimates are used as instruments for the contributions. This estimation provides considerably more support for the interest group competition hypothesis. In three of the six votes, the fitted contributions by the four interest groups are statistically significant. The three non-significant voter were those in which only one of the groups gained from the amendment (e.g., US FLAG affects shipping primarily and the two ROYALTY votes affect environmentalists and oil producers primarily). The only group for whom contributions did not seem to affect a vote were the environmentalists. The merchant marine and oil refineries opposed the House bill and final bills and the oil producers supported them, as expected. The oil producers also opposed the EXCESS amendment and the two ROYALTY amendments. The only odd result was that the merchant marine supported the ROYALTY2 amendment which is unexpected since the merchant marine was not effected by the amendment.

The REPUBLICAN, RNSI, and CLINTON variables behaved as they did when 3SLS instruments were used. The result of the FRESHMAN variable is intriguing when two-stage Tobit instrument is employed. The variable was only significant (and positive) in the ROYALTY1 estimation when 3SLS

estimates were applied. However, when using the two-stage Tobit instruments, a FRESHMAN variable with the opposite sign of the REPUBLICAN variable is produced. Under this analysis, the freshmen congressmen, who are mainly Republicans, voted against the party lines on most of these issues.

None of the bills were supported by environmentalists according to the contributions data, so an alternate premise is set forth that environmentalists produce pressure through direct means rather than through campaign contributions. So, the probit equations include the variable ENVMEMB which is the statewide membership per one thousand adults in six major environmental organizations. Table 7 shows the results. The ENVMEMB variable is significant with the expected sign in six of the seven votes. The only vote where it is insignificant is the ROYALTY1 vote, giving credibility to Congressman Don Young's statement that members of the House were confused about the issue. Thus it appears that environmentalists did affect the votes, though not by campaign contributions. However, when the variable ENVMEMB is included, the significance of the contributions variables decreases. Both cases with REFINERY significant in Table 6 are no longer statistically significant in Table 7, though the signs remain as in Table 6.

CHAPTER 6

CONCLUSION

This research developed and tested a model of interest group competition between a small number of highly organized interest groups. The basic theoretical model follows Becker's (1983) contribution by specifying and estimating the reaction functions for the level of contributions for the interest groups. The testable hypothesis is that groups who compete have positively sloped reaction functions and groups who cooperate have negatively sloped reaction functions.

The empirical application pertained to legislation aimed at lifting the Alaska oil export ban. Six votes during 1995 were analyzed along with the contributions to politicians during the 1993-1994 election cycle. A three-stage least squares and a two-stage Tobit model was used to estimate the slopes of the reaction functions in the contributions equations. The results using the three-stage least squares model were highly encouraging. Evidence of cooperation among those interest groups opposed to lifting the Alaska oil export ban and evidence of competition between these groups and the crude oil producing companies, who stood to gain from lifting the ban. The evidence using the two-stage Tobit model was less convincing. Out of twelve coefficients on the reaction function parameters,

only three were significant, though all but two had the expected sign.

In regards to the probit estimation of six votes on various aspects of the oil export ban during 1995, consistent evidence exists that oil producers' contributions affected the votes in the direction expected. Results were mixed with regard to the other three interest groups. Using the three-stage least squares model, oil producers and oil refineries contributions affected votes in the same direction on the ROYALTY1 and ROYALTY2 amendments.

By using the Tobit instrumental variables results, the estimates were improved. Environmentalists' contributions were generally insignificant, suggesting that contributions are a minor tactic used by environmentalists to influence legislation. This was supported by the results in Table 7 which included the relative size of the environmental organizations within states. That variable was significant in six of the seven regressions with the expected signs. Merchant marine contributions behaved generally as expected in the final bills. This supports the reaction function model of interest group contribution, and when using the Tobit instrumental variables, support for the hypothesis that the contributions affected policy is provided.

