INSTITUTIONAL STRUCTURE AND TIME HORIZON IN A SIMPLE MODEL OF THE POLITICAL ECONOMY: THE LOWI EFFECT

H. Keith Hall
University of Arkansas

Douglas R. Nelson
Washington University

INSTITUTIONAL STRUCTURE AND TIME HORIZON IN A SIMPLE MODEL OF THE POLITICAL-ECONOMY: THE LOWI EFFECT

This paper develops an approach to the formal analysis of the political-economy. Using a simple, graphical approach, we present a model of general political-economic equilibrium. That is, with given preferences and production technologies, the political and economic decisions of individuals determine the level of government intervention in the economy as well as the levels of production of all goods, price levels in all markets, and the distribution of goods among various classes of individuals. In the context of this model, we demonstrate the effect of both the time horizon over which political calculation takes place and the structure of the institution within which political activity occurs. Using a simple characterization of these two dimensions, we derive a typology consistent with Lowi's classic work on the effect of institutional form on political organization.

INSTITUTIONAL STRUCTURE AND TIME HORIZON IN A SIMPLE MODEL OF THE POLITICAL ECONOMY: THE LOWI EFFECT

Institutional structure affects political process and, via that mechanism, political outcomes. All but the most religious structuralists and individualists have come to re-recognize the fundamental role played by institutions in social processes.[1] There have been two major responses to this recognition. From the structuralist side has come a renewed commitment to the structurally focused case study.[2] This work emphasizes the importance of institutionally situated elites in responding to changes in domestic and international social structures. Given the case study orientation, it is not surprising that the interaction of very specific institutionally located elites becomes a major concern of these studies. From the individualist side has come the attempt to identify the effect of institutional structure on collective behavior, as well as the attempt to identify "institution-free" properties of collective behavior.[3] This literature tends to operate under very general definitions of both individual preference and institutional structure.

In this paper we propose an approach which is, in some loose sense, intermediate between these two approaches: endogenous economic policy modeling. Endogenous policy models attempt to explicitly model the processes that generate payoffs to political activity in a general political-economic equilibrium.[4] The simplest form of this approach assumes that citizen preferences over economic policy are strictly determined by their relationship to the economy. While most research of this type

has assumed a very simple institutional structure (direct referendum/lobbying), alternative institutional assumptions are now receiving some attention. In this paper, we develop a formal link between the institutionalist and individualist theory by illustrating the effect of institutional structure on the incentives to political action. Because our results yield a typology similar to that observed in Lowi's (1964, 1972) now classic work linking institutionalized policy types to political action, we refer to this as the Lowi effect.

In the first section of the paper we present a brief discussion of the literature growing out of Lowi's work to establish the categories and the intuition behind our more formal analysis. This is followed by an overview of the endogenous policy approach to modeling political-economic interaction. The bulk of the paper is a step-by-step geometric development of the simplest endogenous policy model (a 2 x 2 economy with a passive register state). We conclude with a discussion of the derived Lowi-effect and some suggestions for future research.

THE LOWI LITERATURE

Lowi's typology seems to have emerged from an attempt to reconcile the apparently contradictory conclusions of the voluminous case study literature on politics at the local and national levels.[5] Lowi argues that much of the debate between various schools of thought on politics in liberal democratic systems (pluralists v. elitists v. state autonomists) arises from the erroneous notion that there is a single, best model of the political process. Instead, Lowi argues that there are a small number of "arenas of power", each of which is characterized by

its own distinctive politics. That is, the attributes of a policy tend to induce characteristic patterns of politics, or to use Lowi's own simple formula: policies determine politics (Lowi 1972; pg. 299).

In the 1964 review of Bauer, Pool and Dexter, the arenas of power analysis takes the form of an empirical observation, the recognition that there are several distinctive patterns of political interaction coexisting in the American political system, and that these patterns relate to the major schools of interpretation of that system. Specifically, Lowi argues that there are three arenas of power, each yielding characteristic politics and research traditions: distributive (elitist); regulatory (pluralist); and redistributive (state autonomist).

> Distributive policies "are characterized by the ease with which they can be disaggregated unit by small unit, each unit more or less in isolation from other units and from any general rule. These are policies that are virtually not policies at all but are highly individualized decisions that only by accumulation can be called a policy. They are policies in which the indulged and the deprived, the loser and the recipient, need never come into direct confrontation."
>
> Regulatory policies "are distinguishable from distributive in that in the short run the regulatory decision involves a direct choice as to who will be indulged and who deprived... So, while implementation is firm-by-firm and case-by-case, policies cannot be disaggregated to the level of the individual or the single firm (as in distribution), because individual decisions must be made by application of a general rule and therefore become interrelated within the broader standards of law."
>
> Redistributive policies "are like regulatory policies in the sense that relations among broad categories of private individuals are involved and, hence, individual decisions must be interrelated....[But the] categories of impact are much broader, approaching social classes."

In common with all empirical typologies, the arenas of power typology is a pre-theoretic construction. Abstracting from

nihilistic assertions that reality is simply too complex to support any useful generalizations (e.g. Greenberg, et al., 1977), research based on empirical typologies takes two general forms: attempts to apply the typology in additional empirical work[6]; and attempts to develop the theoretical foundations in more detail. With regard to theoretical development, we can identify two major bodies of research: attempts to provide firmer theoretical foundations for the typology[7]; and attempts to derive the properties of political activity within a given category[8]. We will be concerned with the former issue in this paper.

The choice theoretic foundations of the Lowi-effect are quite straightforward. Individuals are assumed to be rational in terms of both economic and political calculation. That is, individuals are assumed to prefer policies that yield a net balance of benefits (economic rationality) and to engage in political action only when the returns to that action are positive (political rationality). Policies are given institutional form in a piece of legislation that specifies: a distribution of costs and benefits; and the terms of access to the costs and benefits. Once a policy is institutionalized, Lowi conjectures that the institutional form tends to induce a characteristic pattern of politics. The causality runs strictly from policy (institutional form) to politics (patterns of activity).[9]

Lowi's (1972) own attempt to provide theoretical motivation for his empirical typology remains the most significant contribution of this sort. Generalizing his earlier discussion of the attributes of the arenas, Lowi argues that an issue can be characterized in terms of the applicability and likelihood of

coercion expected from adoption of the policy in question. In his later work, Lowi drops the emphasis on coercion in favor of the more general "impact" (e.g. Lowi, 1985). Instead of applicability of coercion, we follow Lowi in emphasizing form of intended impact, which refers to whether the policy is expected to operate on individual conduct or on the environment of conduct. That is, whether decisions on individual cases reflect the operation of discretion or rules on the part of the decision-making entity.[10] In a sense, discretion permits the relevant decision-makers to treat each individual independently of any other, while rules create groups by aggregating individuals on the basis of some shared attribute or behavior.[11]

Where the rules v. discretion dimension seems to be a fairly constant part of the literature on the Lowi-effect, the other dimension has proven to be somewhat problematic. As with the previous dimension, Lowi's approach has been to focus directly on the statutory content of the legislation/regulation that gives a policy its official form. Thus, generalizing his earlier emphasis on applicability of coercion, Lowi's (1985) later work has emphasized the degree to which a policy works through incentives or constraints. That is, he asks whether the policy is implemented primarily by allocating benefits ("powers or privileges") or imposing costs ("obligations or positions").

A closely related approach stresses the the distinction between policies with symmetrical and asymmetrical effects (Zimmerman, 1973). Where Lowi emphasizes a policy's statutory content in identifying arenas, Zimmerman emphasizes the consequences of a policy by focusing on the relative distribution

of costs and benefits across citizens. Thus, a policy with symmetrical effects treats all citizens equally, while a policy with asymmetrical effects distributes costs and/or benefits unequally. As with Lowi's analysis, the actual causal mechanism linking policy-type to behavior is never analyzed in detail. The discussions in the relevant texts suggest two such mechanisms: information costs and collective action costs.[12] With regard the former, it is implicitly assumed that symmetrically distributed costs may end up small enough that it would not be rational to notice them (i.e. the costs of learning about them are higher that the costs imposed by the policy). Even if individual costs rise above the level at which they are noticed, if they are symmetrically distributed, there may be collective action problems in organizing for effective political action.

The difficulty with this construction is that it fails to recognize that asymmetries may be of various types, each with distinctive behavioral implications. Once we recognize that virtually all policies imply both benefits and costs, the importance of the distribution of benefits and costs becomes equally apparent. Drawing on the work of Wilson (1974), we might ask whether the benefits of a policy are distributed among citizens in a concentrated or a diffused manner, and similarly for the costs.[13] Introducing these considerations along with the rules-discretion distinction yields what might be called a Lowi-Wilson typology.

-- Figure 1 about here --

Assuming that individuals are rational in the sense that they support policies yielding a net balance of benefits and oppose

policies yielding a net balance of costs, and that concentrated benefits or costs are more likely to stimulate political action than diffused benefits or costs, this typology allows us to identify several of the characteristic arenas of power. In arenas I-IV, the policy is administered under a general rule which treats individuals as members of a class on the basis of some relevant attribute.

I. Public Good: The government provides many goods and services that are widely available (i.e. the benefits are diffused). Whether or not such goods are, in fact, non-excludable is not relevant. The terms of the policy define access to a broad class (e.g. all citizens). The funding of such goods and services (i.e. the costs) are provided out of general revenues and, thus, are also diffused. Research on the theory of collective action suggests that such policies are unlikely to stimulate strong political action on either side (i.e. for or against).[14] As a result, we expect such issues to be dominated either by the executive or by political entrepreneurs. In either case the politics are expected to be very public.

II. Regulatory (Type I): Like the public good case, a good or service is being provided whose benefits are widely diffused. Unlike that case, however, the costs are clearly seen to fall on some identifiable class. In this case the rule identifies the class of individuals or behaviors that bears the cost. This is the general case of regulation in the public interest. Thus, legislation regulating the introduction of pollutants into the environment is seen to produce the diffused benefit of cleaner air, with concentrated costs to polluters and potential polluters. Like the public good case, we would expect political the executive and/or entrepreneurs to play a major role in promoting such policy, while opposition is expected to be self-organizing.

III. Regulatory (Type II): Type II regulation is just the reverse of Type I regulation--the benefits of the policy are concentrated, but the costs are diffused. As in the Chicago School accounts of regulation, beneficiaries are easily organized to capture the regulatory policy to the detriment of those who bear the (diffused) costs of the policy. In this case, we expect organized interests to dominate the political process.[15] Subgovernments (or "iron triangles") made up of committee elites, bureaucratic elites, and beneficiary elites are expected to manage Type II regulatory politics in a low visibility fashion.

IV. Redistributive: In this case, the costs and benefits are concentrated such that the rule under which the policy takes place is clearly seen the redistribute value (e.g. wealth) from one class of people to another. We would expect both gainers and losers to be effectively organized for political action in this case, and, as a result, we would expect the political conflict to be substantial. Instead of the low politics of a subgovernment, we expect to find high politics (i.e. President-Floor-peak association).

Where the previous policy arenas are defined by the presence of some form of general rule under which policy is administered, in arenas V-VIII the policy is perceived to operate through the allocation of costs and/or benefits on an individual basis.

V. Routine Constituent/Administrative Service: In this case the government's relationship to civil society is defined in such a way that the relationship is highly individualized (reflecting a high degree of discretion). However, while the benefits of this relationship are seen as specific to individuals, they are open to the citizenry as a whole (diffused benefits). Furthermore, the costs of each act of accommodation are seen to be spread across the whole system (diffused costs).

Research on Congress suggests that a substantial amount of a Congress-person's time is spent performing a wide range of small services for constituents (Fiorina, 1977). These benefits are diffused in the sense that they are available to virtually everyone at low individual costs, while the costs are diffused both because the direct costs of any individual act of constituent service are low, and those are covered out of general revenues.[16]

We would expect the politics of such issues to be very non-conflictual, rarely involving floor action or involvement of high level executive officials.

VI. Ajudicative Regulation: In this case, concentrated costs are imposed on individuals in such a way that substantial discretion permits the relevant decision-makers to distinguish between individuals in the allocation of such costs, but where the benefits are diffused across the entire community.

VII. Distributive: In this case, concentrated benefits are distributed to individuals, while the costs are diffused across the entire (tax paying) community. The politics in this case are characterized by log-rolling. The executive and the floor of the legislature are expected to be dominated by the operation of committees and organized pressure by the beneficiaries of the policy. Unlike Type II regulatory issues, however, the beneficiaries do not form an institutionally organized group, they are a "coalition of uncommon interest".

