

## Constituency Influences on Legislative Policy Choice

MATHEW D. McCUBBINS and TERRY SULLIVAN

*The University of Texas at Austin, Austin, TX 78712, U.S.A.*

### Introduction

Economists studying the policy choices of legislatures decry the fact that the political process seldom chooses policies which satisfy classical notions of efficiency or optimality. For example, it has been noted that command and control regulation ("thumbs, no fingers") is universally chosen in preference to market-based regulation which is less coercive, more direct, and more efficient (Lindblom, 1977; Schultze, 1977; Breyer, 1982; Fiorina, 1982; McCubbins, 1982a, b; Stone, 1982). Similarly, the tendency of elected officials to translate political issues into particularistic programs creates dead-weight losses which loom large relative to the redistribution created (Niskanen, 1971; Riker and Brams, 1973; Ferejohn and Fiorina, 1975; Aranson and Ordeshook, 1978; Schwartz, 1982). Pork-barrel policies, such as rivers and harbors legislation, grants for sewage treatment plants, and highway building funds, however, are always enormously popular in Congress (Buchanan and Tullock, 1962; Ferejohn, 1974; Mayhew, 1974; Shepsle and Weingast, 1980; Schwartz, 1982).

This paper presents a simple formal model of policy choice which addresses these paradoxes. While motivated by these paradoxes, however, the model developed is a general model of policy choice, built upon fairly common assumptions concerning the incentives and political institutions facing policy makers. Implicit in this approach is an intriguing counter-intuitive proposition: that parties and politicians will not seek to compete for the votes of independents, but rather will focus the bulk of their attention on their loyal party identifiers (primary constituents).

This paper departs from the previous literature on policy choice in three ways. First, in modeling the constituencies for which the legislator is a representative, most theories have not differentiated between various sub-groups within a constituency (Fiorina and Noll, 1978; Weingast, 1978; Shepsle and Weingast, 1980; Fiorina, 1982). In contrast, the model developed herein takes into account how differential rates of participation and

support by various groups in a legislator's constituency will influence the legislator's choice of policy. Legislators, in this model, differentiate between their "primary", "re-election" and other constituencies in choosing the distribution of benefits and costs incident to their public policy choices (cf. Fenno, 1978).

Second, existing theories of policy choice focus upon the choice of policy and the net benefits delivered by this policy to a legislator's (homogeneous) district (Weingast, 1978; Shepsle and Weingast, 1980; Schwartz, 1982). In contrast, this paper focuses upon the form that the policy intervention takes. The form of a policy consists of the administrative mechanisms used to administer the policy (cf. Fiorina, 1982), the policy instrument used to implement the policy, and the administrative procedures by which agency decisions will be made (cf. McCubbins, 1982b).

Third, most theories of policy choice deal only with special cases of policy; for example, models have been developed to explain the legislature's preference for particularistic policies (Niskanen, 1971; Weingast et al., 1981; Schwartz, 1982), to explain the choice of regulatory policy (cf. Mitnick, 1980) and to examine the choices of local governments (Goetz, 1977). In contrast, this paper presents a model of policy choice which explains the choices, by policy makers, of a wide variety of important policies. Further, the model presented is not limited in application only to the U.S. congressional case, but rather has implications for the policy choices made by legislators in a wide variety of constitutional settings.

### A Model of Policy Choice

#### MOTIVATIONAL ASSUMPTION

In large part, the choice of public policy is a legislative choice. It is the aggregation of individual decisions made in a particular institutional setting. The motivations and incentives which influence the decisions of legislators are, therefore, of central importance to a model of policy choice. We assume herein that legislators are motivated by re-election incentives [1].

This is not an unusual assumption, but one which has received a great deal of attention in the American context since Mayhew's *Congress: The Electoral Connection* (1974). As in many other models, the formal assumption used herein is that legislators seek to maximize their *expected* vote. However, an attempt is made to draw out more explicitly some of the politics implicit in this assumption. As in Fenno (1978), we assume that constituencies are not politically homogeneous, but rather comprise many politically distinct groups. Considering a single constituency, let there be  $G$  distinct groups indexed by  $g = 1, \dots, G$ . Further, we argue that the effect of

any legislative policy, viewed abstractly, is simply to impose costs or confer benefits on various groups in the constituency. Several of the conclusions derived below concern the consequences for policy choice of internal constituency politics.

Policy choice is, of course, a group choice and will reflect the structure of the collective choice institutions involved in the policy process. In Congress, the committee system provides the institutional agenda by which legislative policies are developed. The decentralized system of semi-autonomous committees and subcommittees, on which membership is largely self-selected, establishes a framework in which much of the available power over a given policy issue is held by just a few congressmen who care the most about it and who share similar preferences concerning its outcome (see Fenno, 1973; Shepsle, 1978; Weingast, 1978, 1983; Calvert et al., 1982). This near-monopoly power granted to subcommittees provides subcommittee members individually with extraordinary influence over the choice and implementation of policy. This tendency toward decentralized policy control is further strengthened through widely accepted norms of universalism and reciprocity, wherein members of different committees, interested in different policies, implicitly log-roll across issues in order to guarantee majority support for their respective proposals (see Weingast, 1979). Thus, though policy choice is a group decision, we will focus on the actions which a re-election-seeking legislator would take if he possessed this *decentralized policy control*.

