

PATTERNS OF POLITICAL PRESSURE:
CORPORATE PACS AND PROFITS

by
Jack Igelman

A paper submitted in partial fulfillment
of the requirements for the degree

of
Master of Science
in
Applied Economics

MONTANA STATE UNIVERSITY
Bozeman, Montana

August 1992



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ABSTRACT

The rapid emergence of corporate political action committees (PACs) in the electoral process has raised many questions about their behavior. In particular, researches have attempted to explain the determinants of levels of PAC campaign contributions. The purpose of this paper is to explain the determinants of changes in PAC campaign contributions. It is believed that PAC contributions and profits are highly correlated. The paper considers two hypotheses with testable implications, the endowment effect theory [Thaler 1980] and the Peltzman theory [Peltzman 1976], to explain the effects of changes in producer profits on changes in PAC campaign contributions. An econometric model is constructed to test the implications of the hypotheses. The results of the econometric model reject the endowment effect theory, but fail to reject the Peltzman theory given certain conditions. Assuming an inelastic and static demand curve for regulation, the econometric results indicate that falling producer profits causes the "price" of favorable government regulations to fall. Hence, losses in producer profits causes PAC camapaign contributions to decrease.

I. INTRODUCTION

In 1971 Congress passed the Federal Election Commission Act which opened the gates for the proliferation of corporate political action committees (PACs) in the electoral process. The Act allowed corporations to establish PACs that would both raise and contribute political funds on behalf of corporations. The growth of corporate PAC campaign contributions attests to their rapid emergence in the electoral process. Corporate PACs contributed a total of \$21.6 million to candidates in the 1979-1980 election cycle. In the 1987-1988 election cycle, total contributions from corporate PACs reached \$56.3 million--total contributions nearly tripled in less than ten years.

The swift growth in contributions from corporate PACs prompts one to ask a simple question: Why have PAC contributions increased so rapidly? There seems to be an intuitive answer. Government creates something that corporations want--policies that increase profits--and corporate PACs must be an effective way of influencing government policy to favor corporate interests. The growth of PAC contributions may be evidence that PACs are an

effective device used by corporations to exert political pressure; in fact, research has shown that money does influence congressional votes [see, for example, Stratmann 1991, or Kau, Keenan, and Rubin 1982].

If profits are a common goal of corporations, and PACs are an effective device of political pressure intended to increase profits, then it seems likely that there is a strong relationship between profits and PAC campaign contributions. The purpose of this paper is to investigate this relationship and provide a theory that explains the effects of changes in profits on changes in PAC campaign contributions. Past research has attempted to explain the determinants of levels of PAC contributions [For example, Grier, Munger, and Roberts 1992; Zardkoohi 1985; Pittman 1988]. This analysis offers this realm of literature an explanation of determinants of changes in PAC contributions. By revealing a relationship between changes in profits and changes in campaign contributions, a better understanding of the use of PAC contributions as a means of political pressure can be gained.

Two hypotheses with testable implications are considered to explain the relative changes between profits and contributions. One hypothesis is the endowment effect theory. The endowment effect, first suggested by Thaler [1980], predicts that decision makers will devote more resources to recoup losses than to achieve a gain of the

same magnitude. In terms of this analysis, the endowment effect predicts that a corporation will increase campaign contributions to recoup profit losses. The second hypothesis is a theory from Peltzman [1976] that predicts that favorable policies from the government are relatively easier to obtain when profits fall, due to a fall in the "price" of these policies faced by the corporation. As will be seen, this theory has important implications about the effects of changes in profit on changes in PAC contributions.

The two theories suggest opposing implications about the relationship between profits and contributions. The endowment effect theory suggests a negative relationship. In contrast, the Peltzman theory, under certain conditions, suggests a positive relationship. Since the two effects are not mutually exclusive--that is, they can occur simultaneously--one theory can dominate the other in its prediction about the relationship between changes in profits and changes in campaign contributions. It is an empirical question to determine which hypothesis dominates.

This paper will be broken down in the following manner: Section II reviews the theoretical underpinnings of the endowment effect; Section III considers the implications of the endowment effect and the Peltzman theory; Section IV develops an econometric model to determine which hypothesis dominates--the econometric analysis will focus on producers

of manufactured goods (Standard Industrial Classification codes 2000-3900); Section V examines the results of the econometric model; and Section VI summarizes the paper and makes several concluding remarks.

II. THEORETICAL FOUNDATIONS OF THE ENDOWMENT EFFECT

Introduction

The endowment effect's theoretical foundations have their roots in prospect theory introduced by Kahneman and Tversky [1979]. Kahneman and Tversky critique utility theory and propose prospect theory as an alternative model of predicting economic behavior. In order to come to grips with the endowment effect, it is necessary to understand the properties of prospect theory.

This section is broken down into three segments. The first segment will review the assumptions of utility theory and its shortcomings. Prospect theory and its implications are analyzed in the second segment. The final segment focuses on the endowment effect.

Assumptions of Utility Theory

Utility theory assumes that maximizing individuals, when given a set of alternatives to choose from, choose the alternative that is perceived to be the 'best,' where the 'best' alternative yields the highest utility. The

individual determines the best alternative by ranking his preferences among the alternatives available.

Utility theory assumes that maximizing individuals behave consistently with two axioms. First, the axiom of comparison says that any two alternatives, A and B, can be compared by the individual. The comparison of the alternatives can lead to one of three results: 1. alternative A is preferred to alternative B, 2. alternative B is preferred to alternative A, or 3. neither A nor B is preferred, the individual is indifferent. Second, the axiom of transitivity says that when considering three alternatives A, B, and C, if A is preferred to B, and B to C, then A must be preferred to C. Combining these two axioms leads to the assertion that all possible alternatives can be systematically ranked in order of preference by the individual. Utility theory assumes that people behave consistently with these two axioms. However, there is evidence that suggests otherwise. Experimental tests have shown that the axiom of comparison and the axiom of transitivity may frequently be broken [see, for example, Grether and Plott 1979, and Tversky 1969].