A number of caveats are in order. The empirical model tests the aggregate effect of all other interest group

pressure on one group's contributions. In terms of the theoretical model, this is represented by a total differential with respect to the *i*th interest group. However, the theoretical model derived in Chapter 3 holds *n*-2 groups' pressure constant and specifies a change in the *i*th interest group's pressure as a result of change in pressure by the *j*th interest group, which is represented in the theoretical model by the partial derivatives in 3.9 and 3.10. This disparity prohibits support of the theoretical model with the empirical results.

Varying interest groups may have several different policies about which they are concerned and contributions may have been directed at influencing other bills. For example, major concerns for environmentalists during this time period included reauthorization of the Superfund legislation and the Endangered Species Act. This may have effected estimates of the reaction function slopes.

Additionally, the weakness and inconsistency surrounding the results in both estimates of oil refinery contributions coupled with the appearance of competing interests among oil refineries suggest that further research regarding this variable is in order. Defining oil refineries as two unique interest groups, independents and vertically integrated, may yield more encouraging results in estimating the contributions equation.

Evidence was found, however, that politicians, at least, are able to distinguish between policies and their affects on interest groups. For example, contributions by oil refineries could affect votes in the same direction as contributions by oil producers or in the opposite direction, depending upon whether the interests of both were being fulfilled by the amendment. It is also well known that if there are multiple dimensions to the policy space then there may not be a unique equilibrium (Mueller 1989). In one sense, the fact that the policy changed only after Republicans gained control of Congress supports the notion that agenda dictates outcome. The findings of this study does not diminish support for this view. What is supported, however, is that given the agenda of the 104th Congress, the outcome was influenced by interest group competition. The data seems to confirm the economic theory of interest group competition.

TABLES

Table 1: 1993-1994 Contributions by Interest Groups to US House of Representatives

House

[a]NAME	N	MEAN	ST.DEV.	MIN.	MAX.	MEDIAN	[b]# ZEROS
SHIPPING	435	3478.6	5460.5	0	33000	1500	150
CRUDE OIL	435	4162.6	5021.6	0	38850	2500	78
REFINERY	435	374.7	557.9	0	4250	0	263
GREEN	435	299.9	1083.6	0	8910	0	360

Republicans

[a]NAME	N	MEAN	ST.DEV	MIN.	MAX.	MEDIAN	# ZEROS
SHIPPING	231	2173.2	4379.6	0	32020	500	108
CRUDE OIL	231	4831.1	4651.4	0	31200	3750	30
REFINERY	231	452.8	568.2	0	4250	0	118
GREEN	231	115.4	660.9	0	6570	0	217

Democrats

[a]NAME	N	MEAN	ST. DEV.	MIN.	MAX.	MEDIAN	# ZEROS
SHIPPING	204	4956.8	6154.8	0	33000	2500	42
CRUDE OIL	204	3402.2	5323.3	0	38850	1500	48
REFINERY	204	286.3	533.6	0	2750	0	145
GREEN	204	508.8	1390.3	0	8910	0	143

[a] Includes only congressmen (incumbents and challengers) elected in 1994 elections.
[b] Number of congressmen elected in 1994 receiving no contribution from each interest group.

Table 2: Seemingly-Unrelated Regression Estimation of *LCV* and *NSI* Indexes

	League of Conservation Voters Index LCV)	National Security Index (NSI)
Variable	**Coefficient (t-ratio)**	**Coefficient (t-ratio)**
PARTY	-40.262 ***(-14.460)	39.541 ***(13.791)
INCOME	0.6946 ***(3.855)	-0.1147 (-0.618)
SHIPEMP	741.59 (0.790)	-283.55 (-0.293)
OILEMP	60.908 (0.142)	35.709 (0.080)
REFEMP	-7584.4 ***(-2.738)	6673.5 **(2.339)
ENVMEMB	69.654 (1.541)	-153.20 ***(-3.293)
CLINTON	1.0672 ***(7.077)	-1.1852 ***(-7.632)
URBAN	0.0537 (0.689)	-0.0975 (-1.214)
SUBURB	-0.1538 (-0.818)	-0.0653 (-0.336)
WHITE	0.3044 ***(3.442)	-0.1317 (-1.446)
OILBTU	0.0619 (1.384)	-0.0515 (-1.116)
Adj. R^2	0.6688	0.7035
N	344	344