#### TECHNOLOGICAL ASSUMPTION

Our interest focuses not just on the internal political structure of constituencies, however, but also on some essentially technical or technological features of policy implementation. Decisions about public policy entail not just the designation of a policy objective, but also the identification of some means of achieving that objective. For example, the policy goal as stated by Congress for the Toxic Substances Control Act was to reduce the risk of injury to the population and the environment from chemical substances. The means of achieving this goal, what we refer to as the *form* of policy implementation, consisted chiefly of command and control regulatory devices (McCubbins, 1982a,b; McCubbins and Page, 1982).

The distinction between the objective and form of a policy is worth making from a number of standpoints. The form of policy implementation affects not only the administrative details of how the policy is implemented, but also how the costs and benefits entailed by the policy are *perceived*. Indirect methods of implementing policy objectives may mask the redistributive effects of chosen policies by making unclear the connection between policies, the costs imposed, and the benefits delivered.

When buying goods in the market place, an individual can easily determine the cost to him of purchasing those goods: such information is contained in the price of the goods. Analogously, some forms of implementation enable the costs of a policy to be easily perceived by the bearers of the cost. For example, direct assessment of taxes for the provision of public goods (e.g., schools or roads) provides a mechanism whereby the costs of the public good are directly felt.

Often, however, the costs of a policy are obscured by the form in which it is implemented. Economic regulation of telecommunications provides a subsidy to the industry by imposing entry restrictions which ensure monopoly profits. The costs of the subsidy are borne by consumers of telecommunication services. However, the subsidization costs come in the form of prices higher than would otherwise prevail in a non-regulated state, and are therefore difficult to untangle from the "normal" costs of the service.

The perception of benefits derived from public policy can similarly be affected by the form of implementation. Direct subsidies, such as those provided for the producers of many agricultural commodities, are easily perceived. On the other hand, the subsidy provided to home-owners through regulations which require savings and loan associations to invest a fixed percentage of their assets in home loans, thereby artificially increasing the supply of mortgage money and lowering interest rates, is all but imperceptible to those home-owners. (Note, though, that benefits from this policy to commercial banks may not be obscured.)

When the legislator chooses a policy objective,  $x$ , and a form of implementation,  $y$ , two things happen. First, an incidence of costs and benefits among the groups in his constituency is determined. (That the form can affect this incidence should be clear; for example, implementing a regulatory policy by the creation of an agency creates jobs, whereas implementing it by tax incentives does not.) Second, the chosen form of implementation,  $y$ , may tend to obscure certain of the induced benefits or costs. Hence, the net impact on the welfare of its membership which the  $g$ th group *perceives* depends not only on the actual costs and benefits incurred, but also on any perceptual effects which the form of implementation may have. Since we assume that it is the perception of welfare which (in part) determines the voting behavior of groups, we introduce notation to represent this perception: let  $w_g(x, y)$  be the  $g$ th group's perception of the welfare impact on its membership of the legislator's choice of  $x$  and  $y$ .

#### THE LINK BETWEEN LEGISLATIVE POLICY CHOICE AND VOTING BEHAVIOR

Using this notation, a formal link between the legislator's choice of  $x$  and  $y$  and the voting behavior of groups can be established. The simplest

assumption would be that the proportion of a group's membership expected to vote for the legislator (denoted  $P_g$ ) is a non-decreasing function of the group's perceived welfare.

$$P_g = P_g[W_g(x, y)], P'_g \geq 0$$

The notion of a long-term group-legislator relationship, while akin to the familiar notion of party identification, is distinct. For our purposes, we do not wish groups to be arrayed along a dimension from strong Republican to strong Democrat, but rather along a "support dimension" which ranges from what Fenno (1978) calls a legislator's "primary constituency" on one end, through his somewhat less dedicated electoral supporters, to independent or swing groups, and on to inveterate opponents at the other end. There are a couple of points to make about the support dimension. First, while it may be positively related to party identification, the correlation need not be perfect. For example, a liberal Republican may find that his most bitter and consistent opponents comprise both liberal Democrats and conservative Republicans; these groups, while far apart in terms of party identification, are in close proximity on the support dimension, both opposing the legislator. Second, the support dimension is otherwise similar in conception to party identification. It represents the long-term propensity of groups to support the legislator, based on past political experience. For a first-termer, these "long-term" propensities may indeed be determined chiefly by party identification. However, as the legislator compiles a track record, groups get an increasingly firm idea of what kind of a Republican or Democrat he is, and attitudes toward him are based more on his past actions and less on initial expectations derived from his party affiliation.

We introduce a variable  $R_g$  to indicate the  $g$ th group's relative position on the support dimension for the legislator. The propensity of the  $g$ th group to support the legislator can then be expressed as follows:

$$P_g = P_g[w_g(x, y), SES_g, R_g]$$

where  $w_g(x, y)$  is the perceived net welfare from the legislator's choice of policy;  $SES_g$  is the socio-economic status of the group; and  $R_g$  is the level of political support for the legislator.