These two axioms are assumed by utility theory because they seem to reasonably predict how individuals choose among alternatives. The accuracy of utility theory relies on the reasonableness of these assumptions. If in some situations people are unlikely to choose among alternatives described

by these axioms, then utility theory may be inadequate as a model of predicting economic behavior. Some evidence suggests that these axioms may frequently be broken. The violations of these assumptions and the subsequent inadequacy of utility theory, provided the motivation for the development of prospect theory.

Prospect Theory

Utility theory uses utility functions to assign a measure of utility to various levels of wealth. In order to do so, a unique measure of value is assigned to every given level of wealth. Assigning a unique measure of value relies on the assumed preference axioms. If the assumptions hold, then it is possible to assign a unique level of value to a certain level of wealth. However, if an individual does not behave according to the assumed postulates (i.e., the individual's preferences display intransitivities or inconsistencies), then it is not necessarily true that a unique level of utility can be assigned to a given wealth.

Consider this example: two experiments were conducted using the same group of participants for each experiment [Kahneman and Tversky 1979]. In the first experiment the participants were given \$1000, in the second they were given \$2000. In each experiment the participants were asked to choose between two alternatives. One alternative guaranteed

an income change, the other alternative indicated a 50% probability of an income change. No matter which alternative was chosen, and regardless of the initial endowment, the expected outcome was \$1500. If the preference assumptions hold, then a unique level of utility can be assigned to the outcome of \$1500 regardless of the initial endowment.

If people always prefer certainty over uncertainty¹, the alternative that guarantees the outcome of \$1500 will be chosen. However, the results of the experiment reveal an inconsistency: when endowed with \$2000 the participants chose the probability alternative, and, when endowed with \$1000, the participants chose the guaranteed alternative. This behavior indicates that the outcome of \$1500 was valued differently depending on the initial entitlement. Thus the outcome of \$1500 cannot be assigned a unique level of utility. If a unique level of utility is not assigned, then utility theory is inadequate: its result is not precise.

The results of the experiments conducted by Kahneman and Tversky motivated them to develop prospect theory, an alternative model of predicting behavior that allows for

1. This follows from a premise of expected utility theory [Baumol 1972, p.545]. When given a choice of two alternatives with equal expected payoffs, expected utility theory alleges that the alternative with less risk is chosen. Although the two alternatives have the same expected payoff, the alternative with less risk has a higher level of expected utility. Therefore the alternative with more certainty is chosen.

some inconsistencies to occur including nonunique valuations of identical outcomes.

Prospect theory has two essential features. First, value is assigned to gains and losses relative to a reference point, where the reference point is based on prior assets. In the previous example the reference point would be defined as either \$1000 or \$2000, depending on the initial endowment. Second, losses are weighted more heavily than gains evaluated around the reference point. The first property says nothing unique. The addition of the second property is the essence of prospect theory. The second property assigns a final level of utility based on gains and losses relative to a reference point, thus allowing for the possibility of nonunique levels of utility assigned to a unique level of wealth.

An additional motivation for the development of prospect theory is that, when faced with losses, individuals are risk seeking, for gains they are risk averse. Kahneman and Tversky make this assertion based on the experimental results in their 1979 paper. This implication is different from expected utility theory, in which individuals are always risk averse. This property shows the reluctance of individuals to accept losses, reemphasizing the notion that losses are treated more harshly than gains.

Other economists, prior to the development of prospect theory, had observed that decision makers treat losses

differently than gains. The development of prospect theory provided them with a theory to more precisely explain this behavior.

The Endowment Effect

Richard Thaler [1980] argued that decision makers consider their entitlement when valuing items. More precisely, decision makers tend to assign a higher value to goods that are included in their entitlement. Thaler refers to this type of behavior as the endowment effect. Anything that can be owned or transferred by a decision maker is an item in the endowment. Examples of part of an endowment may include an individual's income, a firm's profit, an expensive bottle of wine [Thaler 1980], or the right to access public parks [Menell 1991]. The endowment effect says that items held in the endowment are more highly valued than items not held in the endowment, *ceteris paribus*.

Placing a higher value on items in the endowment implies that greater compensation is demanded to part with the item than is willingly paid to acquire it. The compensation demanded and willingness to pay are measures of the value that is placed on the item. Barring any wealth effects, the two measures should be equal--a unique level of value should be assigned to the same item. However, the proposition indicates that the value of a loss is treated

greater than the value of a gain. This proposition fits well into the framework of prospect theory, particularly the facet that losses are treated more harshly than gains.

However, if there is a wealth effect present, then it should be expected that the compensation demanded differs from the willingness to pay. The diminishing marginal utility of money tends to make the compensation demanded by an individual slightly larger than the individual's willingness to pay. An individual will generally be willing to pay less to have something than he would accept as compensation for giving up the same thing because the dollars in the first transaction come out of the person's current income, while the second adds to his income. Under diminishing marginal utility of income, the money added to his wealth gives the individual less utility than the money he already has, so he would demand more in exchange. Hence, if a wealth effect is present, then it is expected that the compensation demanded is greater than the willingness to pay. However, the difference between the compensation demanded and willingness to pay should be small. Large disparities will only show up if expenditures on an item represent a very large portion of the individual's income [Hovenkamp 1991, p. 225]. Otherwise any difference may be attributed to an endowment effect.