VIII. Ajudicative Redistribution: In this case, the relevant authority identifies both the individual to be accommodated and the individual to bear the cost. The political effect of this sort of policy is to drive a wedge into an existing group, between those expecting to be accommodated and those expecting to be disadvantaged.[17]

Since a primary goal of this paper is to present the endogenous policy approach in its simplest possible form, we will analyze only the cases involving concentrated benefits. In these cases it is not unreasonable (at least as a first approximation) to abstract from activist political entrepreneurs (within the state and/or the polity). As with much work in the pluralist tradition, this simplification allows us to treat "the state" as a passive register of effective demand by citizens and to focus on the equilibrium levels political activity in the polity.[18]

THE ENDOGENOUS POLICY APPROACH TO POLITICAL-ECONOMIC ANALYSIS

Given some reasonably coherent social entity (e.g. a nation-state), political-economic analysis seeks to understand the interaction between its civil society, state and economy. Such an understanding can, conceivably, be advanced in a variety of ways, among them: philosophical reflection; case studies of particular policy choices; and comparative analysis across countries and/or policy choices. Formal modeling is one form of philosophical reflection and the endogenous policy approach to political-economic analysis is one formal modeling strategy.

The strategy of endogenous policy modeling is deceptively simple. The actions of the state are taken to be a function of effective citizen demands.[19] These demands are, in turn, functions of citizen preferences and the opportunity cost of political activity; and preferences are taken to be determined by

the economic attributes of the citizen (tastes, factor ownership, and industrial affiliation). The system is closed via the effect of policy on citizen interests as determined by their position in the economy (i.e. their attributes). On first reading, this structure

-- Figure 2 about here --

may appear to be too simple to yield valuable insights. A moment of reflection, however, should lead one to the realization that it is precisely this sort of logic which is lurking just below the surface of the great majority of treatments of political-economic interaction. One of the great virtues of formal modeling is that it forces us to face up to the assumption structure necessary to our conclusions.[20]

Since our goal is illustrative as well as analytical, we adopt an extremely simple set of behavioral, technological, and institutional assumptions. This strategy not only permits us to focus directly on political-economic interdependence in a clear and intuitively appealing way, but the fact that this simple structure is rich enough to generate the Lowi-effect suggests the value of endogenous policy modeling as an instrument of political-economic discourse.

Our basic units of analysis are citizens and firms. As we have already suggested the former are defined in terms of three basic attributes: tastes (i.e. preferences over available consumption goods); factor ownership (the services of these factors are employed by firms as inputs into the production of consumption goods); and industry (i.e. which industry employs the services of a factor of production). The sole source of

individual income is the sale of the services of factors of production (called the "return" to a factor). Along with the price of each consumer good, factor income defines a set of affordable consumption bundles from which an individual consumer may choose. One of our primary behavioral assumptions is that individuals are economically rational, utility maximizers.[21] Primarily for geometric tractability, most of the exposition in this paper proceeds under the assumption that there are just two goods (X and Y) and two factors of production (capital and labor). For reasons discussed later in our description of the basic model of the economy, each individual is classified as either an owner of capital (K) or labor (L), but not both, and an individual's capital can be employed in only one industry at a time. Finally, we will assume that labor is instantaneously mobile between sectors, but that once capital has been located in one of the industries, it is cannot be instantaneously relocated to the other industry.[22]

Firms are very simple entities in this model. Like consumers, firms are assumed to be economically rational, where rationality is defined as profit maximization. Each firm is characterized by a production function which specifies how the services of capital and labor can be combined to produce outputs of X or Y. Specifically, we will assume that production in each industry is characterized by constant returns to scale, and positive but diminishing returns to both factors of production.[23] We will avoid unessential complications relating to specialization by assuming that some of each good is always produced. Finally, we assume that firms in each industry produce

with the same production function, but that Y production is capital-intensive relative to X production at all relative product prices.[24]

Finally, we note our major institutional assumptions. In the economy, we assume that there is a complete system of property rights, a complete system of markets for goods and factors of production, and that perfect competition obtains in all markets. With regard to the state, we assume that state choices are a function of the balance of effective political demand. That is, the state is a passive register of effective demand. This will be seen to be a lobbying model, not an electoral model. We simplify the analysis further by assuming that the state possesses only a single policy instrument: the capacity to change relative product prices by some combination of taxes and/or subsidies.[25]

We are now ready to proceed with the development of the model. First, we develop in some detail our model of the economy, with particular reference to the effects of state intervention on factor returns in the short-run and in the long-run. This emphasis follows from the fact that, given our assumptions about individuals, the welfare effects of government intervention operate through their effects on factor returns. Furthermore, the time horizon relative to the given issue will affect the organization of interests via the opportunities for adjustment to the policy change in the short and long run. From there we introduce the cost of influencing state action into the analysis. The opportunity to engage in political activity (yielding some direct economic benefit) at a positive cost

implies that economically rational individuals will allocate their resources between economic and political activity (i.e. between the production of goods and lobbying to influence government policy).[26]

One of the fundamental results illustrated in this paper is that, once lobbying costs are introduced into the model, the institutional form through which state output is delivered has an effect on the organization of lobbying activity and, thus, on its level. The intuition behind this result is quite straightforward. Suppose we distinguish, as in the discussion of the Lowi-effect presented above, between delegation under a general rule and delegation with discretion (or, more appropriately, direct accommodation). In the former case, the output (loosely speaking) is like a public good in that it applies in the same form to all members of a given class, while in the latter case the output is (again, loosely speaking) like a private good. As a result, not only will there be some tendency to under produce the public good on standard collective action logic, but the opposition will form in a more coherent fashion than in the privatized output case.

THE BASIC MODEL OF THE ECONOMY

In this section we present our model of the economy in a bit more detail. As suggested above it is a two-sector, two-factor general-equilibrium model.[27] A particular goal of this section is to discuss the use of a graphical technique for depicting both a short run and a long run equilibrium in our simple economy. With this technique we will, in the following section, be able to discuss the real income effects of a price change in the economy

brought about by a political process (the price change is therefore assumed to be the "outcome" of the political process). We concentrate on the simple two sector version of this model since the results may be presented graphically and the important effects of political outputs (price changes) on the distribution of income in the economy are preserved when generalized to any number of goods.

Given our assumptions, profit maximization will lead to the result that an industry will hire additional units of each factor of production up to the point that the revenue generated by the additional output equals the cost of the factors. That is, each factor will be employed until its value of marginal product (price of the output times the marginal productivity of the factor) equals its cost (factor return). It will be recalled that in the short run labor (L) is assumed to be fully mobile between industries while capital (K) is assumed to be fully immobile and therefore "specific" to an industry. In the long run capital is also fully mobile. Since labor is mobile in the short run, it will shift between industries until its return, w, is the same in each industry. Since capital is immobile in the short run, its returns in the two industries, $\bar{r}_x$ and r_y, may differ in the short run. These short run equilibrium conditions are summarized below:

$$V_x = w \tag{1.1}$$

$$V_y = w \tag{1.2}$$

$$R_x = r_x \tag{1.3}$$

$$R_y = r_y \tag{1.4}$$

where V_x, V_y, R_x, and R_y are the value of marginal products for

labor and capital (respectively) in each industry. Over a long run time period capital will be mobile and therefore will also shift between industries until factor returns are equalized as follows:

$$r_X = r_Y. \tag{1.5}$$

Labor Market Equilibrium

Graphically, we may represent short run equilibrium in the labor market (where labor shifts between industries until returns are equalized as in equations 1.1 and 1.2 above) as follows in figure 3.

-- Figure 3 about here --

The value of marginal product of labor in industry X at each level of employment is represented by the height of the V_X curve. For any given cost of labor services, w, a profit maximizing industry will employ labor until the height of the V_X curve equals the given return. For example, if the cost of labor is w^0 then employment by industry X would be L^0. Letting $\bar{L}$ be the total amount of labor in the economy, full employment requires that the labor not used in industry X be employed in industry Y. The distance $(\bar{L} - L^0)$ would therefore equal the employment of labor in industry Y. In figure 4, we have added the value of marginal product curve for labor in industry Y using $\bar{L}$ as the origin and movement left as increases in employment of labor in industry Y.

-- Figure 4 about here --

If the cost of labor was w^0, then the distance L_A would equal the profit maximizing level of employment by industry X while $(\bar{L} - L_B)$ would equal the profit maximizing level of employment of L in

industry Y. The distance $(L_B - L_A)$ would therefore represent unemployment of labor at w^0 and since it is greater than zero it would result in downward pressure on the wage. Similarly, given a wage of w^1 a labor shortage equal to $(L_D - L_C)$ would result, creating upward pressure on the wage. The value of w at the intersection of V_x and V_y, w^*, therefore represents the only return to labor that will result in full employment of labor under conditions of profit maximization. In this equilibrium industry X would employ L^* units of labor and industry Y would employ $(\bar{L} - L^*)$ units of labor.[28]

If industry output is assumed to be zero with zero units of labor hired, then the area under a value of marginal product curve equals the total revenue in that industry. Further, since the assumption of perfect competition in the output market insures that the total revenue of an industry equals the total payments to the two factors of production,[29] wL + rK, and the area of the rectangle below the equilibrium wage equals the total payments to labor, wL, then the area below the value of marginal product curve and above the wage represents the total payments to specific factors, rK. These areas are shown in figure 5 below for both industry X and industry Y.

-- Figure 5 about here --

Short Run Factor Returns

To describe graphically the short run equilibrium returns to the immobile factor in each industry (as opposed to the total payments to each)[30] we will use the fact that the assumption of perfect competition in all markets implies that the price of the output in an industry will always equal their per unit cost of

production. Concentrating for the moment on industry X, this may be represented algebraically as follows:

$$P_X = \left(\frac{L_X}{X}\right) w + \left(\frac{K_X}{X}\right) r_X. \qquad (2)$$

Because of the further assumption of constant returns to scale (linear homogeneous) production functions in all industries, the factor to output ratios (representing the units of labor needed per unit of output) are independent of the level of output in each industry (by the definition of constant returns to scale production) and will therefore be functions of w and r_X alone. For any given output price (and therefore any given per unit cost of production) there will therefore be a functional relationship between w and r_X consistent with zero profit. Further, this relationship will be dependent only upon the technology of the industry and will be unaffected by the mobility of the factors between industries.[31] For a given price of output in industry X, we may map out feasible combinations of w and r_X consistent with zero profit (and therefore reflecting the efficient use of factor inputs for a given cost of production). The resulting curve, which we will label C_X, is generally referred to as an isocost curve for industry X. Similarly, we may derive the isocost curve for industry Y, C_Y. Both curves, for a given pair of output prices, may be seen in figure 6.

-- Figure 6 about here --

Note that rearrangement of equation (2) above will show that the absolute value of the slope of either curve at a given point will equal the equilibrium capital to labor ratio in that industry.[32] Once the return to labor, w, is determined in the labor market (as in the value of marginal product diagram in figure 4), the

isocost curves of figure 6 will show the short run equilibrium returns to capital in each industry, r_x and r_y, completing our description of the short run economy. The labor market and isocost curve diagrams are shown together in figure 7 below where w^0, r_x^0, and r_y^0 represent short run equilibrium returns to labor and the two specific factors for a given pair of output prices and value of marginal product curves.

-- Figure 7 about here --

Long Run Factor Returns

In the long run time period capital is mobile between industries and will be attracted to the industry with the higher return (industry X if $r_x > r_y$, or industry Y if $r_y > r_x$). As capital flows into (out of) an industry its marginal productivity will decline (increase) driving down (up) the returns in that industry. This will continue until the returns to capital in each industry are equalized, eliminating the incentive for the movement.[33] Further, as capital flows into (out of) an industry the marginal productivity of labor in that industry, and therefore its value of marginal product, will increase (decline). This will then cause a shift in the employment of labor until the returns to the labor are equalized between industries.[34] This results in a unique combination of returns to labor and capital in both industries that represents a long run equilibrium in the economy. To illustrate this adjustment process, suppose that the economy begins in a short run equilibrium situation at the intersection of V_x^0 and V_y^0 as in figure 8.

-- Figure 8 about here --

The short run equilibrium returns to factors and allocation of

labor between industries may all be seen in the diagram and are denoted with the null superscript. Since the return to capital in industry Y is greater than in industry X, capital will, over the long run time period, shift from industry X to industry Y. As it does, the value of marginal product of labor curve in industry X shifts down as labor becomes less productive with less capital and the value of marginal product of labor curve in industry Y shifts up as labor in industry Y becomes more productive with more capital. The intersection of V_x and V_y in the long run will be determined by the technology of the two industries and will therefore eventually intersect at the same w^* as the isocost curves do on the right side diagram with a long run equilibrium return to capital of r^*.[35]

Characterizing the Political-Economic Rationality of Individuals

Since individuals are assumed to have preferences over government policy outcomes based only on the way the relevant policy affects their economic welfare, we need to better describe the possible economic welfare effects of different policy outcomes. In our simple model individuals engage in only two types of behavior: they consume goods and they sell the services of factors of production. Thus, we identify actors in terms of their preferences over consumption of X and Y, and their ownership of either K or L.[36] Since individuals are seen to purchase goods and services at given price levels, P_x and P_y, and to do so with a given amount of income, I, (derived from ownership of factors of production) each may therefore be seen to have preferences over different possible price and income levels that are representable by some real valued function $U(P_x, P_y, I)$.

