OPTIMAL REPRESENTATIVE TAXATION, INFORMATION AND POLITICAL INSTITUTIONS

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by

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Abstract

The paper formulates a normative theory of taxation that incorporates both economic structure and political institutions as essential elements. Such a theory has interesting parallels to optimal taxation, including large information requirements. We discuss solutions to the information problem in a competitive political economy. The answer appears to lie in a decentralized information gathering and policy process rather than in the development of simplified guidelines for central planners. The paper proposes a framework to examine the effects of decentralized decision making, imperfect political competition and political institutions on tax policy outcomes.

1. Introduction

Optimal taxation (OT) has been the most influential theoretical analysis of taxation in the past two decades. Developed as an extension of welfare economics, OT is normative in character and attempts to design tax systems or policies to be implemented by a planner having no political or economic agenda of his own. Optimal tax plans reflect the two concerns most widely emphasized in normative analysis, efficiency and distribution. Most commonly, they are designed to collect a fixed amount of revenue in a manner that keeps welfare losses to a minimum, while at the same time achieving the distributional goals expressed in a given welfare function.

Although the OT literature contains a rich variety of theoretical results, it has had a limited impact on the design of actual tax policies. Those concerned with the reform of particular tax systems raise two fundamental criticisms. The first concerns the informational requirements of OT policies. Since optimal tax plans take account of the general equilibrium structure of the economy, they tend to be highly complicated and complex. Implementation of optimal commodity taxation, for example, would require very extensive information on economic margins and elasticities. In practice, such knowledge can be acquired only at very high cost. The problem is particularly acute in developing countries, where the necessary information systems are largely absent, but it also exists in more developed nations, where planners face a bewildering array of different goods and market conditions.

Suggestions in the OT literature for dealing with the information problem center around rules of thumb, or simplified guidelines such as tax neutrality. As one writer concerned with the fiscal experience of developing countries has put it:

While not nearly as intellectually satisfying a guide to tax policy as "optimal taxation," neutral taxation is to be preferred as a benchmark until such time as analysts are able to identify optimal departures from neutrality in real world policy settings, and until such time as administrative capacities are equal to the task of operating necessarily complicated optimal tax structures. In both developed and developing countries that time will not likely arrive

before the twenty-first century.1

A second line of criticism directed at OT theory focuses on the decision-making process. Since tax systems or policies must be adopted in a political setting, one may question whether normative analysis can abstract from the collective choice process that underlies the determination of goals and the adoption and implementation of policy. While writers on OT at times acknowledge the existence of political constraints that may prevent adoption of suggested tax policies or force alterations in their design, they have not as yet dealt with collective choice as an integral part of their framework.²

In the present paper, we pursue two related aims. We first draw attention to recent developments in the theory of probabilistic voting, making it possible to formulate a normative theory of taxation that incorporates collective choice as an essential element. Such a theory has many interesting parallels to optimal taxation, including large information requirements. We then focus on possible solutions to the information problem in this different setting. The answer appears to lie in a decentralized information gathering and policy process rather than in the development of simplified guidelines for improving the decisions of central planners. The paper proposes a framework to examine the effects of decentralized decision making, imperfect political competition and political institutions on tax policy outcomes.

2. From OT to ORT

Recent developments in the literature on probabilistic voting models provide a basis for incorporating collective choice into a normative tax theory that may be called optimal representative taxation (ORT).³ Let us consider the nature of equilibrium policy outcomes in an ideal representative democracy where' political competition is perfect. By a perfectly competitive

democratic state we mean one in which free entry into the competition for office forces political parties to continually maximize expected votes.⁴ Assume the electorate is divided into H interest groups of n_h identical voters. Let the probability of voting for the incumbent party (i) by a representative member of group h be a function of the utility differential that results from policy platforms, including the fiscal system, offered by the incumbent and the opposition (o):

$$p_h = f(v_{hi} - v_{ho})$$

where v_h refers to an indirect utility function of the representative individual in group h. The expected vote for the incumbent party, that is for the government, is then

$$EV_i = \sum_h n_h \cdot f(v_{hi} - v_{ho}). \tag{1}$$

The choice of fiscal policies is constrained by a government budget restraint

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$$R(t,G) = G. \tag{2}$$

where t is a vector of J tax rates and G is the level of a single public good. It is assumed that the general equilibrium structure of the economy is implicitly incorporated through this budget restraint and via the indirect utility functions.