Experimental tests of the endowment effect have attempted to show disparities between willingness to pay and

compensation demanded measures. Results of a number of these experiments are summarized in Kahneman, Knetsch, and Thaler [1990]². The majority of the experiments used items that required small expenditures relative to an individual's income eliminating any wealth effects. The results of the experiments show that compensation demanded always exceeded willingness to pay, suggesting the existence of an endowment effect.

Despite the relative lack of econometric evidence, the endowment effect has received attention. Menell [1991] cites the endowment effect as an explanation of why people place a higher value on goods held in the public domain. It is argued that people place a higher value on public resources because they perceive some degree of ownership. Also, Baldwin [1989] hypothesizes that industries "are prepared to exert greater efforts to recoup income declines than to gain increases above normally historical levels [p.124]."

The endowment effect has probably received attention because it seems to be a reasonable explanation of how

2. Experimental methods have received some criticism. For example, the majority of results in Kahneman, Knetsch, and Thaler [1990] were based on answers to hypothetical questions. It cannot be ruled out that participants in experiments may misstate their true valuations. Particularly, participants may lie about their true preferences, and/or may not bother to think carefully about the questions posed [Thaler 1987]. Another criticism is that special populations of experiment participants may yield a result that does not speak well for the entire population [Grether and Plott 1979].

decision makers behave. If utility maximizers treat losses differently than gains, is it also reasonable to expect profit maximizers to behave similarly? Hovenkamp [1991] argues that the endowment effect cannot be applied to firms because firms do not experience diminishing marginal utility of income. A firm measures value by the dollar, so the first dollar earned is valued the same as the hundredth dollar earned. In any case, it has not been tested empirically whether a profit maximizer displays an endowment effect.

Whether or not profit maximizers behave like utility maximizers, the endowment effect relies on the assumption that decision makers are loss averse--that is, the pain of a loss is greater than the pleasure of a gain. Because of this difference in valuation, decision makers assign greater weight to negative rather than positive consequences.

The next chapter analyzes patterns of political pressure by examining the effects of changes in producer profits on changes in corporate PAC campaign contributions. Two hypotheses are considered, one of which is the endowment effect.

III. TWO HYPOTHESES OF PATTERNS OF POLITICAL PRESSURE

Introduction

The efficacy of the endowment effect may have an impact on the intensity of political pressure exerted by producers. Producers use campaign contributions as one method of political pressure to obtain favorable regulatory practices from the government [see, for example, Stratmann 1991, or Kau, Keenan, and Rubin 1982]. This chapter presents a theory that will explain patterns of political pressure via corporate PAC campaign contributions.

An underlying assumption of the proposed theory is that politicians, as well as producers, are maximizers. Producers maximize profit, and politicians maximize votes [Downs 1957]. A politician can increase votes by supplying favorable legislation, and producers can increase profit by obtaining favorable legislation. There are potential gains for politicians and producers from trading regulation, hence, there is a market for regulation. The proposed theory explains how producer profitability effects corporate PAC campaign contributions intended to obtain favorable legislation. Since PACs are an essential feature of this

paper, the first section of this chapter describes the emergence of PACs in the electoral process. The second section further explains the market for regulation. And the third section develops a theory of political pressure based on two hypotheses: the endowment effect, and a prediction from Peltzman [1976] that suggests regulation is relatively easier to obtain when profits are falling.

Political Action Committees

Political action committees emerged in the 1970's with the passage of the 1971 Federal Election Commission Act (FECA) and its amendments. The Act was sought by legislators to tighten restrictions on illegal political contributions [Alexander 1984, p.88]. The legislation requires campaign contributions from corporations to be administered by PACs. Before 1971 a corporation could not use its own funds to support a PAC, any use of corporate funds to support a PAC was considered illegal. The 1971 FECA allows corporations to financially support the administration and solicitation efforts of their PAC. Although the Act allows corporations to use their own funds to administer and solicit funds, they cannot use corporate funds to give directly to politicians. The Act also limits the source of funds that corporate PACs can use for contributions. Corporate PACs can only contribute funds

generated from contributions of employees and stock-holders. The 1971 Act also requires corporations to disclose all contribution information.

Amendments to the Act were passed in 1974 and 1976. The 1974 amendment allows corporations with government contracts, previously excluded from the Act, to create PACs. The 1976 amendments places further restrictions on the ability of corporations to raise funds. Under the 1976 amendment, corporate PACs may only seek contributions from stockholders, executive personnel, and managers. Only twice a year, by mail, can a corporate PAC seek contributions from all employees. The 1976 amendments also imposes a \$5000 ceiling on PAC contributions to a candidate per election. However, the amendments do allow PAC officials to determine how the money collected should be used [Alexander 1984].

The passage of the 1971 FECA and its amendments allows producers to play a much larger role in the political process. The following section further explains the market for regulation in which corporate PAC contributions are a medium of exchange.

The Market for Regulation

There is a market for regulatory arrangements with the government where producers are demanders and politicians are

suppliers.³ It is assumed that producers have a positive demand for favorable regulation. Profit maximizing producers seek regulations, such as price supports, subsidies, and tariffs, as a means of increasing their profits. In seeking these sorts of arrangements, producers devote resources to influence government decisions in their favor. If a producer can benefit from a government arrangement, then a producer may actively seek the arrangement by lobbying or sponsoring a political action committee, among other things.

It is also an assumption in this paper that politicians too act in their own self-interest and are not making decisions for the "public good". Just as producers allocate resources to maximize profits, politicians allocate regulation in such a way that will maximize votes in the next election.

The producer's willingness to pay for regulation provides the demand side of the market for regulation. The politicians willingness to supply regulation is the supply side of the market. A producer can pay for the regulation with two things: votes and resources [Stigler 1971]. Votes are provided by regulation that benefits a producer and then increases the likelihood that the producer's employees will vote for the politician supplying the regulation. As well

3. To keep the argument simple, regulation will be a generic term for all arrangements with the government that are beneficial to the producer.

as votes, the resources, such as contributed services, favors to politicians, or campaign contributions, may be provided by the producer seeking the regulation. The remainder of this paper will focus on the use of campaign contributions by producers to influence politicians to supply regulation. A vital assumption of the theory is that a producer can influence government decisions by making campaign contributions via a political action committee.