This "indirect" welfare (or utility) function will reflect an inverse relationship between the price level in either industry and the welfare of the individual and a direct relationship between an individuals income level and welfare.[37]

Further, it is clear that if the income of an individual is increased by a greater percentage than the price level in either industry, then real income and therefore the welfare of an individual, as measure by this "indirect" welfare function, is increased.[38] Using a "hat" (^) to denote a proportional change, this implies that an individual will support any government policy that proportionally increases income by a greater amount than the price level in either industry: $\hat{I} > \hat{P}_x$ and $\hat{I} > \hat{P}_y$. If a government policy increases income by a greater percentage than the price level in one industry but not the other, then the preferences of the individual with regard to that policy are ambiguous. Specifically, support for such a policy will depend upon the consumption patterns of the individual. For example, if little good Y is consumed by the individual, then the fact that $\hat{P}_y > \hat{I}$ imposes little loss of welfare compared to the increased utility of the fact that $I > \hat{P}_x$.[39]

In order to simplify the determination of the income level of an individual (which is solely from ownership of factors of production and therefore dependent upon returns to factors owned), we adopted the assumption that individual income flows from the returns to ownership of only one unit of either K or L.[40] Further, with regard to ownership of capital, an individual will be involved with only one industry at a time. We may therefore distinguish in the short run between an owner of capital in

industry X, an owner of capital in industry Y, and an owner of labor services. The indirect utility function of an individual will therefore have one of the following three forms: $U(P_x,P_y,r_xK)$, $U(P_x,P_y,r_yK)$, or $U(P_x,P_y,wL)$.[41] Further, income will change for each of these individuals only through their factor returns: $\hat{I} = \hat{r}_x$, $\hat{I} = \hat{r}_y$, or $\hat{I} = \hat{w}$, respectively.

To sum up the neo-classical microeconomic view of an (economic and political) individual decision maker, if a government policy increases the returns to a factor by a proportionally greater amount than the price levels in both industries (or decreases returns proportionally less), then owners of that factor will unambiguously be better off. Conversely, if the returns to a factor increase proportionally less than both price levels (or decrease by a proportionally greater amount than both price levels), then owners of that factor will unambiguously be worse off. Also, if a factor return increases proportionally more than one price level but less than the other, then owners of that factor may or may not be better off since they may be consumers of the latter good.

SHORT-RUN VERSUS LONG RUN EFFECTS OF PRICE CHANGES

In order to examine the economic effects of political outcomes on individuals we will make the assumption that policy outcomes affect only prices in an economy and do not affect the welfare of individuals directly. We are therefore interested in the effect of an exogenous change in the price level in an industry on the distribution of real income in our economy. It will be shown here that there are two distinct effects on real income in our model and therefore two distinct effects on

individual welfare from a price change: a short run and a long run effect. Specifically, a price change will influence factor returns (and therefore individual welfare) at the industry level in the short run but will cut across industries to the factor ownership level in a long run time period.

Given our characterization of the foundations of political-economic rationality in the previous section, the distinction between short-run and long-run results has an interesting implication for the formation of interest groups. Assuming that there are many more industries than factors of production,[42] when the time horizon over which political calculation is made is short, the gains from participation in the political process will fall to owners of an immobile factor in an industry at the expense of owners of immobile factors in other industries. We would therefore expect, as Lowi describes in distributive arenas, political action on behalf of a large number of relatively small, industry-specific interest groups. However, when the time horizon over which political calculation occurs is long, even when a political outcome increases the price level in a single industry, the benefits from participation will fall to a single factor, cutting across all industry prices. That is, in the case of two factors, either owners of labor will benefit at the expense of owners of capital, or owners of capital will benefit at the expense of owners of labor. Thus, as with Lowi's redistributive arenas, we will find the formation of factor-based interest groups that cut across industries.

Short-Run Effects

Suppose the state acts to increase the price of industry X's

output.[43] Since the value of marginal product of a good equals the output price times marginal productivity (unaffected by price change) the V_x curve will shift upward proportionally to the height of the curve (the V_y curve will, of course, remain unchanged). Since the isocost curve represents zero profit in the face of constant returns to scale, the C_x curve will shift outward proportionally to its distance along a ray from the origin (C_y is also unchanged). An example of these shifts is shown in figure 9.

-- Figure 9 about here --

If V_x increases to V_x' and C_x increases to C_x', the equilibrium wage will increase from w^* to w^1, as seen in the labor market diagram on the left, and the returns to the two immobile factors may be read off to be r_x^1 and r_y^1 in the isocost curves diagram on the right. Note that returns to all labor and to capital in industry X alone will increase while the returns to capital in industry Y will decline.

So far the analysis has been carried out in dollar terms, but as discussed in the previous section, in order to discuss the welfare implications of a price change on the individual factor owner, we need to examine the changes in proportional (percentage) terms. We can begin with the left hand side of figure 9 by noting that the proportional increase in the price level in industry X shifts the V_x curve up *proportionally* to its height. Therefore, at current employment, L^*, $\hat{P}_x$ will equal the distance between V_x and V_x' divided by the height of V_x. The wage will increase from w^* to w^1, so that $\hat{w}$ will equal the difference between w^1 and w^* divided by w^*. We can see that since w^* equals

the height of V_x at L^*, the wage has risen proportionally less than the price of X.[44] Adding the trivial observation that r_y declines, as seen on the right hand side of figure 9, the following is seen to hold:

$$\hat{P}_x > \hat{w} > \hat{P}_y \ (= 0) > \hat{r}_y.$$

Finally, again from the right side of figure 9, we can show that r_x increases by more than P_x. Since C_x shifts outward proportionally to the price change in industry X along a ray from the origin, the proportional change in P_x will equal the ratio of the distances AB/OB. Thus, a perpendicular dropped from A to the r axis would show a new return to capital in industry X whose proportional increase was identical to that of the price level in industry X. It can, however, be seen that the new return (r_x^1) is greater than this. Thus, our complete result is:[45]

$$\hat{r}_x > \hat{P}_x > \hat{w} > \hat{P}_y > \hat{r}_y.$$

That is, when the government causes an increase in the relative price of one of the goods (X), the factor specific to that industry benefits unambiguously (i.e. experiences an unambiguous increase in welfare); the factor specific to the other sector (Y) loses unambiguously; and the effect on the mobile factor's welfare is dependent on the mix of the two goods in consumption. Extensions of this result to policies that lower the relative price of Y or raise the relative price of X are trivial and can be left as exercises for the interested reader. The primary point is that this result yields clear predictions about the preferences of individuals over policies that affect the relative prices of products.

When policies are such as to induce short time horizons in

political calculation, the gains from participation in the political process will fall to owners of an immobile factor in an industry at the expense of owners of immobile factors in other industries.[46] We would therefore expect, as Lowi describes in distributive arenas, that relatively small interest groups will form on those political issues that affect a single industry and will be formed by owners of the specific capital employed in that industry. As for the mobile factor, those owners of the mobile factor with particular taste biases toward (or away from) goods or services from an affected industry, would tend to support government actions that increase (or decrease) the price level in that industry.

Long Run Effects

The long run effect of a price change may also be seen using these two diagrams. Suppose again that policy induces and increase in the relative price of Y, as in figure 10-1.

-- Figure 10 about here --

While the returns to capital in industry Y increase and the returns to capital in industry X decrease in the short run, over time (in the long run) capital will shift between industries, in response to the differential in factor returns, and will do so until these returns are equalized again. As capital moves from industry X to industry Y, labor will also move from industry X to industry Y (as it becomes more productive with the increased capital) and returns to labor and capital will eventually adjust until factor returns in all industries are equalized. This will be at the new intersection, w^{**} and r^{**}, of the isocost curves, C_x and C'_y. Note in the example depicted in figure 10-1, that

although returns to capital in industry X initially decline to r_x^1, they will increase to r^{**} in the long run. Also, note that wages will unambiguously decline in the long run to w^{**}. In the notation used in the analysis of short-run effects:

$$\hat{r} > \hat{P}_y > \hat{P}_x > \hat{w}.$$

This result depends fundamentally on our assumption that Y production is always capital-intensive relative to X production, as reflected in the steeper slope of the Y isocost curve. Thus, if the government chose instead to increase the relative cost of X (the labor intensive good), as in **figure 10-2**, the long-run effect would be an increase in wages and a decrease in the return to capital. That is, the long run effects of a relative price increase on the returns to factors as described above would be reversed. The new long run equilibrium returns would be w^{**} and r^{**} and would reflect the result that although returns to capital in industry X initially increased to r_x^1, they will decrease to r^{**} in the long run. Further, returns to labor will unambiguously rise in the long run to w^{**} in terms of either good. This is one of the most fundamental results of general equilibrium theory and is generally called the **Stolper-Samuelson theorem.** It may be expressed as follows:

> An increase in the price of one good relative to the other will result in an increase in the price of the factor used intensively in the production of that good relative to the prices of both goods and a decrease in the return to the other factor relative to both goods (regardless of the industry in which the factors are employed).[47]

This result has an interesting implication with regard to the incentives for political action. Although the gains from participation in the political process will fall to owners of an immobile factor in an industry at the expense of owners of

immobile factors in other industries in the short run, when individuals are concerned about the long run effects of a political decision, their natural political allies are other individuals with the same factor-endowment (regardless of the industry in which that factor is employed). Specifically, labor would benefit (be harmed) in the long run from an increase (decrease) in the price of a labor intensive good and would be harmed (benefit) in the long run by an increase (decrease) in the price of a capital intensive good. We would therefore expect, as in Lowi's redistributive arenas, that when considering long run effects, large interest groups will form around ownership of factors of production regardless of their employment in the economy.

TOWARD A MODEL OF GENERAL POLITICAL-ECONOMIC EQUILIBRIUM: ENDOGENIZING POLITICAL CHOICE

It is clear from our above discussion that in our simple short run model an increase in an industry's price level benefits owners of industry specific factors of production at the expense of owners of factors specific to other industries. If we suppose that a political institution exists whose outcomes affect the price level in an industry, then we would expect to find economically rational individuals (utility maximizing through the consumption of goods and services only) engaging in two kinds of activities: directly productive (i.e. earning income through the rental of factors of production to firms) and political (i.e. lobbying government to influence prices which then affect the returns to ownership of factors of production). Given that such political activity is costly, an implication of this is that

economically rational individuals will recognize this trade-off between the gains from a higher (or lower) industry price level and the cost of attempting to influence government output and devote resources to political activities until the marginal benefit equals the marginal cost of doing so. Further, to the extent that the institutional form through which state output is provided affects the cost of political activity relative to its value, we would expect institutional form to have an effect on the incentives to engage in political action. In this section we will first expand our simple model to include the trade-off between the gains from changes in the price level in an industry(s) and the cost of influencing the government output that causes this price change. Then, using this expanded model, we will discuss the effect of two alternate institutional forms of supply of government output.[48]

Costly Lobbying

We will assume that individuals that participate in the political process are rational economic actors who influence the political process through lobbying (as opposed to voting). A measure of the resources used by a group in affecting government policy output will be denoted by LL. We will refer to this variable as "lobbying labor" since we further assume that this input is perfectly substitutable for the labor in the production of goods and services. The cost, then, of influencing government output is simply the return to the mobile factor, labor, times the amount of the mobile factor used in lobbying government, wLL. Since the benefits from a higher price level in a given industry fall unambiguously to the owners of specific factors in that

industry, we will assume that they hire the labor resources to influence government output. Full employment in the economy therefore implies that:

$$\bar{L} = L_D + LL_x + LL_y$$

where LL_x and LL_y are the labor used in lobbying by specific factors in industry X and Y, respectively, and L_D is defined as "productively" employed labor ($L_D = L_x + L_y$). Since government output will be seen to affect individuals only through its economic effects, the price level in an industry will either go up or down as a result of political decision. Taking the existence of political mechanisms as given and letting p be the relative price of good X in terms of good Y (that is, $p = P_x/P_y$), we can represent our passive register state as a political output function, using as inputs the lobbying resources employed by the relevant special interest groups:

$$p = p(LL_x, LL_y).$$

To examine the effect of lobbying for government output graphically, we will first look at the effect of using lobbying resources to influence the relative price level in the two industries. For simplicity we will concentrate on the benefits of lobbying to specific factors in industry X, hold the returns to the mobile factor constant, and keep factor returns in units of good Y. In figure 11 below, it may be seen that when the relative price level goes up the value of marginal product curve in industry X shifts up proportionally to its height.

-- Figure 11 about here --

As discussed above in figure 5, since there is perfect competition in all markets, the area below the V_x curve out to

the current employment of labor in the industry represents total industry revenue which is divided between the total return to owners of specific factors (the area below V_X but above the current return to labor) and mobile factors (the rectangle below the current return to labor). Therefore, ignoring the labor market effects (i.e. holding w constant), when the relative price level increases, returns to owners of specific factors in industry X increase as shown by area (a).

Suppose, however, that wages are no longer assumed fixed and the effects of the relative price level increase on the market for the mobile factor is taken into account. When the value of marginal product curve for industry X shifts up, the return to the mobile factor will increase as it is bid away from industry Y. Adding the value of marginal product curve for industry Y in figure 12, we see that this increase in w, from w^0 to w^1, reduces the demand by industry X for addition units of the mobile factor (employment increase to L^1 instead of L').