Given the total number of eligible voters in the  $g$ th group, one can consider the behavior of the voting membership of  $g$ . There are  $s_g$  members of group  $g$  expected to vote, and a certain proportion  $P_g$  of these members can be expected to support the legislator. A formalization of the motivational assumption discussed earlier can now be given. We assume that the legislator, cognizant of the relevant demographic and political characteristics of the groups in his constituency, chooses a policy objective,  $x$ , and form of

implementation,  $y$ , in order to maximize his expected votes,  $EV$ .

$$\text{maximize } EV = EV[w(x, y)] = \sum_{g=1}^G s_g P_g[w_g(x, y)]$$

where  $s_g$  is the voting size of the group (i.e., the number of eligible voters included in its membership);  $P_g[w(x, y)]$  is the proportion of group  $g$  expected to support the legislator when he chooses  $x$  and  $y$ ; and  $w$  is a vector-valued function whose  $g$ th coordinate function is  $w_g$ ; i.e.,  $w(x, y) = [w_1(x, y), \dots, w_G(x, y)]$ .

#### REDISTRIBUTIVE CONSTRAINT

The maximization of expected votes, however, is subject to the constraint that the welfare impact of the legislator's policy choices is bounded in the sense that, no matter what choice the legislator makes, no group's perceived welfare is infinite—either positively or negatively. Formally, for all  $g$  there is a lower bound  $-m_g < 0$  and an upper bound  $M_g > 0$  such that

$$-m_g \leq w_g(x, y) \leq M_g \text{ for all } x, y$$

We shall state the upper bound on welfare in the aggregate as follows:

$$\sum_{g=1}^G w_g(x, y) \leq B \text{ for all } x, y$$

$$\text{where } B = \sum_{g=1}^G M_g$$

Public policies are viewed simply as vehicles whereby welfare is distributed among, or redistributed between, groups in society.

#### CONSTRAINT ON POLICY FORMS

Legislators are also constrained in the way in which instruments may be devised for the implementation of policy objectives. The Constitution and current interpretation provides a number of prohibitions against various kinds of government activity. Also, technological constraints restrict the feasibility of various policy forms for the implementation of particular policy objectives. The constraints on policy forms are likely to be complicated, and a detailed exposition of them is unlikely to prove useful. Hence, we shall simply posit the existence of a set of feasible implementation forms,  $F(x)$ , for any given policy objective,  $x$ .

## Consequences

### THE FORM OF POLICY INTERVENTION

Most previous models of policy choice have dealt chiefly with what we have referred to as the policy objective (cf. McCubbins, 1982a). The idea that the form in which policies are implemented is also important and can change, not just the direct welfare consequences of a policy, but also the way in which those consequences are perceived, has not often been adequately recognized. In this section, we explore some of the basic consequences of this idea.

A first step is simply to note that, for any given policy objective,  $x_0$ , the legislator will maximize over the form of implementation; i.e., he will choose a  $y$  in  $F(x_0)$  which maximizes  $EV(x_0, -)$ . Intuitively, there are two basic consequences which flow from this observation and the previous discussion. First, legislators will prefer implementation forms which have favorable direct impacts on the welfare of relevant groups in their constituencies. An example partly illustrating this is the preference exhibited by many congressmen for the construction of sewage treatment plants as a means of reducing water pollution; treatment plants boost the local construction industry, and create jobs in the plant itself, while the alternative—effluents taxes—has no comparable effects. A second consequence, which we shall examine in somewhat more detail, is that legislators will prefer implementation forms which hide costs and reveal benefits, other things being equal. In order to make clearer what “other things” need to be held equal, some further notation will be useful. Let the perceived net welfare of the  $g$ th group be expressed as

$$w_g(x, y) = \beta_g(y)b_g(x, y) - v_g(y)c_g(x, y)$$

where  $b_g(x, y)$  and  $c_g(x, y)$  are, respectively, the generalized benefits and costs imposed by the policy choice  $(x, y)$  and  $0 \leq \beta_g(y) \leq 1$  and  $0 \leq v_g \leq 1$  are discounting factors reflecting the perceptual effects of the implementation form. If  $\beta_g(y) = 1$ , then the benefits of the policy choice are fully evident, while if  $\beta_g(y) < 1$ , they are partly or wholly obscured.  $v_g$  plays a similar role with respect to the costs of the policy.

That we subscript  $\beta$  and  $v$  by group partly reflects the differing levels of cognitive ability and political information possessed by groups, which might enable some to perceive obscured costs or benefits more readily than others. However, it may also reflect a kind of inherent differentiation between groups due to the implementation form itself. For example, when sewage treatment plants are selected as the means to reduce water pollution, certain benefits—those accruing to the construction industry—are quite evident

( $\beta = 1$ ), while certain other benefits from the policy—somewhat cleaner water for all groups whose members swim—may be partially obscured ( $\beta < 1$ ).