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

Table 3: Three-Stage Least Squares Estimation of the Contribution Equation

	SHIPPING	CRUDE OIL	REFINERY	GREEN
Variable [a]	**Coefficient (t-ratio)**	**Coefficient (t-ratio)**	**Coefficient (t-ratio)**	**Coefficient (t-ratio)**
EMPLOYMENT (10^3)	134.25 (0.517)	151.64 1.2811	14.821 0.32077	[b]-0.481 (-0.143)
EMPOYMENT^2 $(10^3)^2$	-9.171 (-0.300)	5.451 1.2004	-2.974 -0.20331	0.0047 (0.227)
SHIPPING	----	0.75182 ***(3.466)	-0.062 ***(-2.869)	-0.099 ***(-3.664)
CRUDE OIL	0.65128 ***(2.850)	----	0.039 *(1.873)	0.065 ***(2.607)
REFINERY	-13.536 ***(-4.284)	2.5348 (0.738)	----	-1.397 ***(-4.107)
GREEN	-9.0418 **(-2.437)	3.9250 (0.957)	-0.68751 **(-2.462)	----
HRESOURCES	7089.9 ***(2.677)	-3912.9 -1.4136	512.31 **(2.283)	757.27 ***(3.898)
PARTY	-5813.4 ***(-3.074)	3830.6 **(2.053)	-405.29 **(-2.390)	-617.35 ***(-3.804)
RNSI	-61.865 *(-1.654)	37.766 (1.318)	-4.6189 (-1.592)	-6.759 **(-2.108)
RLCV	-10.827 (-0.321)	-35.997 (-1.629)	-0.92828 (-0.334)	-0.836 (-0.232)
MARGIN	-167.10 ***(-2.716)	42.996 (0.717)	-12.452 ***(-2.820)	-17.746 ***(-3.672)
FRESHMAN	-1335.8 (-0.973)	1761.6 **(2.075)	-69.718 (-0.572)	-124.51 (-0.763)
CLINTON	-33.458 (-0.594)	-42.797 (-1.226)	-3.0761 (-0.680)	-3.6462 (-0.579)
INCOME	309.65 ***(3.557)	-134.92 (-1.592)	21.659 ***(3.109)	31.953 ***(3.439)

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is ommitted. N = 435.
[b] Membership in six major environmental organizations per 1000 adults is used instead of employment.
[c] Wald test statistic on joint significance of contributions variables (d.f.).
[d] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 3: Three-Stage Least Squares Estimation of the Contribution Equation

	SHIPPING	CRUDE OIL	REFINERY	GREEN
Variable [a]	**Coefficient (t-ratio)**	**Coefficient (t-ratio)**	**Coefficient (t-ratio)**	**Coefficient (t-ratio)**
SUBURBAN	-56.189 (-1.051)	64.122 *(1.952)	-3.6218 (-0.795)	-6.0731 (-1.059)
$\chi^2(3)$ [c]	***20.019	***12.161	***12.400	***23.339
$\chi^2(14)$ [d]	***51.668	***126.172	***39.404	***85.005

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is ommitted. N = 435.
[b] Membership in six major environmental organizations per 1000 adults is used instead of employment.
[c] Wald test statistic on joint significance of contributions variables (d.f.).
[d] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 4: Two-Stage Tobit Estimation of the Contribution Equation