-- Figure 12 about here --

The total return to owners of specific factors in industry X before the price change was area (b+c) (above wage w^0 and below V_X, out to employment level L^0) and after the price change will be area (a+b) (above the new equilibrium wage, w^1, and below the new value of marginal product curve, V'_X, out to employment level L^1). The increase in returns to specific factors in industry X from the relative price increase is therefore equal to area (a+b) minus area (b+c) -- or, simply, area (a-c). Note that, as previously discussed, the returns to specific factors in industry X must increase with this price increase. Area (a-c) must

therefore be greater than zero. This is easily demonstrated graphically by noting that the height of area (a+b) is greater at every given level of employment of labor than area (b+c) (since the value of marginal product curve shifts upward proportionally to its height) while at the same time being wider (since L^1 must be larger than L^0 with a downward sloping V_y curve). This is shown in figure 13 by moving shaded area (b+c) on top of the larger area (a+b).

-- Figure 13 about here --

When costly labor must be hired by specific factors in industry X to lobby for a relative price level increase, the supply of productive labor in the economy is reduced, as seen in figure 14, shifting the origin for industry X inward as well as the value of marginal product curve rightward (since its distance from the origin will not change).

-- Figure 14 about here --

Note that this decrease in the amount of productive labor in the economy increases the return to the mobile factor in the economy. This reduces the employment of labor by industry X, reducing the marginal productivity of the specific factor and thereby reducing the return to the specific factors in the industry. This may be seen to be the shaded area in figure 14.

The Industry Problem

Our model of the political economy in now complete. The basic framework may be seen in figure 15.

-- Figure 15 about here --

Since the total return to specific factors in industry X is r_xK_x and owners of specific factors in each industry employ the

lobbying resources to influence the industry price level, the net return to this political activity, noted by N_x, is

$$N_x = r_x K_x - wLL_x.$$

The problem solved by the owners of specific factors in industry X is to choose an amount of resources, LL_x, to employ that maximizes N_x for a given level of lobbying by factor owners in industry Y, LL_y. When lobbying labor is hired, several effects may be seen graphically. The combination of a simultaneous increase in the relative price level, V_x to V_x', and a decrease in productive labor due to the use of lobbying resources (the rightward shift in the left vertical axis) is show in figure 16.

-- Figure 16 about here --

Note that this is simply adding the movements in figures 12 and 14 and their resulting effects together into one diagram. The increase in the mobile factor returns from w^0 to w^1 and change in the allocation of the mobile factor is from L^0 to L^1 are the same as in figure 12 and due to the higher relative price level in industry X. Also, the increase in the return to the mobile factor from w^1 to w^2 and change in use of the mobile factor from L^1 to L^2 are the same as in figure 14, and due to the reduction of productive labor in the economy industry X hires more lobbying labor. The returns to specific factors in industry X will increase by an amount equal to:

1) the increase due to the higher relative price level -- equal to area $\left(a_1+a_2+a_3-c_1-c_2\right)$[49]
2) the decrease due to the increase in mobile factor returns from the reduction in productive labor -- equal to area

$\left(b_2+a_2+a_3\right)$.[50]

The cost to the specific factors of influencing the price level will be:

3) the cost of hiring lobbying labor at the current wage level -- equal to area (f)

4) the increased cost of hiring the lobbying labor due to the relative price increase -- equal to area (e)

5) the increased cost of hiring lobbying labor due to the the reduction of productive labor -- equal to area (d).

In total, the increase in the net return to specific factors in industry X from lobbying for a higher relative industry price level equals area $\left(a_1-c_1-c_2-b_2-e-f-d\right)$.

We may also show this mathematically. The change in N_X from the use of additional units of lobbying resources, for a given level of lobbying by specific factors in industry Y, will be

$$\frac{\partial N_X}{\partial LL_X} = K_X \frac{\partial r_X}{\partial p} \frac{\partial p}{\partial LL_X} - K_X \frac{\partial r_X}{\partial L_D} - w - LL_X \frac{\partial w}{\partial p} \frac{\partial p}{\partial LL_X} - LL_X \frac{\partial w}{\partial L_D}.$$

The first term, $K_X \frac{\partial r_X}{\partial p} \frac{\partial p}{\partial LL_X}$, represents the direct effect on the revenue to specific factor from a relative price increase due to increased lobbying by industry X. An increase in LL_X would increase area $\left(a_1+a_2+a_3-c_1-c_2\right)$ from figure 16 through this term.[51] The second term, $K_X \frac{\partial r_X}{\partial L_D}$, shows the reduction in the total returns to specific factors from the increase in returns to mobile factors when productive labor is reduced by an increase in lobbying by industry X. An increase in LL_X increases the area $\left(b_2+a_2+a_3\right)$ in figure 16 through this term. The cost of hiring lobbying labor services is the sum of the next three terms, w,

$LL_X \frac{\partial w}{\partial p} \frac{\partial p}{\partial LL_X}$, and $LL_X \frac{\partial w}{\partial L_D}$. An increase in LL_X increases the area (d+e+f) from figure 16.[52]

Rules versus Discretion in Determination of Intervention Levels

As we argued in our discussion of the Lowi-effect at the beginning of this paper, one of the attributes of a policy that is taken to affect the organization of political activity directed toward that policy is whether access to the policy output (in this case a change in relative prices) is a direct result of the lobbying process or an indirect result. In the first case, discretionary accommodation, the state makes case-by-case determinations on the basis of lobbying effort. This is in contrast to rule-based decision-making in which the lobbying effort determines a general rule under which all efforts to change relative prices are determined.[53] An excellent example of this distinction is found in the original development of the Lowi-effect (Lowi, 1964). In mediating between the findings of Schattschneider (1935) and those of Bauer, Pool and Dexter (1963), Lowi argued that the Reciprocal Trade Agreements Act of 1934 and the emergence of multilateral tariff bargaining in the GATT changed the institutional definition of tariff politics from a distributive issue toward a regulatory issue. We have argued elsewhere that the core of this change was a shift from direct accommodation of tariff-seeking by Congress to rules-based accommodation by the Executive under a delegation from Congress.[54]

We are now in a position to establish our last two results: that discretionary accommodation will tend to result in more political activity than rule-based accommodation; and that

discretionary accommodation will more often result in increases in price levels than will rule-based accommodation. Once the cost of political activity is explicitly recognized, the logic behind the first result is quite straightforward: the benefits of discretionary accommodation are appropriable by the individual policy-seeking groups (industries, in our model) while the benefits of rule-based accommodation are not. As a result, by comparison to discretionary accommodation, rule-based accommodation results in lower levels of lobbying activity for the directly affected industry. The second result is also fairly straightforward: while there is a lower overall level of political activity under rule-based accommodation, there is also a bias in favor of individuals who are not owners of specific factors employed in industries whose price levels are directly affected by the government output.

As we have assumed up to now, government output that influences price levels is completely determined by the lobbying resources used at the industry level. Momentarily dropping our assumption of just two industries, if we consider a set of government outputs, $g_1, g_2, \ldots, g_m$, potentially affecting a number n of industries, we see that their values are simple functions of the lobbying resources expended by the industries:

$$g_j(LL_1, LL_2, \ldots, LL_n) \quad \text{for } j=1,2,\ldots,m.$$

Each of these government outputs, if assumed to influence only one industry price level (for simplicity), will affect only one set of industry-specific factors (in the short run). The price level in an industry X, for example, that is affected by a particular government output will therefore be determined by the

lobbying resources used to influence that government output:

$$P_x(LL_1, LL_2, \ldots, LL_n).$$

For this reason, any lobbying resources used by this industry or small group of industries impart benefits that are fully or near fully capturable. As a result, we might loosely refer to output under discretion as a "private good". Further, their gain is at the expense, to varying degrees, of all other industries indirectly through factors markets.

Suppose now that there is a different form of government output. It no longer results directly from industry level lobbying but from the application of a general rule which is itself simply determined by lobbying. We may, therefore, represent the rule as we did each separate government output previously, as a simple function of the industry specific factors employment of lobbying resources

$$R(LL_1, LL_2, \ldots, LL_n).$$

This rule is applied to government output (which allows lobbying to indirectly influence government outputs) and, even if we assume again that each of these government outputs influences only one industry price level (for simplicity), it affects price levels in several industries at once:

$$P_x(R), P_y(R), \ldots, P_z(R).$$

Since the benefits of lobbying for rule-based accommodation will not be fully appropriable by a single group of industry-specific factors, we might loosely refer to the output in this case as a "public good". Instead, resources used by the specific factors in an industry must benefit several industries simultaneously. The effect that this public type of government output will have

on the incentive for lobbying resources may be seen graphically using the same basic diagram as in figure 16. Taking an arbitrary industry X whose price level will be increased by the government output, if we compare their resource use to that of another industry not affected by the government output, then there will not be a difference in their industry problem solution as in figure 16. If we compare their resource use to that of another industry whose price level is also increased by the government output, then any resources used by this industry to increase their price level also must increase the price level in the other industry. This is shown in figure 17.[55]

-- Figure 17 about here --

Note that we have the same rewards to lobbying as in figure 16, but now as LL_x increases P_x as before, P_y must now also increase. The result is that the value of marginal product curve in industry Y will now also shift upward proportionally to its height. The loss to specific factors in industry X from this addition shift is seen by the shaded area in figure 17. Now, instead of simply gaining specific factor returns equal to area $\left(a_1\right)$ minus area $\left(c_1+c_2+b_2+e+f+d\right)$, there will be the additional loss of the shaded portion of the diagram. The result will be less of an incentive for lobbying by industry X, since the net gains from doing so will be reduced. In fact, the industry may even now prefer that their own price level be *decreased* by the government output. The potential benefits to specific factors from lowering their own price level would simply be the reverse of the raising it: area $\left(c_1+c_2+b_2+e+f+d\right)$ minus area $\left(a_1\right)$ plus the shaded portion of figure 17.

There will also be a bias in this public good government output. That is, this reduced incentive to lobby affects only industries whose price levels are affected. Those industries who are lobbying against the government output will have the same incentive as before.

CONCLUSIONS

The relationship between the results presented above and what we have called the Lowi-effect should be clear. In the context of the model we develop, a policy will have two attributes: the time horizon (short or long); and the terms of access to output (discretionary or rules-based). Once these attributes have been specified, the organization of political action is determined along the lines shown in figure 18.

-- Figure 18 about here --

A policy that induces a short time horizon in political calculation and discretion in accommodation of demands results in industry-based lobbying. In this model industries are the smallest possible unit of collective identification, so this defines the kind of limit conceived by Lowi in his definition of a distributive policy. Maintaining the short time horizon but shifting to a rule-based system for accommodating demands induces the creation of larger groups along the lines defined by the rule, which is the classic pattern of regulatory policy as analyzed by Lowi. Finally, if the rules orientation is retained but the definition of the policy induces long-run calculation, factor-based groups will form. If the presumption that there are far fewer "basic factors" than industries is correct, this yields Lowi's redistributive case with its broad-based (approaching

class struggle) groupings.[56]

The purpose of this paper has been to illustrate the use of a class of formal model in political-economic analysis. The development was intentionally simple (both in terms of technique and assumption structure). Many interesting extensions present themselves immediately. With regard to the economy, it is possible to introduce various alternative assumptions about technology of production and market structure. With regard to our behavioral assumptions, it is possible to include non-strictly self-interested behavior. Perhaps most importantly, it is possible to introduce more active political entrepreneurs and coalitional behavior. For example, if the state is able to play an active role, policy type can become a strategic variable.[57] The fact that such complications will undermine (to a greater or lesser degree) the conclusions of our simple model, however, should not be taken to detract from the value of simple models in the development of intuition and as a step on the way to a more well grounded theory of political-economy.

Notes

1. We do not mean to imply that this is a new phenomenon. Social analysts have recognized the importance of institutional structure for as long as we have records of social analysis. The current wave of "neo-institutionalism" in economics and political science, however, is a response to a rather long period from the late- 1960's during which rather strong forms of structuralism prevailed in political science and sociology, at the same time that "Economics imperialism" brought strong forms of institution-free, individualist models from economics into political science and sociology. For a useful discussion of the "new institutionalism" see: March and Olsen (1984).

2. Two recent collective efforts are exemplary: the work of Theda Skocpol and her colleagues on the developments of the welfare state in the US, especially during the New Deal (Skocpol 1980; Skocpol and Finegold 1982; Skocpol and Ikenberry 1983; Orloff and Skocpol 1984; Amenta and Skocpol, 1988); the work of Ikenberry et al. reported in "The State in American Foreign Economic Policy" (International Organization, 1988).

3. The seminal work on institutional structure is that of Shepsle (1979). A convenient survey of this growing literature can be found in Shepsle (1986). With regard to the institution-free aspects of social choice see the important paper by McKelvey (1986).

4. By general political-economic equilibrium, we mean that (subject to our behavioral and institutional assumptions) the level of political intervention and the state of the economy are endogenously determined. Comparative static analysis involves evaluating the effect of changes in the political and economic parameters of the model on the level of intervention and the state variables of the economy.