While the possibility of differential perceptions by different groups exists, we shall consider it here to be of second-order importance insofar as changes in implementation form are concerned. It seems a reasonable approximation that maintaining clean rivers by effluents taxes ( $y_1$ ) is strictly dominated by the construction of treatment plants ( $y_2$ ) in the sense that  $\beta_g(y_2) > \beta_g(y_1)$  and  $v_g(y_2) \leq v_g(y_1)$  for all  $g$ . Under a tax scheme,  $y_1$ , general taxpayers bear less costs, but there is no reason to assume their perception of cost is any less clear; on the other hand, polluting industries bear more costs which are probably more obvious to them. Similarly, under  $y_1$ , the swimming population may accrue almost the same benefits and perceive them about as clearly; but any benefits to the construction industry now accrue to them as swimmers or consumers of pure water and are inherently less obvious than the construction contracts which they receive under  $y_2$ . While not all possible implementation forms for a given policy objective can be neatly and unidimensionally ordered, starting with those which hide costs and reveal benefits on the one end and proceeding to those which reveal costs and hide benefits on the other, as a simplification we shall view them as such, and say that " $y_1$  is more indirect than  $y_2$ " to indicate that  $\beta_g(y_1) \geq \beta_g(y_2)$  and  $v_g(y_1) \leq v_g(y_2)$  for all  $g$ . We can now state a basic consequence to be illustrated by several specific examples.

*Consequence 1. Ceteris paribus, legislators prefer more indirect forms of implementation.*

*Proof:* This follows essentially by definition. If  $y_1$  and  $y_2$  are both feasible implementations of  $x$  [i.e.,  $y_1$  and  $y_2$  are both in  $F(x)$ , and  $y_1$  is more indirect than  $y_2$ ], then by definition,  $\beta_g(y_1) \geq \beta_g(y_2)$  and  $v_g(y_1) \leq v_g(y_2)$  for all  $g$ . This implies that  $w_g(x, y_1) \geq w_g(x, y_2)$  for all  $g$ , and hence  $P_g(x, y_1) \geq P_g(x, y_2)$  for all  $g$ , yielding  $EV[w(x, y_1)] \geq EV[w(x, y_2)]$ . QED.

The model legislator, then, will attempt to choose forms of implementation which hide the costs while accenting the benefits of governmental policy. Examples of this at the federal level include import quotas on agricultural commodities, tariffs on manufactured goods, and government regulation of the professions. Each of these policies deliver benefits to certain groups (farmers, protected industries, and professionals now able to restrict entry) and impose indirect costs on the rest of the society through higher prices.



Another example is life-line pricing by state public utility commissions. Life-line rates are special discounts for the elderly or the poor. Although these groups would be better off with a direct cash subsidy equivalent to the monetary value of the life-line discount, charging differential prices between groups is less direct and hides the costs of the subsidy delivered.

Also, economists have long questioned the efficiency of having municipalities supply services, such as electricity, water, rubbish collection and sewage disposal, which could be more efficiently supplied through a competitive market (cf. Kahn, 1970; Joskow and Noll, 1978). If everyone would be better off when the services are supplied in a competitive market, they ask, why are such services supplied by city-owned monopolies? The model here suggests that the cities, using the monopoly profits garnered through such enterprises, can supply other services, such as parks, libraries, police and fire prevention, which deliver highly visible benefits to constituents, without imposing directly visible costs. The costs of the city services are hidden in higher monopoly prices for municipally owned utility services, and as such are directly linked to the delivery of the other city services. On the other hand, taxes levied expressly to support city services would make the costs of such services more tangible. Two final examples of the predisposition of legislators for indirect implementation forms will be given at somewhat greater length.

#### THE FISCAL ILLUSION REVISITED

Fiscal illusion models, which depend upon assumptions about asymmetric perceptions of pecuniary effects, have been used to explain the systematic bias of a representative legislature to create larger than efficient distributive projects (Downs, 1957, 1967; Niskanen, 1971; Riker and Brams, 1973; Ferejohn and Fiorina, 1975; Fiorina and Noll, 1978; Weingast et al., 1981) [2]. Weingast et al. (1981) suggest that distributive policies induce

pecuniary losses, principally through higher prices in factor markets, which are not always fully linked to the effects of increased factor demand from the project in question. Indeed, the illusion may be such that pecuniary losers are unable to distinguish the source of their losses from general price inflation (pp. 648-649) [3].

However, such fiscal illusion models miss the mark. It is not the *policy* which induces the asymmetric perceptions, it is the form of the policy intervention. Weingast et al. (1981) suggest that distributive policies are in fact merely a subsidy to producer groups, i.e. "factor owners", from consumer groups, i.e. "factor users" (p. 648). However, such subsidies can be accomplished in a number of ways. The subsidy could be supplied directly

by taxing consumers and making transfer payments to producers, and such a direct transfer could produce the same welfare effects as the distributive project, without producing any fiscal illusion whatsoever. It is the *form* in which the policy is implemented, whereby demand for factor inputs is increased as a result of new distributive projects, which imparts the asymmetric perceptions, as Fiorina (1982) has recognized for the special case of the legislative delegation of law-making authority to an administrative agency.