An optimal platform for the incumbent government requires that t and G be adjusted until the expected vote function (1) is maximized subject to (2). The first order conditions for the choice of tax instrument t_k is of the form:

$$\sum_{h} n_{h} \frac{\partial f}{\partial v_{hi}} \frac{\partial v_{hi}}{\partial t_{k}} - \lambda \frac{\partial R}{\partial t_{k}} = 0, \qquad k = 1, 2, ..., J,$$
(3)

where λ is the Lagrange multiplier associated with the budget restraint and J is the number of tax rates. An analogous condition describes the optimal choice of the level of the public good.

Under appropriate conditions concerning the density functions in (1), and assuming Nash

behaviour by political parties in their choice of platforms, equilibrium in the two party zero-sum electoral game will exist and is unique (see for example Coughlin 1992, Mueller 1989 chp.11). Existence depends on the continuity of the expected vote functions (1), a continuity which stems from the probabilistic nature of voting behaviour. Uniqueness of equilibrium policy platforms is assured if the expected vote functions are strictly concave in the policy instruments t and G.

An important feature of the equilibrium described above is that it is consistent with the attainment of Pareto-efficiency. To see that this is so, it suffices to consider the nature of the fiscal system that solves the following problem:

$$\max_{\{t, G\}} S = \sum_{h} \theta_{h} v_{h}$$
subject to (2)
(4)

where $\theta_h = n_h \cdot \partial f / \partial v_h$, which can be thought of as the weight implicitly assigned to group h by the political system, takes on the value it attains in the Nash equilibrium. If we can show that the fiscal system that solves (4) is identical to the fiscal system that solves the first order conditions (3), then we will have shown that the choice of policies that maximizes a weighted sum of voter utilities also maximizes expected votes in a competitive political system, and hence that the politically optimal fiscal system is consistent with Pareto-efficiency in the allocation of resources.⁵

In fact, the first order conditions for a solution to (4) are identical to those in (3). Unless the "political support" function S in (4) is maximized, it is possible for a party to increase its expected vote by making some voters better off without making any others worse off. Competition in the struggle for office will ensure that no such opportunities remain in equilibrium. Thus it is clear that, under the conditions outlined above, if an equilibrium policy platform exists: (i) it can be characterized by solving the problem in (4), and (ii) the tax system that is part of the equilibrium

policy platform will be consistent with efficiency in the social allocation of resources.

Even though the support function in (4) is a weighted sum of utilities, it should not be thought of as a social welfare function that is being maximized by a social planner or tax theorist. The solution to the synthetic optimization problem in (4) represents a useful way of characterizing the equilibrium choice of policies in a perfectly competitive political system. ORT is concerned with the relationship between political institutions and the normative character of tax policies in a political equilibrium. A similar concern also lies behind the first theorem of welfare economics, which relates market structure to the Pareto efficiency of equilibrium. ORT thus involves a type of investigation quite different from OT, which focuses on the choice of policies by a central planner that are compatible with an exogenously specified norm.

3. ORT and the Information Problem

To develop a comprehensive blueprint of the tax system, an OT planner needs knowledge of the social welfare, function, as well as data on preferences, endowments and technology for all participants and sectors in the economy. If we restrict the analysis to commodity taxation, the primary need is for information on demand functions and commodity characteristics. Stern has recently discussed the conceptual problems involved in the generation of such data:

The derivation of the appropriate set of commodity taxes requires information concerning patterns of complements and substitutes that is very difficult to extract from the data. Our attempts to extract it will require specifications of functional forms, which, as we saw, may have a profound effect on the recommendations. As Deaton ... observes: 'In consequence, it is likely that empirically calculated tax rates, based on econometric estimates of parameters, will be determined in structure, not by the measurements actually made, but by arbitrary, untested (and even unconscious) hypotheses chosen by the econometrician for practical convenience' (1987, 51).

One should recognize that similar difficulties would also arise in an ORT context, if someone were instructed to calculate tax rates that maximize expected political support. As in OT, a planning

solution to the ORT problem would require information on preferences, endowments and technology, or on appropriate proxies for these characteristics of economic structure.

There is a major difference in information requirements between the two approaches, however, which can be seen by comparing the first order conditions (3) with those for a standard OT problem of choosing t and G to maximize a social welfare function $V(t,G) = V\{v_1(t,G),$ $v_2(t,G),..., v_H(t,G)\}$ subject to the government budget restraint (2). For any tax instrument t_k , the solution to the OT problem requires that:

$$\sum_{h} \frac{\partial V}{\partial v_{h}} \cdot \frac{\partial v_{h}}{\partial t_{k}} - \lambda \cdot \frac{\partial R}{\partial t_{k}} = 0; \qquad k = 1, 2, ..., J.$$
(5)

Thus while an OT planner needs instructions concerning the marginal social worth of each individual, $\partial V/\partial v_h$, a full solution to the problem of maximizing political support requires knowledge of how changes in the welfare of members of various interest groups, caused by the adjustment of tax rates, affect the probability of voting. In (3) and (4) these factors are represented by the terms θ_h . ORT therefore assumes that political parties can solve problems which have extensive information requirements of a political nature that play no part in OT analysis and that would further increase the costs of reaching a centralized solution to the information problem.