5. The first significant presentation of Lowi's approach is in a review of Bauer, Pool and Dexter's (1963) massive study of the politics leading up to passage of the 1962 Trade Expansion Act. In that book, Bauer et al. seem to argue that they provide evidence against both pluralist and elitist schools of research by demonstrating the independence of Congressmen. In particular, they reject the findings of Schattschneider's (1935) earlier study of the politics of the tariff. In his review, Lowi suggests that there is no fundamental conflict between these two classic studies, because trade policy was in the process of shifting arenas (from the distributive to the regulatory). In that review Lowi refers to a larger project that examines a wider range of policies. For the original presentation, see Lowi (1964). Later presentations that attempt to extend the analysis both theoretically and empirically can be found in Lowi (1970; 1972; 1985).

6. Although this paper is concerned with theoretical development of the Lowi effect, we should note that the arenas of power typology has given rise to an extensive empirical literature. With regard to American domestic politics, the arenas typology has been used to organize research on: the Presidency (Spitzer, 1979); the executive bureaucracy (Lowi, 1985); and most extensively, the Congress (Vogler, 1980; Ripley and Franklin 1984). In addition to these applications, the arenas typology has also been used to organize research on foreign policy (Lowi, 1967; Brewer, 1973; Zimmerman, 1973; Walker and McGowan, 1982) and comparative politics (Smith 1969; Peters et al., 1977).

The wide acceptance and use of the arenas typology in empirical research has two important implications for attempts to extend the theoretical foundations of the typology. First, even though there are considerable difficulties of applying the typology, scholars and practitioners seem to think that it taps an important aspect of political life. Second, the broad application (across time, institutions, and countries) suggests that some general process is at work. It is this general element that theoretical treatments like the one reported here hope to begin to capture.

7. In addition to research on the theoretical foundations of the lowi effect, there is also a closely related body of research that uses the arenas of power categories but returns to the more traditional question question of the effect of political organization on policy type. We refer to the linkages between interest structure and political patterns detailed in this research as the Salisbury-effect in recognition of the original contributions by Robert Salisbury from which much of this work arises (Salisbury 1968; 1970), which we formally model below. Additional work on the Salisbury effect can be found in: Hayes (1978; 1981) and Kofford (1987).

Research on the Lowi effect assumes that choice among arenas is somehow independent of (and certainly prior to) the organization of social interests, research on the Salisbury effect assumes that organization is logically prior to issue identification. These two are clearly intimately related, but they imply very different modeling programs. The first seeks to find optimal organization subject to given policy attributes; the latter seeks to find optimal policy attributes subject to given political organization.

8. This research is effectively a search for more complete micro-foundations for the Lowi effect. This research has tended to focus on distributive issues (Weingast, 1979; Fiorina, 1981; Shepsle and Weingast, 1981; Niou and Ordeshook, 198?); and regulatory issues (Fiorina, 1982, 1986; McCubbins, 1985; McCubbins and Schwartz, 1984; Moe, 1985, 1987).

9. It might be useful to note the relationship of this logic to that of the Salisbury-effect. If we assume that there exists an a priori issue-cleavage pattern, and if politicians are simply passive registers of citizen demand (i.e. there is no political entrepreneurship), then there is no real difference between the Lowi and Salisbury effects. The first assumption asserts that one attribute of a political issue (prior to its institutional definition) is a fixed distribution of preferences over that issue. The second assumption asserts that politicians are unable to deviate from the outcomes established by that distribution of preferences. Under these assumptions, identification of an issue implies knowledge of the underlying pattern of political conflict and, thus, of the political arena. Another way of saying this is that issue is not per se important to the identification of arena, what is important is pattern of conflict. This logic is probably most useful in comparative political studies where we might assume that there is some pattern of conflict characteristic to a given country, which defines a central tendency in the politics of the country.(Smith, 1969; Peters, et al., 1977; Nelson, 1983; Rogowski, 1988).

The Lowi-effect, by its strict emphasis on the causal link from policy to politics, permits an independent analysis of the politics of issue institutionalization and transformation. This permits us to incorporate notions of the relatively autonomous state into a model with explicit micro-foundations.

10. The rules-discretion dimension will, at first, seem quite different from Lowi's "form of intended impact" dimension. This problem, however, can be easily clarified. Virtually all of the literature on the Lowi-effect seeks to explain the effect by reference to the behavior of rational individuals. Thus, all policies ultimately work through individual conduct. Similarly, all policies (no matter how individually oriented) involve some reference to more-or-less general principles (i.e. attempts to define an environment of conduct). The real issue is whether the legislation/regulation that embodies the policy is seen to permit an individual relationship to the political/regulatory process that generates costs and benefits, or whether that legislation/regulation permits only a collective relationship. The former case requires discretion on the part of the relevant decision-maker, the latter requires the absence of discretion.

11. Note that in this analysis we use the term "individual" to refer to the smallest effective unit of analysis. For example, if households and firms are our basic units of analysis, the rule must treat classes that include many households (e.g. a community) or firms (e.g. an industry). However, in the general equilibrium model developed later in the paper, although firms and households are the atomic elements of our analysis, the assumption that consumers possess identical tastes and that all firms in an industry possess a common production function implies that the industry is the smallest effective unit of analysis.

With regard to its impact on the incentives to individual action, we have recently shown that this distinction is formally quite similar to that between a private good or a public good (Hall and Nelson, 1987).

12. These are both subcases of the more general phenomenon of transaction costs (Arrow, 1974; Williamson 1975, 1985).

13. Alternatively, we could focus on relative degrees of information about the policy between gainers and losers, or relative degrees of access to the political system. While both of these are distinct from each other and from the relative concentration of benefits and costs, they are all closely enough related that the additional analytical leverage from their explicit inclusion in the analysis would not be sufficient to justify the substantial increase in complexity.

14. The public good case illustrates well the importance of both perception and entrepreneurship in the Lowi literature. With regard to perception, it is important to note that the theory does not imply that a public good cannot have concentrated costs or benefits, but that the policy is accepted as being about something other than those costs and benefits. Consider "national security". National security is clearly a public good in the sense that all members of the class "citizen" consume it. There are, however, concentrated benefits (e.g. defense contractors) and concentrated costs (citizen soldiers).

As a result of its attributes, there may be no natural constituency for a policy of the public good type. This suggests the importance of political entrepreneurs with regard to these issues. Such entrepreneurs may be "sincere" in the sense that they genuinely believe in the importance of the issue, or they may be "strategic" in the sense that they are attempting to defuse conflict by hiding the interest of some constituent under the public interest label. Which of these is the case is of fundamental importance for predicting policy arenas (i.e. the Salisbury effect), but it is immaterial to the effect of policy on politics (i.e. the Lowi effect).

15. It is interesting to note that the regulatory life cycle hypothesis (Bernstein, 1955) simply implies a temporal shift from Type I to Type II regulation. This, in turn, implies a substantial shift in the organization of politics: from public, entrepreneurial politics on the floor of the legislature; to private, sub-governmental politics.

16. Note that the "good" in question here is the intervention of the Congress-person, not the final goal of the intervention. The testimony of one's Representative in an International Trade Commission hearing is a good independent of the legal structure that yields outcomes with an economic value. That is, intervention in such a proceeding is independent of how one's Representative voted on the legislation regulating, say, Countervailing Duty proceedings.

17. One clear example would be an industrial policy premised on the notion of "picking winners". In this case, some state agency is expected to identify some subset of an industry for discriminatory treatment, while the remainder of the industry expects to be forced out of business either by state fiat or by competition.

18. See Nelson (1988) for a discussion of alternative assumptions about the state in the context of endogenous economic policy models.

19. Two points of clarification may prove useful here. First, although we operate in this paper with a minimal (passive register) state, a wide variety of assumptions about the function that transforms effective citizen demand into state action are possible. Second, it should be noted that the relevant political force here is <u>effective</u> political demand, not the more general notion of political preference. Since political action is costly and individual resources are finite, individuals are constrained in the combinations of economic and political activity available to them.

20. Formal analysis often has the salutary effect of demonstrating the "non-simplicity" of widely held notions. Perhaps the most striking of these relates to the general impossibility of social choice functions in minimally complex choice environments (Arrow, 1951; McKelvey, 1976; Schofield, 1985). The point of these findings is (perhaps) not that there is no necessary link between collective preferences and social outcomes, but that the link is not as straight-forward (i.e. simple) as many thought/hoped it was.

29. Note that although there is zero economic profit with perfect competition in output markets, rK may still represent entrepreneurial profit (accounting not economic profit).

30. See equations 1.3 and 1.4 above.

31. This relationship between factor prices and industry technology at a given level of output under assumptions of profit maximization and perfect competition in all markets is a basic result from producer theory in microeconomics. More on this topic may be found in almost any intermediate level microeconomic textbook.

32. Thus our assumption that Y is capital intensive relative to X is shown by the fact that C_Y is steeper than C_X in **Figure 6.**

33. See equation 1.5 above for a statement of this equilibrium condition. Neary (1978) presents an admirably clear discussion of the adjustments referred to in this paragraph.

34. Note again that the assumption of quasi-concave production function in all industries is important in that it guarantees that the isocost curves cross only once and therefore there will be a unique pair of factor returns, w^* and r^*, that denote equal returns to factors in both industries.

35. Note the importance of the fact that the isocost curves for each industry are dependent solely upon the technology of the industry and are therefore unaffected by the shifting factors of production.

36. Since capital will be assumed immobile in the short run, it turns out to be important to note which industry employs a unit of capital.

37. This is called the "indirect" utility function in microeconomic theory since individual preferences are not assumed to be based directly upon prices and income but upon the consumption of goods and services alone. For a given set of preferences over goods and services, the utility (or welfare) of an individual will therefore dependent *indirectly* upon his/her income and the price levels of all goods in the economy.

38. This follows from the fact that if real income is increased, then the buying power of the individual has increased in that the old purchases are still affordable while previously unaffordable bundles of goods are now attainable.

21. In fact, we use a very strong form of rationality: individuals are assumed to be strictly self-regarding. That is, utility is derived solely from personal consumption. Alternative assumptions are possible, but for the purposes of this paper they add considerable complexity without additional benefit.

22. This will be the basis of our distinction between the long-run and the short-run. That is, the long-run is defined as the period in which all factors are mobile between sectors.

23. More formally, we assume that production functions are linear homogeneous, twice differentiable, and strictly quasi-concave, with positive first derivatives.

24. This assumption means that the K/L ratio in Y production is always greater than the K/L ratio in X production.

25. We adopt the standard practice of assuming that the tax-cum-subsidy policy is constructed in such a way that it has no effect on political or economic incentives except the direct effect on relative product prices.

Given our technological and institutional assumptions the limitation of intervention to price instruments is not as limiting as it seems. It turns out that under constant returns and perfect competition there is a direct equivalence between price and quantity instruments. If the analysis permitted a more active role for the state, or some other political entrepreneurs, the limitation to a single instrument (of any kind) would be a considerably more significant simplification.

26. Bhagwati (1982) refers to "directly productive" and "directly unproductive" profit-seeking activities in making this distinction.

27. This set up is standard in international trade theory and in much of public finance. The long-run version of the model is generally referred to as the Heckscher-Ohlin-Samuelson (H-O-S) model by trade theorists, and the short-run version as the specific- factors or Ricardo-Viner (R-V) model. These two models are fully described in the international trade theory literature. For a basic presentation of these models (both mathematically and graphically) and their implications for international trade theory see appendix A of Ethier (1988). For a more detailed survey of these models in international trade see Jones and Neary (1984). For applications to public finance see McClure (1971a, b, 1975).

28. Note that the assumption of quasi concave production functions leads to the result that both value of marginal product curves are downward sloping which insures a unique equilibrium allocation of labor between the two industries.

39. This problem is encountered with the effects of relative price changes on the returns to labor in our model of the economy (the specific factors model). For a discussion and partial solution to this problem, termed the "neoclassical ambiguity", see Ruffin and Jones (1977).

40. Though this assumption is mainly for convenience, its importance is that we don't have the complication of individuals who may, due to a political outcome, simultaneously gain income from the ownership of units of one factor while losing income from the ownership of units of another. For this same reason we will assume that the capital of an individual will be employed in one industry only. For a presentation of a model where similarly defined individuals are permitted to own both types of factors of production see Mayer (1984).

41. Note that K and L here refer to only one unit of capital and labor, respectively, and not industry totals.

42. As this condition suggests, these results take on greater importance in a more "realistic" model, i.e. one characterized by higher dimensionality than 2 x 2. While it is not a universally held opinion, we tend to believe that in the long-run industries outnumber factors of production (probably by several orders of magnitude). That is, it is not too radical a simplification to suppose that basic factors can be limited to: land, labor, capital, and possibly human capital; while the number of industries can only be considered enormous.

43. Note that we could express any of the following analysis in units of one of the two goods. In this case, an increase in the *relative* price of one good would represent either an increase in the dollar price of the good, or a decrease in the dollar price of the other good, or any combination of the two as long as the ratio of the prices increases.