We suggest that the key to fiscal illusion generally lies in the form of implementation, and that the fiscal illusion explanation of the prevalence of pork-barrel policies (amended to recognize the importance of the form of implementation in creating the perceptual asymmetries) can be viewed as a specific application of Consequence 1: pork-barrel projects are highly visible and enable the legislator to engage in credit-claiming (Mayhew, 1974; Fiorina, 1982). The costs, on the other hand, are less visible, for reasons already discussed. Hence, we have:

*Fiscal-Illusion Corollary. Elected officials will be predisposed to distributive, i.e. pork-barrel, policies.*

#### THE FORM OF REGULATORY INTERVENTION

Another corollary to Consequence 1 addresses a puzzling aspect of regulation, that command and control ("thumbs, no fingers") regulatory instruments are chosen in preference to incentive-based instruments.

*Command and Control Corollary. Elected officials will prefer forms of regulatory intervention which rely upon command and control mechanisms rather than upon incentives.*

Economists have often commented upon the over-reliance by Congress on command and control instruments (Lindblom, 1977; Schultze, 1977; Breyer, 1982; McCubbins, 1982a,b; McCubbins and Page, 1982; Stone, 1982); so much so that it has become a stylized fact (Fiorina, 1982). For our purposes, the essential feature of command and control mechanisms is that they are indirect means of implementing regulatory policy; rather than creating incentives to change behavior, they constrain choice, thereby creating new trade-offs and consequent changes in behavior. This indirectness enables legislators to hide the costs of regulation. Whereas the costs associated with a limit on effluent do not come in the form of a direct payment to the government, the costs imposed by incentive-based mechanisms are usually in the form of direct taxes or fines. Fining a company in accordance with its

discharge of effluent relates the costs of the regulation quickly and directly to the company. On the other hand, both command and control and incentive-based mechanisms can deliver identical benefits which are easily perceived by those who receive them, and the legislator can readily claim credit for delivering these benefits (cf. McCubbins, 1982a, b). Thus, in order to maximize the delivery of *perceived* net benefits, the legislator will prefer to use command and control instruments.

#### ELECTORAL POLITICS AND PUBLIC POLICY

Thus far, we have discussed only consequences pertaining to the perceptual effects of the form of policy implementation. In this section, our interest focuses on the direct welfare effects which are determined jointly by the policy objective and form. Accordingly, we shall ignore perceptual effects in this section and assume essentially that all costs and benefits are perceived with equal and perfect clarity. The basic question addressed is the following: which groups in the constituency receive benefits, and which bear costs.

With the assumption of decentralized policy, we can view the legislator as directly choosing the welfare levels of groups subject only to the constraint that these welfare levels exceed certain minimum bounds and do not exceed in the aggregate a given upper bound.

$$\begin{aligned} & \text{maximize } \sum_{g=1}^G s_g P_g(w_g) \\ & \text{subject to } \sum_{g=1}^G w_g \leq B \text{ and} \\ & w_g \geq -m_g \text{ for all } g \end{aligned}$$

If welfare increases linearly with wealth, this model can be interpreted as follows: the legislator has  $\$B$  which he may distribute among the groups in his constituency; he may also transfer funds from one group to another subject to the obvious constraint that he cannot deprive any group of more than its net wealth ( $m_g$ ).

The simplest case to consider is that of *pure distribution*: the legislator simply has  $\$B$  to distribute, and cannot redistribute wealth (so  $w_g \geq 0$  for all). We assume that  $P_g$  is twice continuously differentiable and that the second derivative of  $P_g$  with respect to  $w_g$  is non-positive for all  $g$ . These assumptions, which can be interpreted as saying that groups are not risk-acceptant, are chiefly for convenience.

Some insight into how a legislator will choose in this pure distribution

case can be gained by considering an analogy to investment. Each group can be considered an investment paying off in expected votes. The instantaneous rate of return of the  $g$ th group,  $r_g$ , is simply

$$r_g = r_g(w_g) = \partial EV / \partial w_g(w_g) = s_g [\partial P_g / \partial w_g(w_g)]$$

Before any funds have been distributed, the relevant rate of return is  $r_g(0)$ . If the legislator had only a very small amount to invest, he might well give it all to that group, say  $g_1$ , with the largest initial rate of return. As the amount to invest grows, however, enough might be given to  $g_1$  so that its rate of return fell (since  $dr_g/dw_g \leq 0$ ) to equality with the second best original investment, in which case the legislator would invest in both these groups. In general, re-numbering the groups so that

$$r_1(0) \geq r_2(0) \geq \dots \geq r_G(0)$$

it can be shown by use of the Kuhn-Tucker theorem that any expected vote maximizing choice  $w^*$  is such that

- (1) if  $w_g^* = 0$  then  $w_h^* = 0$  for all  $h > g$ ,
- (2) if  $w_g^* > 0$  then  $w_h^* > 0$  for all  $h < g$ ,
- (3) for all  $g$  such that  $w_g^* > 0$ ,  $r_g(w_g^*) = t$ , a non-negative constant,
- (4) for all  $g$  and  $h$  such that  $w_g^* > 0$  and  $w_h^* = 0$ ,  $r_g(0) > r_h(0)$ .

That is, we have

*Consequence 2. Given decentralized control over policy, legislators will choose policies which provide benefits to the groups in their constituency in order of the groups' "electoral rate of return",  $r_g(0)$ .*

*Proof.* Follows from a proof in Cox, McCubbins and Sullivan (1985).