	SHIPPING	CRUDE OIL	REFINERY	GREEN
Variable	[a] Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)
EMPLOYMENT (10^3)	1.1283 **(1.994)	322.06 ***(2.936)	192.57 (0.953)	[b] -52222. (-1.330)
EMPLOYMENT^2 (10^6)	-93.324 *(-1.677)	2.9078 (0.600)	-6.7066 (-0.122)	0.35885 (1.511)
SHIPPING	----	0.59889 ***(2.731)	0.01627 (0.247)	-0.3436 (-1.459)
CRUDE OIL	0.41603 *(1.745)	----	-0.00729 (-0.132)	0.09519 (0.548)
REFINERY	-6.5643 *(-1.830)	-0.91353 (-0.356)	----	-0.7107 (-0.271)3
GREEN	-0.33113 (-0.294)	-0.67743 (-0.845)	-0.21756 (-0.995)	----
HRESOURCES	2682.1 *(1.866)	-836.42 (-0.811)	-66.375 (-0.251)	3108.9 ***(3.530)
PARTY	-3489.9 ***(-3.149)	1969.5 **(2.196)	149.37 (0.563)	-3033.4 ***(-3.295)
NSI RESIDUAL	7.4140 (0.327)	13.597 (0.875)	-1.6282 (-0.405)	-16.519 (-1.136)
LCV RESIDUAL	-38.297 (-1.342)	-48.782 **(-2.301)	-12.703 ***(-2.817)	15.460 (0.810)
MARGIN	-35.064 (-0.952)	-33.091 (-1.254)	-17.529 ***(-2.908)	-85.132 ***(-2.747)
FRESHMAN	-4542.1 ***(-4.038)	1926.6 **(2.247)	138.24 (0.581)	-1350.8 (-1.401)
CLINTON	-5.4552 (-0.124)	-59.079 *(-1.910)	-19.036 **(-2.389)	69.881 **(2.279)
INCOME	169.05 ***(2.719)	-14.046 (-0.290)	19.750 *(1.839)	131.59 ***(2.680)

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] These are regression coefficients, rather than normalized coefficients. Constant is omitted. N = 435.

[b] Membership in six major environmental organizations per 1000 adults is used instead of employment.

[c] Wald test statistic on joint significance of contributions variables (d.f.).

[d] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 4: Two-Stage Tobit Estimation of the Contribution Equation

	SHIPPING	CRUDE OIL	REFINERY	GREEN
Variable	[a] Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)
SUBURB	-65.387 (-1.569)	58.729 **(2.094)	10.255 (1.352)	-59.040 *(-1.882)
SIGMA (10^{-3})	0.15062E-03 ***(22.818)	0.20843E-03 ***(26.012)	0.94029E-03 ***(16.187)	0.33058E-03 ***(10.863)
$\chi^2(3)$ [c]	4.871	**8.629	1.068	2.148
$\chi^2(15)$ [d]	***94.925	***146.896	***63.885	***75.309

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] These are regression coefficients, rather than normalized coefficients. Constant is omitted. N = 435.

[b] Membership in six major environmental organizations per 1000 adults is used instead of employment.

[c] Wald test statistic on joint significance of contributions variables (d.f.).

[d] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 5: Probit Estimation of the Voting Equations Using 3SLS Estimates of Contributions