44. The economics intuition behind this relationship is quite straightforward. If both L and K are fixed in the short-run, an increase in the price of X raises the returns to both factors in the same proportion (by linear homogeneity of the production function and perfect competition). L, however, is mobile in the short-run, so the incipient increase in wages in X causes labor to move from Y to X until the labor market is back in equilibrium--at a wage whose proportional change is intermediate between the changes in P_x and P_y.

45. The economic intuition behind this result is also quite straightforward. With zero profit, the benefits of an industry price increase must be distributed in the form of increased returns to the two factors of production. Since the proportional increase in the return to labor is below that of the industry price level, the returns to capital must be greater. Further, since the return to labor in both industries goes up and there is no change in the price level in industry Y, the return to capital in that industry must decline.

46. It is arguable that the time horizon of political calculation should be treated as a parameter that varies across political communities. If it were the case that community time horizon was a function of, say, the average duration of government, we could use this result in cross-national analysis of the Salisbury effect. The hypothesis would be of the form that political conflict in countries with historically stable states (e.g. stable hereditary monarchs) would be more likely to be characterized by factor (i.e. class) based conflict, while that in countries with unstable states (or states with institutionalized instability) would be more likely to be characterized by small-group based conflict.

47. In the more general case of many industries and factors, this generalizes to the result that an increase in the price level in an industry results in a proportionally greater increase in the return to at least one factor (maybe more) of production while reducing the return to at least one other (also, maybe more).

48. Note that the gain to specific factors in an industry from an increased price level is at the expense of specific factors in all other industries. Specific factors in industries whose price levels are not increased by a government output will therefore oppose increases in this government output. Further, if an industry's price level increases only slightly by an increase in the rule while a number of other industries price levels increase, specific factor owners in the industry may prefer a decrease in the rule.

49. Note that areas $\left(a_1+a_2+a_3\right)$ and $\left(c_1+c_2\right)$ in figure 15 are the same as areas (a) and (c) in figure 12, respectively.

50. Note that area $\left(b_2+a_2+a_3\right)$ in figure 15 equals the shaded area in figure 14.

51. Note that this term is always positive since area (a-c) must always increase with an increase in the relative price level.

52. If we define the industry problem as hiring lobbying labor to simply maximize the net return to lobbying then the necessary and sufficient conditions will be sensitive to the units used (i.e. whether we measure net return in units of good X, good Y, or in dollar terms). Although our main results that point out the tradeoff in benefits and costs of employing lobbying resources are not sensitive to the units, we could simply formulate the industry problem using a utility function representing the trade-off between changes in the relative price level and the net return to lobbying as follows:

$$\max_{LL_X} \; U_X(p, N_X).$$

The necessary condition for industry X would be

$$\frac{\partial U_X}{\partial LL_X} = \frac{\partial U_X}{\partial p}\frac{\partial p}{\partial LL_X} + \frac{\partial U_X}{\partial N_X}\frac{\partial N_X}{\partial LL_X} = 0 \; .$$

Since an industry is also maximizing utility through consumption of the two goods, we may use Roy's identity (Varian, 1978), and rearrange to get

$$\left(K_X \frac{\partial r_X}{\partial p} - LL_X \frac{\partial w}{\partial p} - D_X\right)\frac{\partial p}{\partial LL_X} = w + \left(K_X \frac{\partial r_X}{\partial L_A} - LL_X \frac{\partial w}{\partial L_A}\right)$$

where D_X is industry X's Marshallian demand function for good X (as a function of relative prices, p, and income, N_X). Note that since N_X is a function of p and L_A alone, D_X is also.

53. To make the difference as stark as possible, it is assumed that the general rule operates costlessly and with certainty. As a result, the only political costs are those associated with setting the rule. Thus we are comparing complete discretion with a completely specified rule.

54. The historical argument is made most clearly in Nelson (1987). In Finger, Hall and Nelson (1982) we present econometric evidence supporting the hypothesis that the delegation from Congress (at least up to 1980) is precise enough that anti-dumping and countervailing duty cases are decided "on their merits". A formal development of this argument for the case of tariff policy can be found in (Hall and Nelson, 1988).

55. Note that we have switched the returns to factors and value of marginal product curves into units of another good besides the output of industry Y (or, we could have kept them in units of dollars). This is for convenience only in that this permits us to now shift the V_y curve upward reflecting an increase in the price level in industry Y. Had we kept things in units of good Y as before, we would simply (though not so clearly in the diagram) have shifted the V_x curve downward. This would have further complicated things in that the returns would all have changed since they were in units of good Y.

56. The fourth (empty) cell is what we called adjudicative redistribution and is fully consistent with our above discussion. It involves factor-based interest identification but the discretion allowed can have the effect of disorganizing the interest groups. We don't pursue this here because it requires additional structure that would undermine the simple presentation that was one of the goals of this paper.

57. See Nelson (1983) for a discussion of such strategies in the case of industrial policy.

REFERENCES

Amenta, Edwin and Theda Skocpol(1988), "Redefining the New Deal: World War II and the Development of Social Provision in the United States", in M. Weir, A.S. Orloff and T. Skocpol, eds., The Politics of Social Policy in the United States. Princeton: Princeton University Press; pp. 81-122.

Arrow, Kenneth (1951), Social Choice and Individual Values. New Haven: Yale University Press.

Arrow, Kenneth (1974), The Limits of Organization. New York: Norton.

Bauer, Raymond A., Ithiel de Sola Pool, and Lewis Anthony Dexter (1963), American Business and Public Policy: The Politics of Foreign Trade. Chicago: Aldine.

Bernstein, Marver (1955), Regulating Business by Independent Commission. Princeton: Princeton University Press.

Bhagwati, Jagdish (1982), "Shifting Comparative Advantage, Protectionist Demands and Policy Response", in Bhagwati, ed., Import Competition and Response. Chicago: University of Chicago Press/NBER; pp. 153-184.

Brewer, Thomas (1973), "Issue Context and Variations in Foreign Policy: Effects on American Elite Behavior", Journal of Conflict Resolution, vol. 17, no. 1, pp. 89-114.

Ethier, Wilfred (1988), Modern International Economics. New York: Norton.

Findlay, Ronald and Stanislaw Wellisz (1982), "Endogenous Tariffs, the Political Economy of Trade Restrictions, and Welfare", in J. Bhagwati, ed., Import Competition and Response. Chicago: University of Chicago Press/NBER, pp. 223-234.

Finger, J.M., H. Keith Hall and Douglas R. Nelson (1982), "The Political Economy of Administered Protection", American Economic Review, vol. 72, no. 3, pp. 452-466.

Fiorina, Morris (1977), Congress: Keystone of the Washington Establishment. New Haven: Yale University Press.

Fiorina, Morris (1981), "Universalism, Reciprocity, and Distributive Policy making in Majority Rule Institutions", Research in Public Policy Analysis and Management, vol. 1, no. ?, pp. 197-221.

Fiorina, Morris (1982), "Legislative Choice of Regulatory Forms: Legal Process or Administrative Process", Public Choice, vol. 39, no. 1, pp. 33-66.

Fiorina, Morris (1986), "Legislator Uncertainty, Legislative Control, and the Delegation of Legislative Power", Journal of Law, Economics and Organization, vol. 2, no. 1, pp. 33-51.

Hall, H. Keith and Douglas Nelson (1987), "Modeling the Market for Protection: Administered versus Legislated Approaches". Manuscript: The World Bank/University of Arkansas.

Hayes, Michael (1978), "The Semi-Sovereign Pressure Groups: A Critique of Current Theory and an Alternative Typology", Journal of Politics, vol. 40, no. 1, pp. 134-161.

Hayes, Michael (1981), Lobbyists and Legislators: A Theory of Political Markets. New Brunswick: Rutgers University Press.

Jones, Ronald and Peter Neary (1984), "The Positive Theory of International Trade", in R. Jones and P. Kenen, eds., Handbook of International Economics (vol. 1). Amsterdam: North-Holland; pp. 1-62.

Kofford, Kenneth (1987), "Different Preferences, Different Politics: A Demand-And-Structure Explanation". Manuscript: Caltech (Social Science Working Paper #640).

Lowi, Theodore (1964), "American Business, Public Policy, Case Studies and Political Theory", World Politics, vol. 16, no. 4, pp. 347-382.

Lowi, Theodore (1967), "Making Democracy Safe for the World: National Politics and Foreign Policy", J., Rosenau, ed., Domestic Sources of Foreign Policy. New York: Free Press; pp. 295-331.

Lowi, Theodore (1970), "Decision-Making vs. Policy-Making: Toward and Antidote for Technocracy", Public Administration Review, vol. 30, pp. 314-325.

Lowi, Theodore (1972), "Four Systems of Policy, Politics, and Choice", Public Administration Review, vol. ?, no. ?, pp. 298-310.

Lowi, Theodore (1985), "The State in Politics: The Relation Between Policy and Administration", in Noll, ed., Regulatory Policy in the Social Sciences, pp. 67-110.

Magee, Stephen, William Brock and Leslie Young (1988), Black Hole Tariffs: Endogenous Policy Theory: Political Economy in General Equilibrium. Manuscript: University of Texas.

March, James and Johan Olsen (1984), "The New Institutionalism: Organizational Facts in Political Life", American Political Science Review, vol. 78, no. ?, pp.734-749.

Mayer, Wolfgang (1984), "Endogenous Tariff Formation", American Economic Review, vol. 74, no. 5, pp. 970-985.

McClure, Charles (1971a), "The Theory of Tax Incidence with Imperfect Factor Mobility", Finanzarchiv, vol. 30, no. 1, pp. 27-48.

McClure, Charles (1971b), "The Theory of Expenditure Incidence", Finanzarchiv, vol. 30, no. 4, pp. 432-453.

McClure, Charles (1975), "General Equilibrium Incidence Analysis: The Harberger Model After Ten Years", Journal of Public Economics, vol. 4, no. ?, pp. 125-161.

McCubbins, Matthew (1985), "The Legislative Design of Regulatory Structure", American Journal of Political Science, vol. 29, no. ?, pp. 721-748.

McCubbins, Matthew and Thomas Schwartz (1984), "Congressional Oversight Overlooked: Police Patrols versus Fire Alarms", American Journal of Political Science, vol. 2, no. 1, pp. 165-179.

McKelvey, Richard (1976), "Intransitivities in Multidimensional Voting Models and Some Implications for Agenda Control", Journal of Economic Theory, vol. 12, no. ?, pp. 472-482.

McKelvey, Richard (1986), "Covering, Dominance, and Institution-Free Properties of Social Choice", American Journal of Political Science, vol. 30, no. ?, pp. 283-314.

Moe, Terry (1985), "Control and Feedback in Economic Regulation: The Case of the NLRB", American Political Science Review, vol. 79, no. ?. pp. 1094-1116.

Moe, Terry (1987), "An Assessment of the Positive Theory of 'Congressional Dominance'", Legislative Studies Quarterly, vol. 12, no. 4, pp. 475-520.

Neary, J. Peter (1978), "Short-Run Capital Specificity and the Pure Theory of International Trade", Economic Journal, vol. 88, no. ?, pp. 488-510.

Nelson, Douglas (1983), "On Political Response to Economic Crisis in Advanced Industrial Countries: A Conflict Theory Approach", presented at 1983 Annual Meeting of the American Political Science Association (Chicago).

Nelson, Douglas (1987), "The Domestic Political Preconditions of US Trade Policy: Liberal Structure and Protectionist Dynamics", presented at World Bank Conference on Political Economy: Theory and Evidence.

Nelson, Douglas (1988), "Endogenous Tariff Theory: A Critical Survey", American Journal of Political Science, vol. 32, no. 3, pp. 796-837.

Niu, Emerson and Peter Ordeshook (198?), "Universalism in Congress", American Journal of Political Science, vol. ??, no. ?, pp. 246-258.

Orloff, Ann Shola and Theda Skocpol (1984), "Why Not Equal Protection? Explaining the Politics of Public Social Spending in Britain, 1900-1911, and the United States, 1880s-1920", American Sociological Review, vol. 49, no. ?, pp. 726-750.

Peters, B. Guy, John Doughtie, and M. Kathleen McCulloch (1977), "Types of Democratic Systems and Types of Public Policy: An Empirical Examination", Comparative Politics, vol. 9, no. 3, pp. 327-355.

Ripley, Randall and Grace Franklin (1984), Congress, The Bureaucracy and Public Policy (3rd Ed.). Homewood: Dorsey Press.

Rogowski, Ronald (1987), "Political Cleavages and Changing Exposure to Trade", American Political Science Review, vol. 81, no. 4, pp. 1121-1137.

Ruffin, Roy and Ronald Jones (1977), "Protection and Real Wages: The Neoclassical Ambiguity", Journal of Economic Theory, vol. 14, no. ?, pp. 337-348.

Salisbury, Robert (1968), "The Analysis of Public Policy: A Search for Theories and Roles", in A. Ranney, ed., Political Science and Public Policy. Chicago: Markham; pp. 151-175.