The feasibility of planning in the face of large information requirements is a classic question in the history of economics. The context in which the traditional debate was carried out concerned the choice between centralized planning and the use of markets. Among the most influential ideas in the debate were those advanced by Hayek (1945), who argued strongly that only decentralized markets could solve the immense task of processing the information necessary to reach efficient economic outcomes.

The historical debate points in a rather different direction from the OT literature, where

simplified central planning rules have been proposed as primary solutions to the information problem.⁶ It suggests that a more effective approach may be to decentralize policy making into separate, semi-independent areas within a hierarchical policy making structure, while at the same time creating an institutional framework within government that mobilizes special interests to provide valuable information as part of their attempts to influence policy outcomes. (One may note that the most commonly used OT formulation subsumes a segmentation or decentralization of policy by separating taxation from expenditures, although authors to not generally justify this assumption by making reference to the information question.)

The study of policy making in modern societies indicates that decentralization of policy areas is a common feature of democratic government. While the apparent lack of coordination that may result is often decried by economic analysts, this lack may well represent part of a rational response to information problems associated with complex policy choices.

Decentralization is a well-known aspect of budgetary policy in many countries. In the United States and Canada, for example, decisions on taxation and expenditures are taken separately at the political level, and implemented by separate administrative bodies, while special procedures, such as annual budget resolutions or cabinet directives, are used to maintain broad overall coordination. As far as taxation is concerned, further segmentation of policy making and administrative organization tends to occur in accordance with particular fiscal instruments or major tax bases. To fully understand the nature of ORT, it is necessary to define and examine the losses and gains associated with such segmentation, and to relate them to the provision and processing of economic and political information necessary for effective policy.

4. Decentralization, Information and Co-ordination.

A major purpose behind decentralization of decision making is to economize on information collection and processing costs and to permit specialization in the knowledge required for the choice of particular tax instruments.' Decentralization for this purpose also leads to the problem of co-ordinating decision makers. In this section we consider decentralization as a method of coping with the planning problem outlined in (3) or (4) and investigate the associated co-ordination problem. We proceed by defining two polar tax systems: one chosen in a world where information is costless - equivalent to a complete solution of the planning problem - and a tax system where co-ordination among decision makers is so costly that no co-ordination among them is attempted, and we argue that the standard of reference lies between these solutions.

Our discussion of tax policy making and equilibrium tax systems does not allow for the principal-agent problems that often arise when the policy process disperses decision making power. We assume that all decision makers have the same basic objective in mind, and leave the study of the interaction between decentralization of tax policy making and principal-agent problems for future research.

We begin with three simplifications of the model of equilibrium policy choices in (4). First, given the lack of knowledge concerning the influence of public expenditures on individual preferences and on the magnitude of private taxable activities, it seems reasonable to suppose at the outset that the level of G cannot be chosen so as to influence the level of taxable, activities. We therefore assume that tax bases, however defined, are independent of the level of public services G. Second, we assume that it is possible to distinguish between short-run, mainly distributional, impacts of changes in tax policy from longer run effects that involve substantial induced changes in private behavior. Together these two simplifying assumptions suggest that the support function S in (4) can

be written as:

$$S = S(t, B(t), G) \tag{6}$$

where $t = (t_1, t_2,..., t_J)$ is a vector of tax rates and $B = B\{B_1(t), B_2(t),..., B(t_J)\}$ is a vector of the corresponding tax bases, and where the possibility that each tax rate may affect a large number of tax bases is explicitly acknowledged.⁸ Third, we assume for purposes of the following discussion that the definition, though not the level, of each tax base is exogenous.⁹

We shall introduce the problem of co-ordinating tax policy into our framework by thinking of each tax base as being under the control of a separate group of decision makers who can determine the tax rate levied on that base. The problem of coordinating decision makers so that the general equilibrium effects of separate choices concerning tax rates are taken into account will be of central concern in what follows.