	US FLAG	EXCESS	HOUSE	ROYALTY1	ROYALTY2	FINAL
Variable	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)
SHIPPING (10^3)	0.01240	0.01820	-0.00587	0.01754	0.00845	0.00484
	(0.946)	(1.244)	(-0.413)	(1.336)	(0.633)	(0.367)
CRUDEOIL (10^3)	0.03365	-0.049935	0.03926	-0.08780**	-0.08835**	0.04024
	(0.900)	(-0.953)	(0.812)	(-2.476)	(-1.990)	(0.867)
REFINERY (10^3)	1.5929	-0.64576	0.22378	-0.64997**	-0.70093**	0.25115
	(0.053)	(-1.577)	(0.595)	(-2.297)	(-1.995)	(0.715)
GREEN (10^3)	-7.3813	-0.14508	-0.02976	-0.16510	-0.10417	-0.03987
	(-0.433)	(-0.712)	(-0.150)	(-0.976)	(-0.545)	(-0.210)
PARTY	-2.1895***	-1.6648***	1.4180***	-1.6839***	-1.5075***	1.5782***
	(-7.288)	(-6.035)	(5.095)	(-6.609)	(-6.263)	(6.290)
RNSI	-0.00906	-0.01382***	0.01419***	-0.00969	-0.01437***	0.01986***
	*(-1.807)	(-2.712)	(2.730)	*(-2.020)	(-3.149)	(4.301)
RLCV	0.01194	0.00284	-0.00369	0.00958	0.01108	-0.00230
	*(2.026)	(0.468)	(-0.597)	*(1.888)	**(2.251)	(-0.432)
MARGIN	-0.00693	-0.00309	0.01901	0.00823	-0.00934	-0.00184
	(-0.668)	(-0.309)	*(1.736)	(1.068)	(-1.067)	(-0.207)
FRESHMAN	0.31888	(0.240)	-0.36352	0.79955***	0.21820	-0.23560
	(1.050)	(0.819)	(-1.306)	(3.338)	(0.878)	(-0.904)
CLINTON	0.04602***	0.03200	-0.03711***	0.02916	0.02740	-0.03920***
	(3.139)	**(2.297)	(-2.658)	**(2.315)	**(2.195)	(-3.025)
SUBURB	-0.03459	-0.00314	0.00967	-0.02144	-0.02271	-0.01070
	*(-1.905)	(-0.181)	(0.569)	(-1.579)	(-1.464)	(-0.694)
URBAN	-0.01549**	-0.00314	0.00816	-0.00833	-0.00096	-0.00702
	(-2.155)	(-0.474)	(1.2291)	(-1.453)	(-0.159)	(-1.150)

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is omitted.
[b] Wald test statistic on joint significance of contributions variables (d.f.).
[c] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 5: Probit Estimation of the Voting Equations Using 3SLS Estimates of Contributions

	US FLAG	EXCESS	HOUSE	ROYALTY1	ROYALTY2	FINAL
Variable	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**
WHITE	-0.00207	0.00407	-0.01174	0.01738	0.00668	-0.014252**
	(-0.276)	(0.592)	*(-1.717)	**(2.391)	(0.991)	(-2.084)
INCOME (10^3)	0.03750	0.03063	-0.02630	0.05726	0.03485	-0.02726
	**(2.469)	*(2.157)	*(-1.898)	***(4.084)	***(2.699)	**(-2.085)
OILBTU (10^3)	-0.25328	-5.4716	0.002187	-0.00850	-0.00333	0.00562
	(-0.102)	*(-1.895)	(0.794)	***(-3.777)	(-1.328)	**(2.153)
N	407	404	407	426	424	425
$\chi^2(4)$ [b]	4.444	4.897	3.868	**9.493	7.501	2.933
$\chi^2(15)$ [c]	*** 246.629	*** 200.986	*** 135.360	*** 217.175	*** 259.531	*** 234.892

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is omitted.
[b] Wald test statistic on joint significance of contributions variables (d.f.).
[c] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 6: Probit Estimation of the Voting Equations Using 2S-Tobit Estimates of Contributions