Salisbury, Robert and John Heinz (1970), "A Theory of Policy Analysis and Some Preliminary Applications", in I. Sharkansky, ed., Policy Analysis in Political Science. Chicago: Markham; pp. 39-60.

Schattschneider, E.E. (1935), Politics, Pressures and the Tariff. New York: Prentice Hall.

Schofield, Norman (1985), Social Choice and Democracy. Berlin: Springer-Verlag.

Shepsle, Kenneth (1979), "Institutional Arrangements and Equilibrium in Multidimensional Voting Models", American Journal of Political Science, vol. 23, no. 1, pp. 27-59.

Shepsle, Kenneth (1986), "Institutional Equilibrium and Equilibrium Institutions", in H.F. Weisberg, ed., Political Science: The Science of Politics. New York: Agathon Press; pp. 51-81.

Shepsle, Kenneth and Barry Weingast (1981), "Political Preferences for the Pork Barrel: A Generalization", American Journal of Political Science, vol. 25, no. 1, pp. 96-111.

Skocpol, Theda (1980), "Political Response to Capitalist Crisis: Neo-Marxist Theories of the State and the New Deal", Politics and Society, vol. 10, no. 2, pp. 155-201.

Skocpol, Theda and Kenneth Finegold (1982), "State Capacity and Economic Intervention in the Early New Deal", Political Science Quarterly, vol. 97, no. 2, pp. 255-278.

Skocpol, Theda and John Ikenberry (1983), "The Political Formation of the American Welfare State in Historical and Comparative Perspective", Comparative Social Research, vol. 6, pp. 87-148.

Smith, T. Alexander (1969), "Toward a Comparative Theory of the Policy Process", Comparative Politics, vol. 1, no. 4, pp. 498-515.

Spitzer, Robert (1979), "The Presidency and Public Policy: A Preliminary Inquiry", Presidential Studies Quarterly, pp. 441-457.

Varian, Hal (1978), Microeconomic Analysis. New York: Norton.

Vogler, David (1980), The Politics of Congress (3rd. ed.). Boston: Allyn and Bacon.

Walker, Stephen and Pat McGowan (1982), "US Foreign Economic Policy Formulation: Neo-Marxist and Neopluralist Perspectives", in W. Avery and D. Rapkin, eds., America in a Changing World Political Economy. New York: Longman; pp. 207-224.

Weingast, Barry (1979), "A Rational Choice Perspective on Congressional Norms", American Journal of Political Science, vol. 23, no. 2, pp. 245-262.

Williamson, Oliver E. (1975), Markets and Hierarchies: Analysis and Antitrust Implications. New York: The Free Press.

Williamson, Oliver (1985), The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting. New York: The Free Press.

Wilson, James Q. (1974), "The Politics of Regulation", in J. McKie, ed., Social Responsibilities and the Business Predicament. Washington, DC: Brookings; pp. 135-168.

Zimmerman, William (1973), "Issue Area and Foreign-Policy Process: A Research Note in Search of a General Theory", American Political Science Review, vol. 67, no. 4, pp. 1204-1212.

	Political Mechanism Operates Under			
	Rules		Discretion	
Benefits Are:	Costs are:		Costs are:	
	Diffused	Concentrated	Diffused	Concentrated
Diffused	I	II	V	VI
Concentrated	III	IV	VII	VIII