This result is counter-intuitive. Conventional wisdom, derived it would seem from the spatial model of voting, would suggest that candidates for office would struggle to please the swing groups, those not aligned with either party (Downs, 1957) [4]. Implicit in the conventional wisdom is an assumption that the marginal electoral return on the policy investment that a legislator makes in a group is at a maximum when the probability beforehand that the group supports the legislator,  $P_g$ , is around 0.5. The following two examples point to the fallacy of the conventional view and serve to illustrate Consequence 2.

*Example 1.* For simplicity, assume that the propensity of a group to support the legislator,  $P_g$ , can be divided into two terms: a party term and a

welfare term. The propensity,  $P_g$ , can be written as the sum of these two terms.

$$P_g = \alpha_g + \beta_g w_g, \quad 0 \leq \alpha_g \leq 1$$

$$0 \leq \beta_g \leq 1$$

$$0 \leq w_g \leq 1$$

$$0 \leq P_g \leq 1$$

where

$\alpha_g$  is the party term, and corresponds to the propensity that individuals in group  $g$  will vote for the legislator given his party affiliation, all else constant.

$\beta_g$  is a translation coefficient which translates net welfare changes to support propensities, i.e. is the marginal expected vote change for a change in welfare.

$w_g$  is the  $g$ th group's percentage of the perceived total welfare distributed.

Suppose a legislator's district is comprised of seven groups of identical size with party affiliations as suggested by the party term,  $\alpha_g$ , in Table I. We can categorize those with propensity,  $\alpha_g$ , of greater than 0.6 as the legislator's "primary" constituency or party, those with a propensity,  $\alpha_g$ , between 0.4 and 0.6 as "independents", and those with a propensity,  $\alpha_g$ , of less than 0.4 as "the opposition". The seven-group electorate in Table I is arranged according to this propensity to support.

There is reason to believe that the marginal return in expected votes for a change in welfare,  $\beta_g$ , is colinear with party affiliation, as the legislator's

TABLE I

An Illustration of Alternative Policy Schemes. Example 1

Individual	$\alpha_g$ (party term)	Scheme 1			Scheme 2		
		$w_g$	$\Sigma w_g$	$P_g$	$w_g$	$\Sigma w_g$	$P_g$
1	0.95	0.06	0.06	1.0	0.00	0.00	0.95
2	0.85	0.19	0.25	1.0	0.00	0.00	0.85
3	0.80	0.19	0.25	1.0	0.00	0.00	0.80
4	0.60	0.50	1.00	1.0	0.50	0.50	1.00
5	0.40	0.00	1.00	0.40	0.50	1.00	0.90
6	0.15	0.00	1.00	0.15	0.00	1.00	0.15
7	0.10	0.00	1.00	0.10	0.00	1.00	0.10
Total expected votes $\sum_g P_g$				4.65	4.65		

supporters will likely view the delivery of benefits to them in a better light than will constituents of the opposition. We shall assume, for now, that this term is constant across groups.

$$\beta_g = \beta = 0.8 \text{ for all } g$$

It should be noted, however, that this simplifying assumption prejudices the example *against* our proposition.

The legislator will deliver changes in welfare,  $w_g$ , from a fixed distribution, to individuals so as to maximize his expected vote total. In the example, however, since the marginal expected vote change for a change in welfare,  $\beta_g$ , is constant, the expected vote total is similarly constant.

$$\sum_g P_g = 4.65$$

no matter how the legislator decides to distribute the welfare.

Two policy schemes are presented in Table I. Scheme 1, the "party strategy", delivers all the benefits first to members of the legislator's party and then to closely affiliated independents (i.e., to Groups 1-4). Scheme 2, the "conventional strategy", delivers all the benefits to independents. Due to the assumption that  $\beta_g$  is constant, both schemes yield identical total expected votes. However, it should be noted that in Scheme 1, the party strategy, the distribution of benefits delivers a majority of the votes (4) in the district, *with certainty* (i.e.  $P_g = 1.0$  for all  $g = 1,2,3,4$ ). No other policy scheme can deliver a majority of the votes with certainty. Thus, if the legislator is *risk averse*, he will prefer the party scheme to any other. In other words, the legislator will seek to deliver the benefits of public policy first to his "primary" constituency and then to his "re-election" constituency.

*Example 2.* If we now assume that the marginal expected vote change for a change in welfare,  $\beta_g$ , is colinear with the party term,  $\alpha_g$ , our consequence again follows easily. We should expect that a legislator's electoral constituency (i.e., his party) generally favors his policies and views them favorably. The stronger the group identifies with the legislator, the more favorably the group will view the legislator's policy choices. Benefits delivered will be warmly appreciated. On the other hand, groups affiliated with the opposition party will not so keenly appreciate the policies of the legislator. Benefits delivered, then, will only be grudgingly appreciated.