	US FLAG	EXCESS	HOUSE	ROYALTY1	ROYALTY2	FINAL
Variable	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)	Coef-ficient (t-ratio)
SHIPPING (10^3)	-0.00421	0.24242	-0.4491	0.04387	0.28324	-0.49275
			***		**	***
	(0.302)	*(1.646)	(-2.962)	(0.337)	(2.026)	(-3.489)
CRUDEOIL (10^3)	0.10274	-0.41304	0.69703	-0.13307	-0.21348	0.43380
		**	***			***
	(0.382)	(-2.430)	(3.600)	*(-1.738)	(-1.604)	(2.667)
REFINERY (10^3)	-1.0568	-0.19114	-4.3755	-0.90170	-1.2226	-3.1579
			**			**
	(-0.608)	(-0.105)	(-2.376)	(-0.626)	(-0.808)	(-1.995)
GREEN (10^3)	-0.03509	0.04791	0.00039	-0.22791	-0.30991	-0.32154
	(-0.123)	(0.156)	(0.001)	(-0.539)	(-0.944)	(-0.823)
PARTY	-2.2459	-0.97999	0.73775	-1.5321	-0.88163	0.57886
	***	**		***	**	
	(-5.581)	(-2.452)	*(1.876)	(-4.455)	(-2.535)	(1.582)
RNSI	-0.01026	-0.00875	0.00734	-0.00901	-0.01617	0.01700
					***	***
	*(-1.749)	(-1.447)	(1.156)	(-1.601)	(-2.938)	(2.950)
RLCV	0.00735	-0.00626	-0.01077	0.00604	0.00653	-0.01151
	(0.672)	(-0.572)	(-0.951)	(0.667)	(0.695)	(-1.151)
MARGIN	-0.01180	-0.00016	0.00313	0.00541	-0.01273	-0.01969
	(-0.867)	(-0.012)	(0.224)	(0.479)	(-1.105)	(-1.574)
FRESHMAN	0.17889	0.89646	-1.4074	0.81044	0.85670	-1.3166
		**	***	**	**	***
	(0.396)	(1.961)	(-3.051)	(2.419)	(2.157)	(-3.174)
CLINTON	0.04194	0.01787	-0.03501	0.02786	0.017187	-0.03532
			**			**
	**(2.489)	(1.050)	(-1.985)	*(1.899)	(1.145)	(-2.230)
SUBURB	-0.03594	0.00966	0.00390	-0.01559	-0.00795	-0.02455
	*(-1.822)	(0.502)	(0.198)	(-1.006)	(-0.466)	(-1.384)
URBAN	-0.01515	-0.00436	0.01303	-0.00781	-0.00098	-0.00563
	**					
	(-2.109)	(-0.635)	*(1.731)	(-1.354)	(-0.160)	(-0.846)

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is omitted.
[b] Wald test statistic on joint significance of contributions variables (d.f.).
[c] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 6: Probit Estimation of the Voting Equations Using Two-Stage Tobit Estimates of Contributions

	US FLAG	EXCESS	HOUSE	ROYALTY1	ROYALTY2	FINAL
Variable	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**
WHITE	-0.00259	0.00289	-0.01208	0.01662	0.00300	-0.012462
	(-0.339)	(0.405)	*(-1.695)	**(2.258)	(0.426)	*(-1.729)
INCOME (10^3)	0.04784	0.00549	0.03265	0.05709	0.02245	0.03725
	**(2.079)	(0.247)	(1.501)	*** (2.740)	(1.112)	*(1.783)
OILBTU (10^3)	-0.77264	0.29932	-4.7509	-7.1996	-3.0651	4.5559
	(-0.250)	(0.070)	(-1.086)	** (-2.489)	(-0.828)	(1.125)
N	407	404	407	426	424	425
$\chi^2(4)$ [b]	1.943	**9.739	***17.539	4.114	7.059	***18.999
$\chi^2(15)$ [c]	*** 244.031	*** 207.363	*** 153.389	*** 211.743	*** 259.414	*** 254.442

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is omitted.
[b] Wald test statistic on joint significance of contributions variables (d.f.).
[c] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 7: Probit Estimation of the Voting Equations Using Two-Stage Tobit Estimates of Contributions, Per Capita Environmental Membership Included