FIGURE 1: A LOWI-WILSON TYPOLOGY OF POLICY INDUCED ARENAS

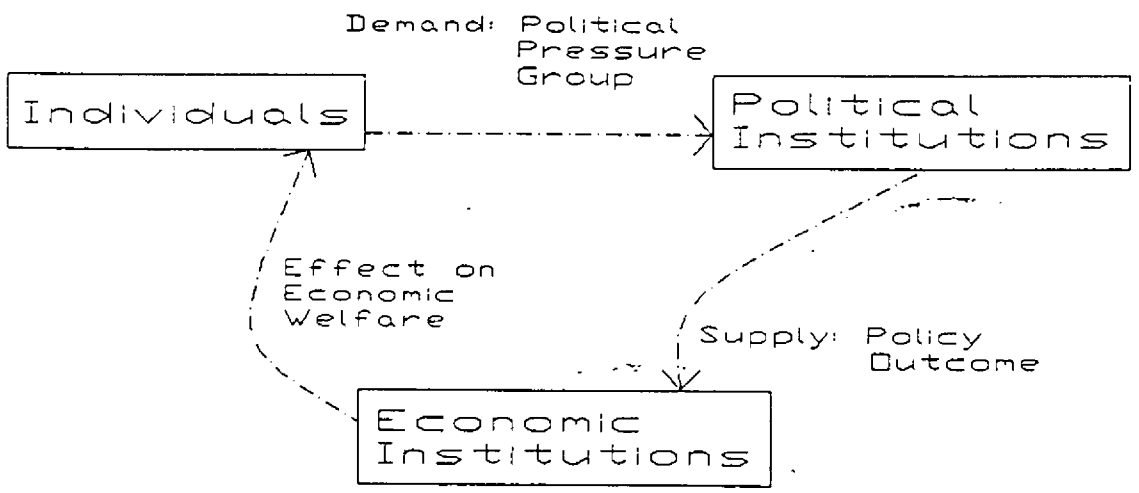

Figure 2

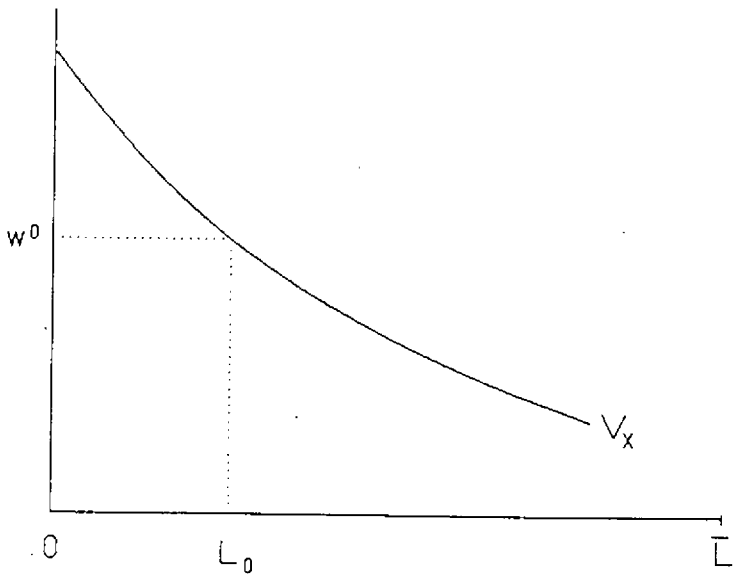

Figure 3

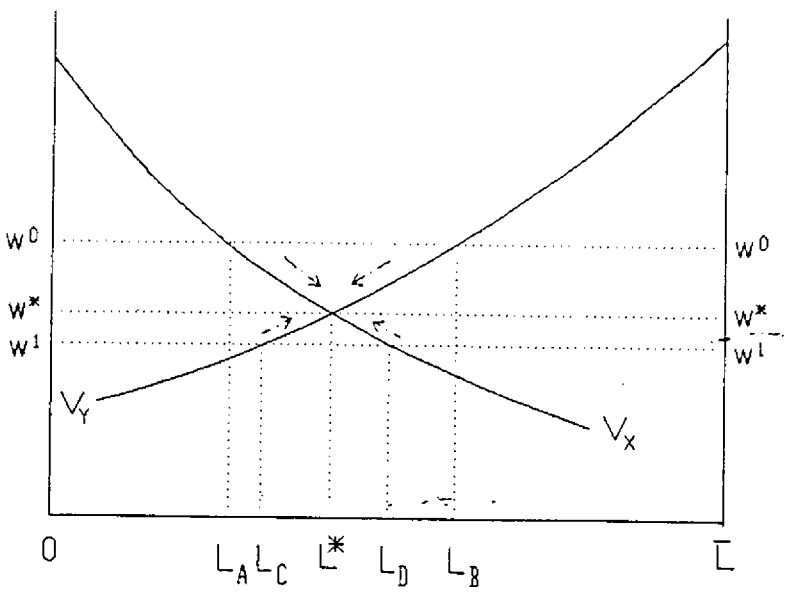

Figure 4

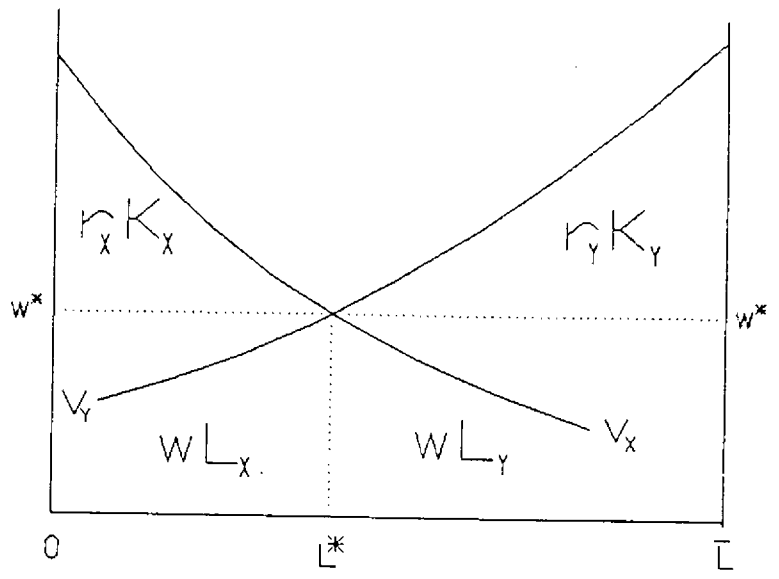

Figure 5

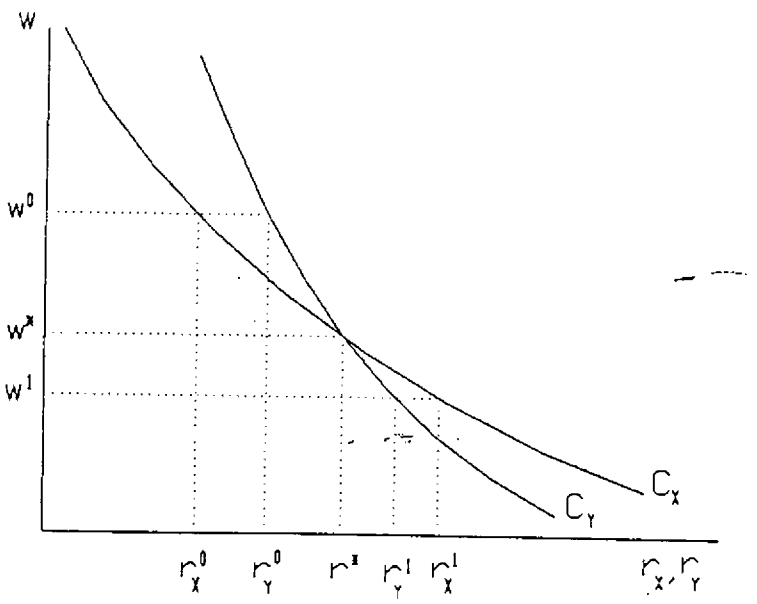

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10-1

Figure 10-2

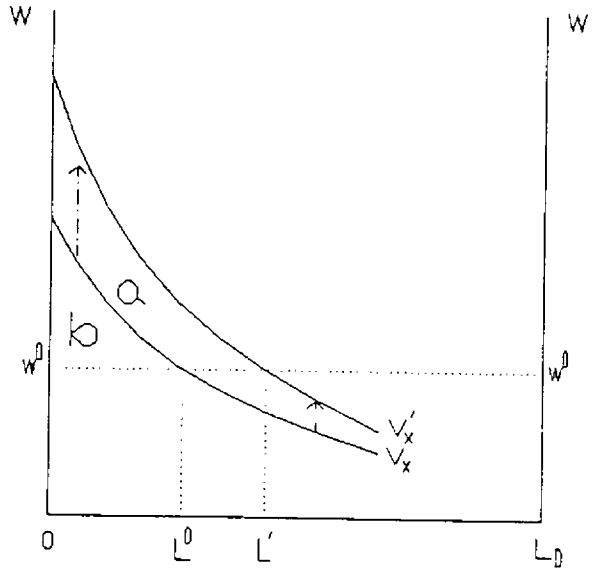

Figure 11

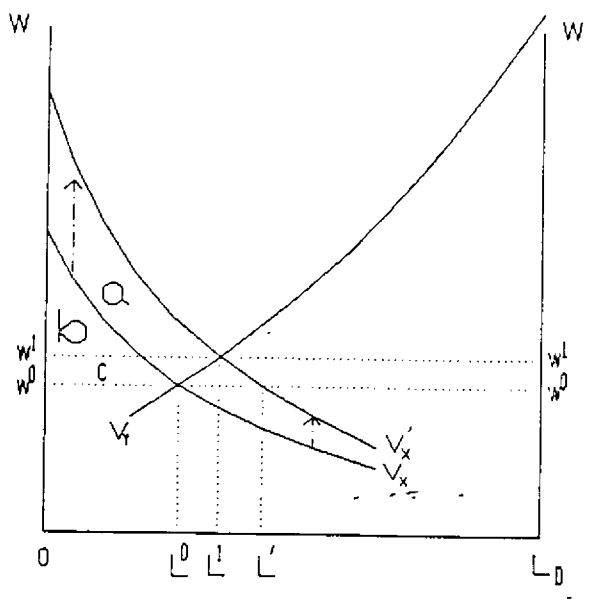

Figure 12

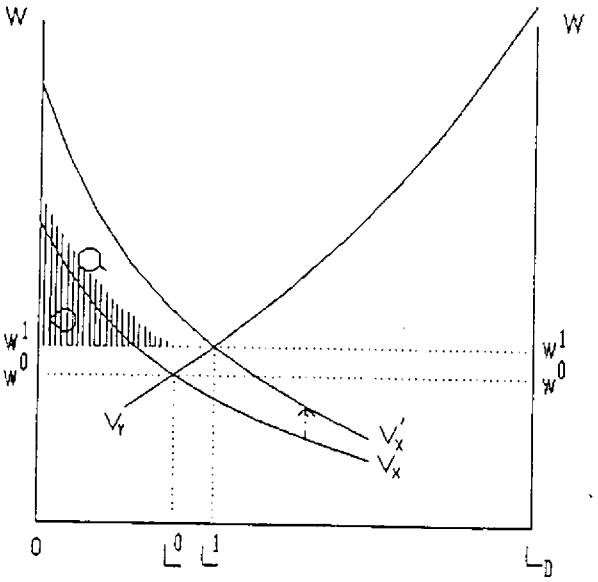

Figure 13

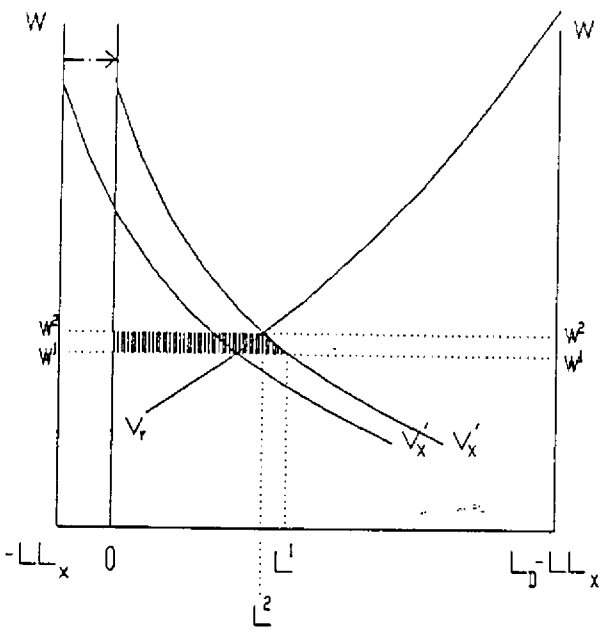

Figure 14

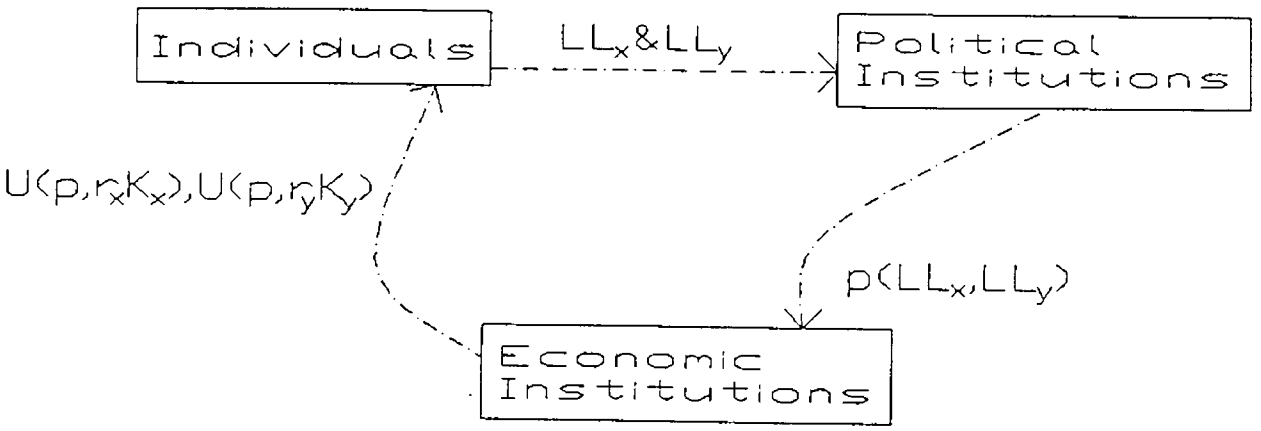
Individuals
LL_x&LL_y
Political Institutions
$U(p,r_xK_x),U(p,r_yK_y)$
$p(LL_x,LL_y)$
Economic Institutions

Figure 15

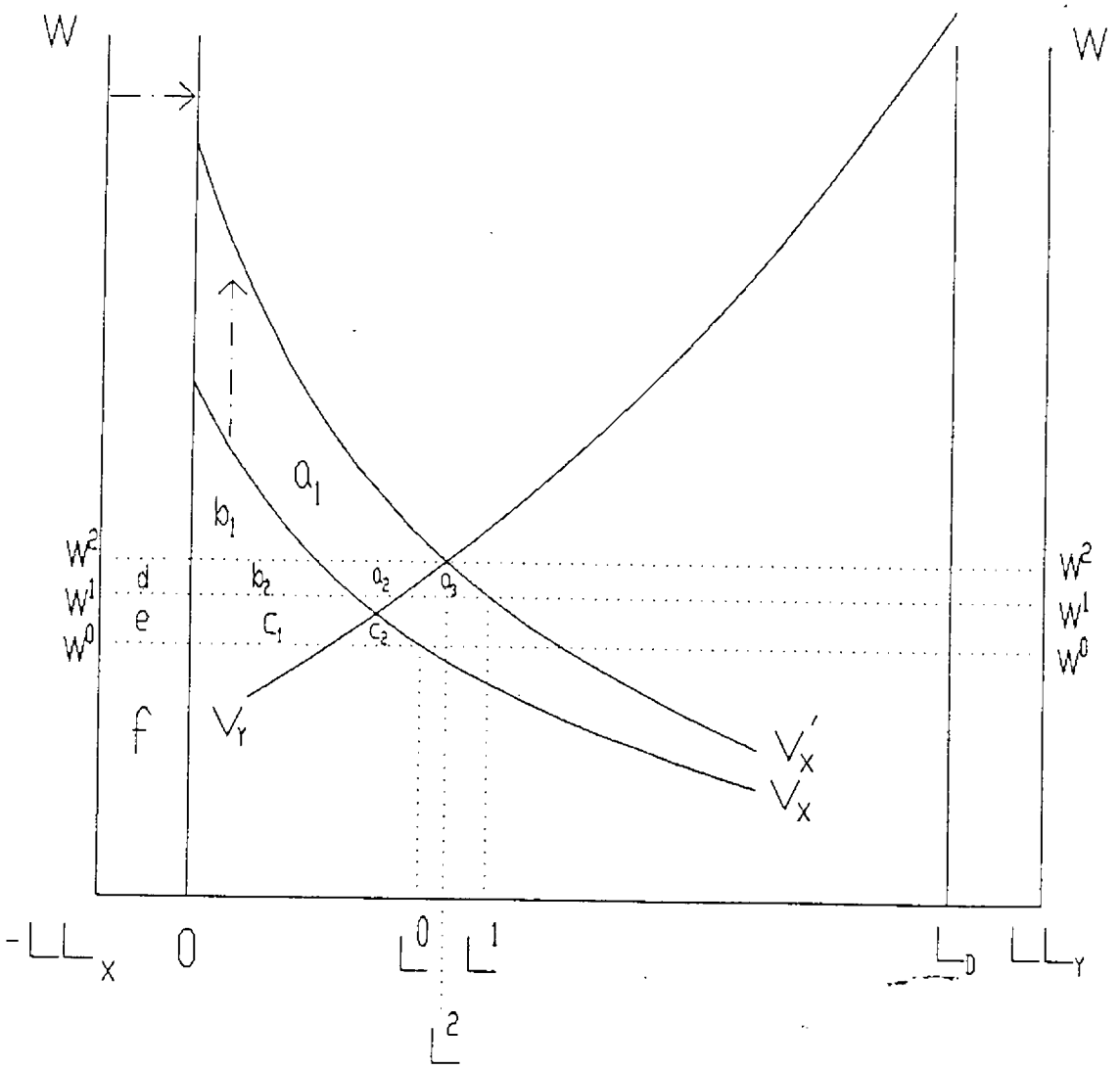
W
W
a1
b1
b2
c1
a2
a3
c2
W2
W1
W0
d
e
f
VY
V'X
VX
W2
W1
W0
-LLX
0
L0
L1
L2
LD
LLY

Figure 16

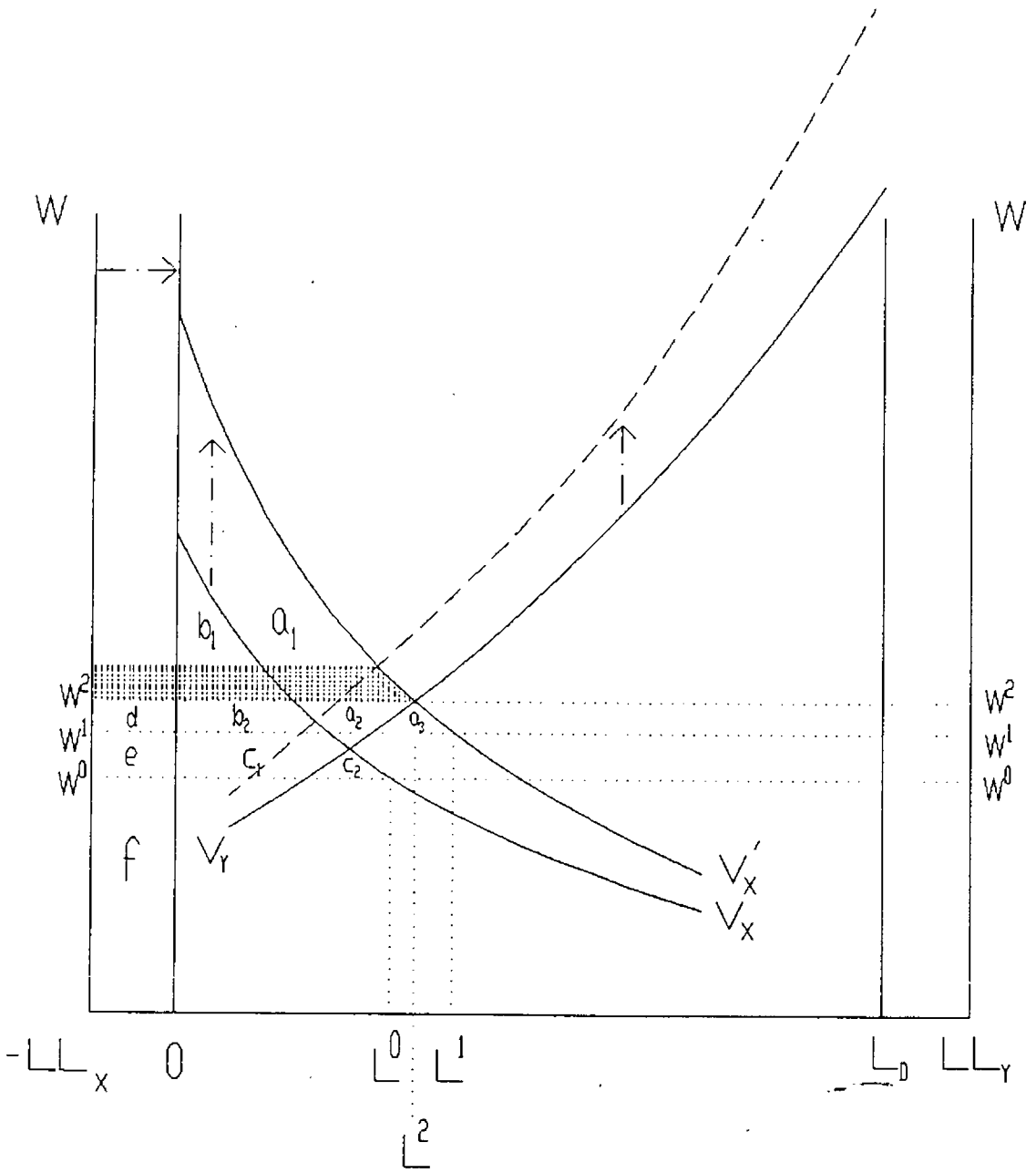

Figure 17

	Short Horizon	Long Horizon
Rules	Regulatory	Redistributive
Discretion	Distributive	

FIGURE 18: THE LOWI-EFFECT