Table II illustrates the impact that Schemes 1 and 2 have on the expected vote total for the legislator in the case where  $\alpha_g$  is colinear with  $\beta_g$ . It can be seen from the table that the party strategy, Scheme 1, delivers the largest expected vote total, 4.66, with a *certain vote of four*. No other scheme can claim either of these accomplishments. Thus, again, the party scheme,

TABLE II  
An Illustration of Alternative Policy Schemes. Example 2

Individual	$\alpha_k$ (party term)	$\beta_k$	Scheme 1			Scheme 2			Scheme 3					
			$w_k$	$\Sigma w_k$	$P_k$	$w_k$	$\Sigma w_k$	$P_k$	$w_k$	$\Sigma w_k$	$P_k$			
1	0.95	0.90	0.06	0.06	1.0	0.00	0.00	0.95	0.00	0.00	0.60	0.00	0.95	
2	0.85	0.85	0.18	0.24	1.0	0.00	0.00	0.85	0.00	0.00	0.00	0.00	0.85	
3	0.80	0.80	0.25	0.49	1.0	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.80	
4	0.60	0.80	0.50	0.99	1.0	0.50	0.50	1.00	0.50	0.25	0.25	0.25	0.80	
5	0.40	0.60	0.01	1.00	0.41	0.50	1.00	0.70	1.00	1.00	0.75	1.00	0.80	
6	0.15	0.40	0.00	1.00	0.15	0.00	1.00	0.15	1.00	1.00	0.00	1.00	0.15	
7	0.10	0.30	0.00	1.00	0.10	0.00	1.00	0.10	1.00	1.00	0.00	1.00	0.10	
Total expected votes $\Sigma P_k$											4.66		4.55	4.45

wherein the benefits of public policy are distributed to the legislator's party identifiers, is preferred. Neither example seems pathological and both are carried through with reasonable simplifying assumptions from the model.

The particular case of pure distribution used to motivate Consequence 2, and the examples, is actually typical of the more general case in which *redistribution* is allowed. It is clear that the case of "pure extraction", in which the legislator must take  $\$B$  from the constituency, can be analyzed in the same model with  $B < 0$ ; in this case, the legislator will deprive groups of money in inverse order of their electoral rate of return,  $r_g(0)$ , and, in a general model allowing redistribution, a legislator will clearly "borrow" from groups with lower electoral rates of return in order to "invest" in those with higher rates of return. Hence, in the general redistributive case, we have:

*Electoral Rate of Return Corollary.* Given decentralized control over policy, legislators will choose policies which provide benefits to those groups in their constituencies with the highest electoral rates of return, and impose costs on those with lower rates of return.

While this consequence is seemingly contrary to conventional wisdom, a review of recent congressional literature on the subject might establish that our view is at least not unsubstantiated. Fenno (1978) suggests that a legislator views his constituency as being composed of several sources of potential support arranged around the legislator in concentric circles. Two constituencies are especially important to the legislator; these are his "re-election" and "primary" constituency. Legislators are very much concerned with this fundamental distinction and have it quite clear in their minds.

When I look around to see who I owe my career to, to see those people who were with me... when most people thought I couldn't win—these are the people I think I owe (Fenno, 1978, p. 19).

It is to the primary constituency that legislators are most responsive and about whom legislators focus their attention.

Indeed, all the evidence we have accumulated suggests that a congressman's strongest supports demand more, not less, of a congressman's time than his other constituencies (Fenno, 1978, p. 128).

Conversely, a legislator does not reach out regularly to those groups which are not his primary partisans, even though they may be well organized and pose a credible threat. In our model, legislators "dance with them that bring 'em". Indeed, many legislators develop an open and long-running compe-



tion with some groups, these are his implacable opponents. The legislator thinks of them in terms like,

"I concede the black vote..."; "they won't support me anyway and they'll find more reasons for it after they've heard me..."; or as "the people I can't reach with a ten-foot pole..." (Fenno, 1978).

In our model, these are the constituents who are most likely to oppose the legislator, i.e., whose  $P_g$  is close to some critical values near zero. Except for the most trivial of services, we expect legislators to ignore these voters. This is an explanation, we suggest, for the tendency of American national parties, organized on a geographically local basis, to continually ignore some groups while fixing their identities with other specific groups in the electorate. The same can be said, we suggest, of other more centralized party systems.

This consequence has intriguing implications for the understanding of pork-barrel policies. The theory articulated here suggests that those benefited by the pork-barrel are selectively targeted minority groups within the district, principally members of the legislator's primary constituency. These groups make up only a fraction of the district's population.

Though all constituents in the legislator's district may benefit from a new highway, the construction company contracted and the construction workers employed are the principal beneficiaries. Benefits and costs may be "lumpy" in this fashion, and the legislator will direct the benefits to his supporters and the costs to his opposition. In this way, the distribution of income which pork-barreling accomplishes is more complex than is typically understood. Not only are the benefits obtained at the expense of other groups in other districts who create the tax base employed, but policies redistribute resources *within* districts as well as transferring taxes from one group and transforming them into benefits for another group within the same district.

In targeting the benefits and costs of public policies to specific groups in his constituency, then, the legislator will take account of the group probabilities of support. In so doing, the legislator will choose policies which hide the costs and accent the benefits incident to the policy.