Theory

The use of PAC funds in the political process has received considerable attention from economists and political scientists. Zardkoohi [1985] uses firm characteristics, such as market share and sales to the government, to explain campaign contribution levels. Lichtenberg [1989] develops a theoretical model that determines the likelihood of a firm to sponsor a PAC and then uses market share, firm size, and sales to the government to explain contribution levels. In similar fashion, Pittman [1977, 1988] uses firm size, concentration ratios, and rents created by the government to explain campaign contributions. More recently, Rehbein and Roberts [1992] examine the use of additional avenues of political influence on the level of PAC contributions. The general results of these studies indicate that firm characteristics

are significant explanatory variables of PAC contribution levels.

This paper examines the effect of changes in producer profitability on changes in PAC contributions. Two theories with opposing implications are considered: the endowment effect theory and a prediction made by Peltzman in his 1976 paper. The endowment effect theory predicts that a producer will increase campaign contributions to recoup profit declines; this suggests a negative correlation between profits and contributions. However, Peltzman predicts that regulation will tend to be more heavily weighted towards "producers in depressions" [Peltzman 1976, p.227]. This, in effect, lowers the price of regulation, making it relatively easier to obtain regulation when profit is declining. Assuming an inelastic and static demand for regulation, this implies that decreases in profit will correlate with smaller levels of PAC contributions, *ceteris paribus*. These two opposing effects are not mutually exclusive, thus, changes in producer profit has an ambiguous effect on changes in PAC campaign contributions depending on which effect dominates.

First, consider the endowment effect theory. This theory is that decision makers place a higher value on items held in their endowment than items not in their endowment. A removal from the endowment is then treated more harshly than a gain of the same magnitude. A decision maker is willing to devote more resources to recoup a loss than to

achieve a gain, *ceteris paribus*. In the context of this analysis, the decision maker is the producer and profit is a proxy for the producer's endowment. Although the number of employees, sales, and the size of the producer may also be considered part of the endowment, it is reasonable to assume that profit is ultimately the only thing that matters to the producer. The endowment effect theory predicts that a producer will devote more resources to recoup a loss in profit than to achieve a gain in profit. It has been suggested earlier in this paper that a producer may use PAC contributions to increase profits. The endowment effect theory predicts that lower profits will be accompanied by greater PAC contributions.

The Peltzman theory paints a different picture of the relationship between producer profitability and PAC contributions. Consider again the vote-maximizing politician who is a supplier of regulation. The number of votes a politician receives in the next election is a function of the profitability of producers of the regulated product and the welfare of consumers of the regulated product.

The politician is then forced to make a trade-off. Regulation given to producers increases their profit and thus translates into political support from the producer for the politician. On the other hand, these same regulations that benefit producers, such as price supports and tariffs,

increase the price consumers must pay for the product. The higher price decreases the consumer's welfare and reduces the level of support a politician will receive from consumers in the next election. Hence, there is a trade off a politician must consider when allocating regulation--the politician trades off consumer losses and producer gains.

Considering the trade-off between producer gains and consumer losses, the politicians objective function can be written as:

$$(1) \quad V = V(p, \pi)$$

where, V = number of votes
 p = price of the commodity
 π = producer's profits, and $V_{\pi} > 0$, $V_p < 0$.

The vote-maximizing politician responds to supply and demand conditions faced by the producer. The relevant constraint here is given by exogenously determined cost and demand conditions, summarized by the profit function

$$(2) \quad \pi = f(p, c)$$

where c is production costs, p is price, and $f_c < 0$, $f_p > 0$, and $f_{pp} < 0$ over the relevant range. The politician must then

maximize the Lagrangian

$$(3) \quad L = V(p, \pi) + \lambda(\pi - f(p, c))$$

The first order conditions obtained from maximizing the Lagrangian with respect to p , π , and λ yield

$$(4) \quad f_p = -\frac{V_p}{V_\pi}$$

This result is the political equilibrium where the politician maximizes votes. This solution is shown graphically in Figure 3. Figure 3 shows a producer who is already receiving regulation from the government. The objective function is represented by the iso-vote curve, \underline{MM} , which is convex, reflecting diminishing political returns to awards of regulation. The profit function, π , is shaped as a "hill", indicating that beyond a certain price more and more consumers will no longer purchase the product. At the tangency of the curves, \underline{A} , the politician maximizes votes.

Now consider a shock to an exogenous economic variable that shifts the profit function. A change in production costs, for example, shifts the profit function down to π' . The new political equilibrium occurs at a new tangency, \underline{B} , along a lower iso-vote curve, $\underline{M'M'}$. The price of the

product increases to P' . The price change can be broken down into two distinct components: a substitution effect and a "political" wealth effect [Peltzman 1976, p.225]. The substitution effect is the price rise caused by the change in marginal costs. However, this analysis abstracts from the substitution effect by assuming that the change in production costs is specifically a change in fixed costs. A change in fixed costs has no effect on price at the margin. The only effect, then, is the political wealth effect.

The political wealth effect is the rise in price attributable to regulations given to the producer. Under these assumptions, the vote maximizing politician trades off producer losses and consumer gains. In order to maintain the political equilibrium, the politician relieves some of the burden of political expenses away from the producer; consumers will be expected to pay a larger portion of the burden. In this light, a decrease in profit will reduce the amount of resources expected by the politician in exchange for the regulation received by the producer. In other words, the price of regulation has fallen. Hence, the Peltzman prediction: regulation is relatively easier to obtain when profits are declining, due to a fall in the price of regulation.