	USFLAG	EXCESS	HOUSE	ROYALTY1	ROYALTY2	FINAL
Variable	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**	**Coef-ficient (t-ratio)**
SHIPPING (10^3)	-0.1222	0.0594	-0.2254	-0.0219	0.1819	-0.3107**
	(-0.829)	(0.358)	(-1.318)	(-0.150)	(1.202)	(-1.992)
CRUDEOIL (10^3)	0.1078	-0.3346**	0.5679***	-0.1191	-0.1877	0.37052**
	(1.416)	(-2.023)	(3.001)	(-1.521)	(-1.427)	(2.350)
REFINERY (10^3)	-1.6292	-1.4575	-0.2918	-1.2198	-1.9304	-0.20063
	(-0.916)	(-0.768)	(-1.529)	(-0.825)	(-1.234)	(-1.217)
GREEN (10^3)	-0.1365	-0.0432	0.0760	-0.2462	-0.4113	-0.2802
	(-0.461)	(-0.134)	(0.232)	(-0.583)	(-1.205)	(-0.656)
PARTY	-2.4451***	-1.4257***	1.2573***	-1.6768***	-1.1069***	0.9551
	(-5.796)	(-3.192)	(2.847)	(-4.451)	(-2.961)	**(2.408)
RNSI	-0.0097	-0.0090	0.0081	-0.0086	-0.0159***	0.1639***
	*(-1.647)	(-1.454)	(1.241)	(-1.526)	(-2.892)	(2.811)
RLCV	0.0039	-0.0118	-0.0054	0.0041	0.0028	-0.5632
	(0.353)	(-1.043)	(-0.463)	(0.452)	(0.300)	(-0.554)
MARGIN	-0.0138	-0.0041	0.0073	0.0044	-0.0156	-0.1527
	(-1.009)	(-0.310)	(0.517)	(0.392)	(-1.341)	(-1.195)
FRESHMAN	0.0499	0.5609	-0.9730**	0.7185**	0.6820	-0.9590**
	(0.108)	(1.152)	(-1.993)	(2.070)	*(1.660)	(-2.193)
CLINTON	0.0393	0.0156	-0.0336	0.0274	0.0156	-0.3562**
	**(2.310)	(0.906)	*(-1.879)	*(1.862)	(1.034)	(-2.217)
SUBURB	-0.0441**	-0.0054	0.0207	-0.0214	-0.0163	-0.1048
	(-2.162)	(-0.265)	(0.996)	(-1.292)	(-0.916)	(-0.561)
URBAN	-0.0180**	-0.0087	0.0178	-0.0096	-0.0034	-0.1652
	(-2.407)	(-1.182)	**(2.213)	(-1.591)	(-0.536)	(-0.235)

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is omitted.
[b] Wald test statistic on joint significance of contributions variables (d.f.).
[c] Wald test statistic on joint significance of all variables in regression (d.f.).

Table 7: Probit Estimation of the Voting Equations Using Two-Stage Tobit Estimates of Contributions, Environmental Membership Per State Included

	USFLAG	EXCESS	HOUSE	ROYALTY1	ROYALTY2	FINAL
Variable	Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)	Coefficient (t-ratio)
WHITE	-0.0024	0.0360	-0.0133	0.0168	0.0032	-0.1418
	(-0.326)	(0.498)	*(-1.838)	**(2.297)	(0.452)	*(1.916)
INCOME (10^3)	0.0530	0.0185	0.0171	0.0609	0.0303	0.2551
	**(2.263)	(0.795)	(0.751)	*** (2.861)	(1.454)	(0.167)
OILBTU (10^3)	0.0017	0.0035	-0.0077	-0.0059	-0.0009	0.8853
	(0.493)	(0.792)	*(-1.699)	*(-1.908)	(-0.250)	(0.214)
ENV MEMB	7.8438	12.488	-14.056	3.9382	7.4336	-12.540
	*(1.776)	*** (2.702)	*** (-2.983)	(0.986)	*(1.788)	*** (-2.834)
N	407	404	407	426	424	425
$\chi^2(4)$ [b]	1.943	**9.739	***17.539	4.114	7.059	***18.999
$\chi^2(15)$ [c]	*** 244.031	*** 207.363	*** 153.389	*** 211.743	*** 259.414	*** 254.442

*** Significant at 99%, ** Significant at 95%, * Significant at 90% (asymptotic t-ratios)

[a] Constant is omitted.
[b] Wald test statistic on joint significance of contributions variables (d.f.).
[c] Wald test statistic on joint significance of all variables in regression (d.f.).

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