### Conclusion

This paper presented a general formal model of policy choice. The assumptions upon which the model is based are well founded in the literature and generally non-controversial. The model is also one of legislative choice and the consequences derived also speak to significant issues in the study of legislatures: the policy nature of representation, the impact of

electoral incentives, and the relationship of legislators to their constituents. In this way, the model unifies two subfields of research—policy and legislative politics—into a general framework.

Several important consequences follow formally from the calculus we have presented. Legislators will prefer to select “indirect” forms of policy whenever possible: this preference is for forms of policies which muddle the perception of costs incident to the policy. The legislator’s preference for command and control regulatory instruments and for particularistic policies are principal examples of this consequence. The possibilities for melding the advantages of market (or exchange) and political (or authority) control systems are, then, seemingly remote (cf. Lindblom, 1977). The representative system of democracy, and the incentives it provides for legislators, hinder the imposition of market-like incentive system in favor of the more indirect “thumbs, no fingers” mechanisms.

Further consequences, that legislators will select policies which benefit groups with high support rates for the legislator, i.e. his primary and re-election constituencies, were derived. A number of these consequences are new and unique. A number have been derived elsewhere, though, through a variety of specific modeling techniques. That *all* of these consequences follow from this general model developed here is one of the model’s principal strengths.

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We wish to thank our colleagues Gary Cox, Ben Page and Tom Schwartz for their suggestions. We are also indebted to the work of Morris Fiorina.

### Notes

- 1 We will assume that the legislator will be seeking re-election in a two-candidate (or two party) election and that the opposition has fixed policy platforms. This implies that the maximization of expected votes will be equivalent to seeking a plurality of votes, and that the legislator’s strategies in order to maximize expected votes will be simply as described and not the result of a two-person game. The model here is similar to one developed in Cox et al. (1984).
- 2 Other fiscal illusion models have been based upon the similar premise that the methods the government uses to finance the provision of public goods and services are such that voters are led to *underestimate* the true cost of such provision. As a consequence, voters demand more and legislators supply more of these goods and services than they would otherwise (Goetz, 1977). Several financing techniques have been suggested to have illusion-inducing properties: Enrick (1964) and Wagstaff (1965) note that tax collection by withholding from paychecks seems less costly to taxpayers; Buchanan and Wagner (1977) and Wagner (1976)

have suggested that debt financing creates a fiscal illusion because taxpayers discount the future tax liabilities created by deficits; highly elastic and complex tax systems and a reliance on taxes built into the costs of the public goods has also been associated with the under-estimation of costs (Wildavsky, 1975; Craig and Heins, 1980).

It is important to note here, however, that our model is more general than the ones discussed above and does not rely on assumptions about the characteristics of particular tax systems. Such limiting assumptions would not allow us to discuss the broad range of policy issues (from regulation to municipal electric rates) which our model addresses.

- 3 Weingast et al. (1981) hypothesized that legislators attempt to maximize the net benefit,  $N_j(x)$ , from a project to their district. The legislators optimize over the choice,  $x$ , of the size or scale of the project.

$$N_j(x) = b(x) + C_1 - t_j T(x) - C_3(x)$$

where  $b(x)$  represents the present value of economic benefits from the project,

$C_1 x$  is the real resource expenditures for the project inputs spent in the constituency,

$t_j$  is the district's tax share,

$T(x)$  is the total tax bill for all projects, and

$C_3(x)$  is non-expenditure real resource costs.

Their result follows from the characterization of real resource expenditures,  $C_1(x)$ , as a benefit, not a cost of production. Production costs which are "geographically earmarked expenditures" are in fact benefits to the district.

This assumption about resource expenditures is somewhat arguable. Categorizing these expenditures as benefits is akin to double counting. Weingast et al. (1981) have already characterized the benefits,  $b(x)$ , to include "increased profits to project input owners" resulting from "price rises in factor markets" (p. 645). If factor inputs are scarce (which is likely to be the case), then they will be fully employed before any project is mandated. Resource expenditures in the district, then, will act to displace other economic activity (at a cost to someone) and will increase the price of the factor inputs. This increase in price is already accounted for in  $b(x)$ . The expenditure itself merely displaces an expenditure from another source and brings nothing to the district. In order for their result to follow, they need to assume that factor inputs are not fully employed—a somewhat arguable assumption.

Further, if there is more than one project undertaken in a district at the same time (which is likely to be the case) then, in a general-equilibrium analysis, it is not at all likely that the price and income effects suggested by Weingast et al. will hold.

However, our model does not rest upon a particular characterization of costs, but rather is founded, more generally, upon an analysis of the form of policy intervention. Also, we do not have to assume that the costs of a project fall outside the district, as our model predicts which groups *within* a legislator's district will bear the costs.

- 4 Spatial voting models which could be extended to align with our analysis have been presented by Hinich (1981) and Hinich and Pollard (1981).

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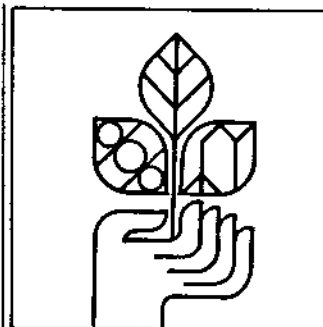
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