Although Peltzman's paper makes no mention of campaign contributions, the Peltzman theory can be applied to this analysis. The Peltzman theory predicts that a fall in

profits lowers the price of regulation. Assuming an inelastic and static demand for regulation, a lower price indicates that fewer expenditures will be given by producers in exchange for regulation, *ceteris paribus*. In terms of PAC contributions, if the assumptions hold, then a producer will decrease contributions when profits have fallen--a positive correlation. Evidence of the existence of an inelastic and static demand is presented in Section V.

Discussion

The two theories provide potentially opposing implications and thus the relationship between profitability and PAC contributions is ambiguous. The endowment effect theory predicts a negative relationship between changes in profits and changes in PAC contributions. If the assumptions of an inelastic and static demand curve hold, then the Peltzman theory suggests a positive relationship between profits and PAC contributions. What effect dominates is an empirical question, and in the empirical model described in the next section, the Peltzman prediction is found to dominate.

The remainder of this paper will be devoted to the construction of a model that will test which effect

dominates. The following section develops a simple econometric model and discusses the data used in the analysis. Section V interprets the results of the model.

IV. ECONOMETRIC MODEL AND DATA

Introduction

The two hypotheses presented in the preceding section provide opposing implications. The endowment effect predicts that producers will devote more resources to recoup profit losses. The Peltzman theory predicts that profit losses will cause the price of regulation to fall. The two effects can occur simultaneously and which effect dominates the other is an empirical question. In the first segment of the chapter, a simple econometric model is constructed to determine which hypothesis dominates. The second segment of the section describes the data on PAC contributions and profits used in the model.

Econometric Model

The endowment effect theory predicts a negative relationship between PAC contributions and producer profits. On the other hand, the Peltzman theory suggests that when producer profits fall, the price of regulation decreases. Assuming an inelastic and static demand for regulation, this

theory suggests a positive relationship between PAC contributions and producer profits. To test which hypothesis dominates, the following regression specification is used

$$\text{CONT}_j = b_0 + b_1\text{PROF}_j + b_2\text{CR4}_j + b_3\text{EMP}_j + b_4\text{TREND}_t + b_5\text{TREND}_t^2 + e_j$$

where,

The letter *i* refers to producer *i*, $i=(1,\dots,266)$;

The subscript *t* refers to the election cycle *t*, $t=(1977$ to 1978, ..., 1987 to 1988);

The subscript *j* refers to producer *i* in the election cycle *t*, $j=(1,\dots,5)$;

CONT_j = a vector of the change in corporate PAC contributions for producer *i* between two cycles *t* and *t*-1;

PROF_j = a vector of the change in producer *i*'s profits between two cycles *t* and *t*-1; profit in each cycle is a two-year weighted average;

CR4_j = a vector of the change in the *i*th producer's industry four firm concentration ratio; since data on concentration ratios are available only every five years (1977, 1982, and 1987 in this analysis), the change in concentration ratio is defined as either 1987 minus 1982, or 1982 minus 1977;

EMP_j = a vector of the change in number of employees of producer i between two cycles t and $t-1$; employment in each cycle is a two-year weighted average;

$TREND_t$ = a time trend variable; the trend variable equals 1.0 in the 1977-78 election cycle and goes up by 1.0 in each period to 5.0 in the 1987-88 election cycle;

$$TREND_t^2 = TREND_t * TREND_t$$

e_j = a disturbance term; the disturbance term is normally, identically and independently distributed.

The implications of the hypotheses discussed earlier indicate that the expected sign of the coefficient on profit is ambiguous. If the endowment effect theory dominates, then the sign of the coefficient is negative.

Alternatively, if the Peltzman theory dominates and the demand for regulation is inelastic and static, then the coefficient is positive.

Two other specifications of the model were used in this analysis. In the second model, PROF is replaced with SALES, the change in net producer sales. The use of net sales recognizes that the majority of contributors to PACs-- managers and executives--may not be profit-maximizers. It has been suggested by some economists that firms often seek

to maximize sales.⁴ To the extent that this is true, the Peltzman theory predicts that lower sales cause the price of regulation to fall, while greater sales cause the price of regulation to rise. This relationship relies on the assumption that politicians react to changes in sales as well as changes in profit. The coefficient on SALES is anticipated to be the same as the sign on PROF. In the third specification, SALES and PROF are both included in the regression. The signs on the coefficients in this specification are expected to be the same as the signs in the first and second specifications.

The hypotheses discussed in chapter 3 provide no testable implications for the coefficients on the variables EMP, CR4, TREND and TREND²; the signs could be negative or positive and still be consistent with the two hypotheses. However, these variables were employed to control for a variety of factors that may influence changes in PAC contributions. The four-firm concentration ratio is used to account for the incentive of producers to free-ride on contributions from other producers in their industry. The less concentrated the industry, the greater the incentive for the producer to free-ride [see Olson 1965]. The greater

4. Such a goal may be explained by the executive's or manager's desire to maintain a competitive position, which is dependent on the size of the corporation; or it may be in the interest of management, since management's salaries may be related more closely to the size of the firm's operations than to its profits; or it may be a matter of prestige [Baumol 1972, p.320, also see Spenser et al. 1975, p.283].

the incentive to free-ride, the lower the PAC contributions from that producer. Hence, the expected sign on CR4 is positive. The less concentrated the industry becomes, then the smaller the PAC contributions from a producer in that industry, and likewise, the more concentrated, the greater the contributions.

The EMP variable was used to control for the size of the producer. The expected sign on EMP is ambiguous. There are two possible effects that changes in employment have on PAC contributions: a positive effect and a negative effect. The positive effect is that the more employees a producer hires, the greater the PAC contributions. And the negative effect is the more employees hired increases the incentive of employees to free-ride on contributions from other employees, thus, PAC contributions will fall.

Finally, a trend variable was employed in all three specifications. It is expected that there are positive returns to better organized and more efficiently run PACs. It is hypothesized that PACs have become more efficient in their ability to solicit funds from employees over time. To the extent that this is true, PAC contributions are expected to rise over time, everything else held constant. The trend variable is estimated as a quadratic function because it is believed that returns to efficiency increase at a decreasing rate.

It should be noted that there were some variables that may have explanatory power which were excluded from the model. Two such variables are measures of the price of regulation and the market clearing quantity of regulation. These variables were excluded for lack of available data. Furthermore, it is extremely difficult to quantify these variables. Any proxies for these measures would be arbitrary and probably inaccurate.⁵

Data

The data was derived from three different sources: the Federal Election Commission (FEC), Standard and Poor's Compustat, and the U.S Bureau of the Census. The data includes statistics on 266 manufacturing companies (S.I.C codes 2000-3900) who at one point sponsored a PAC during the years 1977 through 1988.

The primary source for data on PAC contributions is the FEC. At the end of every two-year election cycle, the FEC releases a report titled Campaign Expenditures in the United States: Reports on Financial Activity Data. From this report a two-year contribution total was calculated for each

5. Several authors have attempted to quantify the market clearing quantity of regulation. Shuggart and Tollison [1985] use the annual number of trade investigations completed by the International Trade Commission. And Pittman [1988] uses a dummy variable to indicate industries most subject to EPA regulations. However, none of these measures were applicable in this analysis.

PAC.⁶ A PAC identification number, indicated by the report for each PAC, matched the PAC with its sponsoring company. This enabled contribution data to be merged with company specific data.

Employment, sales and profit data were obtained from Standard and Poor's Compustat. Compustat has a variety of company specific statistics that are based on both the 10-k reports filed with the Securities Exchange Commission and the stockholder reports from publicly traded companies.⁷

Compustat does not have an economically meaningful measure of profit. However, using statistics available from Compustat, economic profit was calculated. The economic profit measure is accounting profit plus interest payments, divided by total assets [see Scherer and Ross 1990]. All three of the statistics used in the calculation were available from Compustat.

Some potential measurement problems with the profit measure should be considered. The potential problems are two-fold. First, diverse accounting methods employed by companies may render company statistics incomparable. Second, the differences in distinguishing accounting costs from economic costs may overstate economic profits. In

6. In several instances, a company sponsored more than one PAC. In these cases, the contributions for these PACs were summed to give a single total for each producer.

7. Since only publicly traded company data are used, the sample is limited to relatively large corporations whose securities are traded on public exchanges.

particular, certain expenditures may be considered current costs by accountants. In some instances, however, such expenditures might actually be more in the nature of an investment yielding benefits over time; these expenditures may instead be considered an asset. In this light, current costing tends to understate assets and overstate economic profits [see Scherer and Ross 1990, or Fisher and McGowen 1983]. To the extent that these problems exist, the economic profit measure may be inaccurate.

The Census of Manufacturers Subject Series

Concentration Ratios in Manufacturing was used to obtain four-firm concentration ratio data. Compustat assigns a four digit S.I.C code to each company based on the company's primary industry. That is, the industry in which the largest single share of its sales occurs. Based on this S.I.C code, a four-firm concentration ratio was assigned to each company in the database.

There is a significant drawback to the use of a concentration index, particularly the four-firm concentration ratio. There is no assurance that the index reflects economically meaningful market definitions. The calculation of the index may understate the size of the market by excluding producers of substitutable products in the calculation. Similarly, the S.I.C code may be too broadly defined, potentially giving an understatement of the industry concentration [Scherer and Ross 1990].

V. EMPIRICAL RESULTS

Introduction

This section presents and examines the empirical results of the econometric models described in the previous section to determine the relationship between producer profits and PAC campaign contributions. The results provide no evidence of the endowment effect theory. The veracity of the Peltzman theory relies on two necessary conditions: that the demand curve for regulation is static and inelastic. If the conditions hold, then the results do not reject the Peltzman theory. Also considered in this chapter is the reasonableness of these conditions; evidence is offered that lends support to these conditions.

Results

The Ordinary Least Squares method was used to estimate the econometric models. Means and standard deviations of the data employed in the regression are provided in Table 1 and Table 2; statistics on the levels of data are in Table 1 and statistics on changes are in Table 2. The results of

the OLS regressions are provided in Table 3. The estimated coefficient on PROF in the first model is positive and significant at the .05 level. The PROF variable in the third model is also positive and significant at the .05 level. In the second and third model, the coefficient on SALES is positive and significant at the .0001 level. These results indicate that an increase in profits cause an increase in PAC campaign contributions. Likewise, a decrease in profits cause a decrease in contributions. More specifically, the elasticities of these variables reveal that a one percent increase in changes in profits causes changes in PAC contributions to increase by 5.5 percent, and a one percent increase in changes in sales causes a 24 percent increase in changes in contributions.

The existence of an endowment effect is unsupported by these results. The theory of the endowment effect predicts that producers will contribute more to recoup profit losses. The results provide evidence to the contrary. The results, which indicate a positive relationship between changes in profits and changes in contributions, reject the endowment effect theory.

The effect predicted by the Peltzman theory may dominate the endowment effect. However, there are two other possible explanations why the endowment effect does not dominate. First, as suggested earlier in this paper, the endowment effect may not apply to profit-maximizers; it may

only be robust in predicting behavior of utility-maximizers. Second, the use of campaign contributions as a measure of the resources used by producers to recoup profit losses may be inaccurate. Perhaps producers devote other resources to recoup profit losses.

Since the endowment effect theory is not strong relative to other effects, consider now the strength of the Peltzman prediction. The results are indefinite concerning the theory's prediction that profit losses cause the price of regulation to fall, since there is no measure of the price of regulation in the regression. The evidence is indicative of the Peltzman theory only if the demand curve for regulation is inelastic and static.

Recall from economic theory that along a static and inelastic demand curve, a decrease in price will cause expenditures on the commodity to fall. Likewise, a rise in price will cause expenditures to rise. Given that the demand curve for regulation is static, for the Peltzman theory to be consistent with economic theory and the empirical evidence, it must be true that the demand curve for regulation is inelastic. To see this, consider the following scenario. Given a fall in profits, the empirical evidence presented in this paper indicates that campaign expenditures will fall as a result. The Peltzman theory predicts that when profits fall the price of regulation falls. Therefore, economic theory dictates that a fall in

campaign expenditures and a fall in price will occur simultaneously only if the demand curve is static and inelastic. Hence, the Peltzman prediction of a fall in price is true only if the demand curve is inelastic and static.

How accurate an assumption is an inelastic and static demand curve for regulation? To empirically generate an elasticity measure would require estimating a demand curve for regulation. The absence of data on the price and quantity of regulation render this procedure impossible. However, there is evidence that is suggestive of an inelastic demand curve. Several empirical studies have found that the market clearing quantity of regulation is counter-cyclical.⁸ These results indicate that regulation increases when GNP falls.

This evidence alone does not provide an elasticity estimate, nevertheless, an estimate of the elasticity of demand can be reached by combining the evidence suggested in these studies with the empirical results of this paper. First, assume that decreases in GNP are positively correlated with decreases in producer profits. Also, continue to assume that the demand curve is static. Now,

8. See, for example, Shuggart and Tollison [1985], Takacs [1981] or Marvel and Ray [1983]. Shuggart and Tollison, and Takacs find that when GNP falls regulation increases. Marvel and Ray find that manufacturing industries experiencing rapid growth are less likely to receive regulation.

reconsider a fall in profits and the subsequent increase in the quantity of regulation and decrease in campaign expenditures. Under these assumptions, an increase in the market clearing quantity of regulation reveals that the price of regulation has fallen. According to economic theory, a fall in price and decrease in campaign expenditures occur simultaneously only if the demand curve for regulation is inelastic. Based on the combined evidence, it must be true that the demand curve for regulation is inelastic.

The combined evidence also rules out the possibility of a shift in the demand curve along a static supply curve. Consider a fall in profits one more time. An upward shift of the demand curve requires that both campaign expenditures and the market clearing quantity of regulation rise. A downward shift requires both campaign expenditures and the market clearing quantity of regulation fall. Both potential results are unsupported by the combined evidence.

The other variables of the regressions were statistically insignificant or had an incorrect sign. Both the four-firm concentration ratio and the employment variables were statistically insignificant in all three specifications. It appears that changes in employment and industry concentration have little effect on changes in campaign contributions. TREND and TREND² were also statistically insignificant. By removing the TREND² from

the regression, TREND came in significant at the .001 level in all three specifications. However, the parameter estimate indicates a negative relationship: on average, PAC contributions decreased \$4,340 per year. The result is contrary to the anticipated sign on TREND; it reveals that the pattern of campaign contributions over time is linear and decreasing. Removing TREND² from the regression had no statistically meaningful effect on the remaining explanatory variables.

VI. SUMMARY AND CONCLUSION

Past research has focused on the determinants of levels of PAC campaign contributions. These past studies have revealed little about the behavior of profit-maximizers in the political process. It is typical of these studies to indicate a relationship between levels of PAC contributions and another variable, such as industry concentration [Pittman 1988] or firm size [Zardkoohi 1985], and then, provide an explanation for the relationship. Several of these studies have failed to offer a theory with testable implications. The failure to provide a theory with testable implications makes it impossible to distinguish if the relationship between contributions and the other variable in question is a causal relationship or merely a statistical correlation.

This paper has presented an investigation of the relative changes between profits and political action committee campaign contributions. Recognizing the failure of past studies, this paper proposed two hypotheses with testable implications to explain the effects of changes in profits on changes in the intensity of political pressure via a PAC. The endowment effect theory predicts that

producers will contribute more to recoup profit losses. The Peltzman theory predicts that when profits fall the price of regulation falls.

Given the hypotheses and the available data, a model was created to test their implications. The results of the econometric model reveal that increases in profits cause increases in PAC campaign contributions. The empirical results do not support the endowment effect theory. If the assumed conditions of an inelastic and static demand curve hold, then the results fail to reject the Peltzman theory.

Although evidence was presented that suggests the demand curve for regulation is inelastic, more robust evidence about the structure of the demand curve for regulation is needed. A better understanding of the structure of the demand curve for regulation, coupled with the evidence presented in this paper, will lead to a broader understanding of the behavior of vote-maximizing politicians and profit-maximizing producers in the political process.

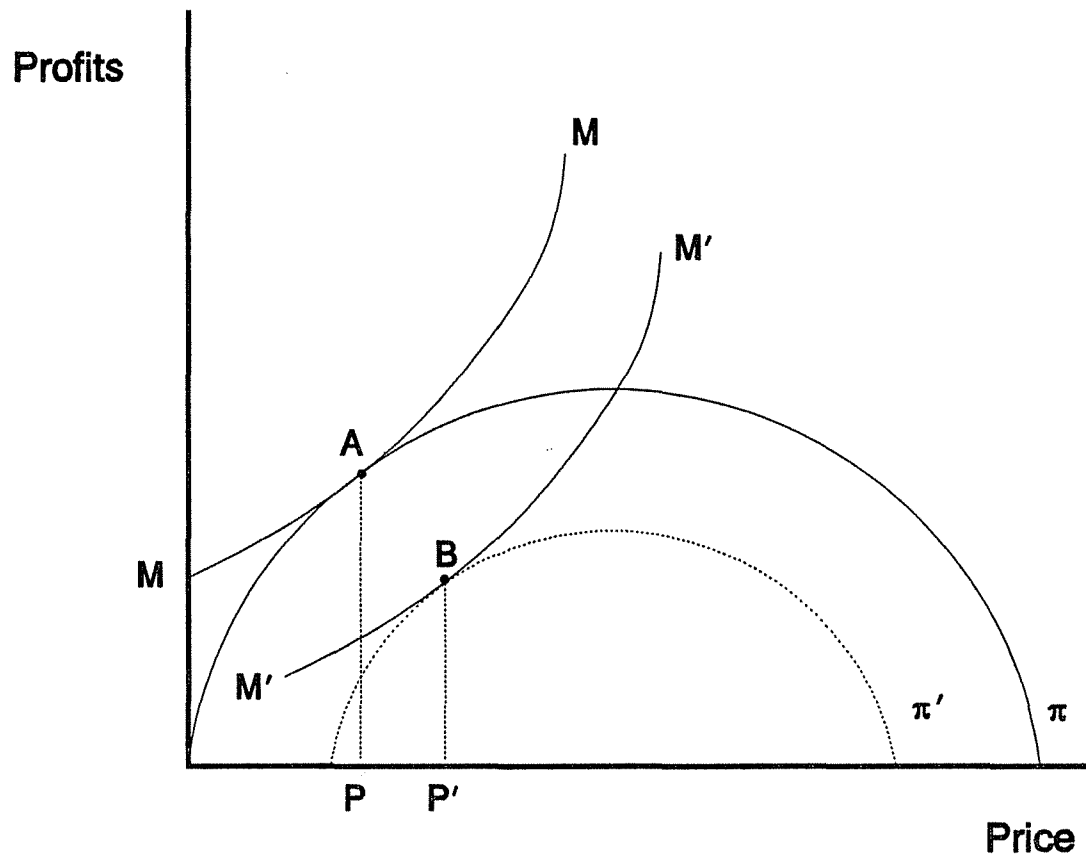


Figure 1. Political Equilibrium

Table 1. Summary Statistics: Levels

Mean and Standard Deviation			
	1977-78	1987-88	1977-88
PAC contributions (In \$)	21,554.26 (22,260.33)	88,371.85 (114,620.00)	60,296.74 (84,922.5)
Producer profits (In \$)	99,109.20 (33,869.60)	88,096.10 (60,460.80)	84,185.30 (52,055.0)
Net producer sales (In millions of \$)	2,316.70 (5,607.87)	5,576.75 (12,186.02)	4,020.94 (9,546.38)
Employment	35,318 (64,871)	33,190 (72,189)	39,223 (66,564)
Four-firm industry concentration ratio (In %)	35.3 (20.3)	33.1 (20.9)	39.2 (20.5)

Note.- Standard deviation is in parentheses.

Table 2. Summary Statistics: Changes

Mean and Standard Deviation			
Change between election cycle:	1(77-8) & 2(79-80)	4(85-6) & 5(87-8)	All Cycles
Change in PAC contributions (In \$)	27,314.83 (29,499.13)	9,455.99 (38,564.65)	15,956.26 (37,424.82)
Change in producer profits (In \$)	1,319.50 (18,553.60)	21,254.20 (60,115.60)	-3,213.30 (57,651.10)
Change in net sales (In millions of \$)	1,706.81 (3,127.27)	864.97 (2,610.24)	820.03 (2,613.26)
Change in employment	-87 (7,387)	-990 (9,280)	727 (9,810)
Change in four- firm concentration ratio (In %)	-1.3 (13.4)	4.3 (15.7)	1.5 (15.0)

Note.- Standard deviation is in parentheses.

Table 3. OLS Regression Results

Dependent Var. = Change in corporate PAC contributions

	Model 1	Model 2	Model 3
Constant	32449 (6283)	22072 (6216)	20901 (6236)
PROF (In thousands of \$)	44.95 (20.0)	-	37.9 (19.4)
SALES (In millions of \$)	-	3.56 (.43)	3.52 (0.43)
CR4	5.53 (7.53)	9.5 (7.39)	8.59 (7.29)
EMP (In thousands)	138.04 (114.66)	-10.2 (112.5)	-7.13 (112.3)
TREND	(-6.22) (4.49)	-2.22 (4.35)	-.83 (4.39)
TREND²	305.06 (712.73)	170.0 (683.5)	-428.0 (695.2)
R²	.03	.09	.09
No. of Obs.	995	995	995

Note.- Standard errors are in parentheses;
CR4, PROF, and TREND are divided by 1000.

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Table 2. OLS Regression Results

Dependent Variable = Change in PAC contributions

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>
Constant	32.44 (6.28)	22.07 (6.21)	20.9 (6.24)
PROF <u>(In millions of \$)</u>	44.95 (20.0)	-	37.9 (19.4)
SALES <u>(In millions of \$)</u>	-	3.56 (.43)	3.52 (0.43)
CR4	5.53 (7.53)	9.5 (7.39)	8.59 (7.29)
EMP <u>(In thousands)</u>	138.04 (114.66)	-10.2 (112.5)	-7.13 (112.3)
TREND	(-6.22) (4.49)	-2.22 (4.35)	-.83 (4.39)
TREND²	305.06 (712.73)	170.0 (683.5)	-428.0 (695.2)
R²	.03	.09	.09
No. of Obs.	995	995	995

Note: Standard errors in parentheses;Coefficients on the intercept, CR4, PROF, and TREND were divided by 1000.