In view of the simplifying assumptions just introduced, the planning problem in (4) can be restated as:

$$\max_{\{t,G\}} S(t,B(t),G)$$
(7)

subject to

÷...

$$\sum_{j} t_{j} \cdot B_{j}(t) = G.$$
(8)

The first order condition for instrument t_k is:

$$-\left\{\frac{\partial S}{\partial t_{k}}\right\}_{B} + \frac{\partial S}{\partial B_{k}} \cdot \frac{\partial B_{k}}{\partial t_{k}} + C\right\} = \lambda_{k} = \lambda \cdot \left\{B_{k}(1+\epsilon_{k})+D\right\}$$
(9)

where

$$C = \sum_{j \neq k} \frac{\partial S}{\partial B_j} \cdot \frac{\partial B_j}{\partial t_k}, \qquad (10)$$

$$D = \sum_{j \neq k} t_j \cdot \frac{\partial B_j}{\partial t_k}, \qquad (11)$$

and where λ is the Lagrange multiplier associated with the government budget restraint, $\epsilon_k = \partial B_k / \partial t_k \cdot t_k / b_k$ is the elasticity of base B_k with respect to tax rate t_k, and λ_k represents the gain in support from raising rate t_k and spending the resulting revenue on public services. An analogous condition holds for the other tax rates and for the level of public services. The terms included in D in (11) reflect interdependencies in the choice of rate t_k and rates on other bases that occur because bases are linked. The cross-effects summarized by C in (10) reflect the consequences for political support of interdependencies between bases. Both C and D will be smaller in the short-run than over longer horizons because tax elasticities tend to grow with time.

For later use, we shall assume that all the terms on the left side of (9) are negative. The intuition here is that an increase in the kth rate will cause a loss in support for three reasons: (i) the impact effect on support of a small increase in the kth rate, the first term on the left side of (9), will be negative; (ii) there will be a further loss of support because of the direct, negative effect of the kth rate on the size of the kth base, hence the second term on the left side of (9) is also assumed to be negative; and (iii) the cross effects of t_k on other bases B_j will, on balance, lead to yet further losses in support, represented by C < 0. We shall also assume that each of these three terms is decreasing (algebraically) with t_k .

We shall also assume that all of the terms on the right side of (9) are positive: (i) as usual we assume that increasing the level of public services generates additional support, hence $\lambda > 0$; (ii) it is reasonable to expect that as the kth rate increases, revenue from the kth base does as well

so that $B_k(1 + \epsilon_k) > 0$; and (iii) we assume that on balance the substitutions away from the kth taxable activity as t_k increases lead to additional revenues, represented by D > 0. Again we shall also assume that these three terms are declining with the kth rate.

A full solution to the set of first order conditions of which (9) is a part is equivalent to a full solution to the problem in (4). Such a solution is feasible only if information and co-ordination costs, especially those that arise in connection with the interaction terms C and D, are negligible. Such a solution is represented in Figure 1 by t_k^* .

[Figure 1 here]

In the figure, which is a partial equilibrium representation of the solution to the complete set of first order equations, the line MS graphs the change in the left side of the first order condition (9) as the kth rate changes. The left side of (9) represents the known or perceived loss in support from raising the kth rate, and in the figure this loss is shown as increasing (in absolute value) with t_k in accordance with the assumptions made above. The change in the right side of (9) as t_k changes is represented by the line labelled λ_k . The right side of (9) shows the perceived increase in support from spending the extra revenue that results from a small increase in t_k . In the figure, and also in accordance with the assumptions made above, this increase in support is assumed to be declining with t_k . Note that in the case where information is costless, the perceived curves also represent actual losses and gains in support.

At the other extreme to a world of costless information is a choice for t_k that reflects completely uncoordinated decentralization of decision making; that is, a situation where each instrument is assigned to a separate group of decision makers with the additional instruction that no co-ordination between decision makers to take the interaction terms in (9) into account is to be attempted. This is a world where the government perceives that the costs of acquiring information

FIGURE 1

Decentralization and Tax Policy in Political Equilibrium



about C and D are prohibitive, or where it perceives that co-ordination costs are so high that using any information about C and D does not increase net support. In that case, t_k is set according to (9) after setting C and D to zero. Each decision maker thus takes into account only the distributional and incentive effects associated with his or her own instrument and ignores the implications for support that follows from the effects of his decision on the tax bases assigned to other decision makers. Since information about the C and D terms is lacking or not used, the resulting tax rate is shown in Figure 1 by t_k , where the line MS', representing the left side of (9) with C set equal to zero, intersects the line λ_k which represents the right side of (9) with D equal to zero.

It can be seen from Figure 1 that complete decentralization leads to a net loss of support equal to the triangle abc.¹⁰ This net loss can be decomposed into the difference between the loss in support from raising the kth rate from t_k^* to t_k' equal to area t_k^* abt_k', and a gain from spending the extra revenue, area t_k^* act_k'. Note that even though t_k' is chosen assuming D = 0, the full increase in support from using the revenue generated still occurs.

Neither t_k or t_k is politically or economically efficient. The first solution presupposes that information is costless while the second would be optimal only if there are no benefits to informationacquisition or co-ordination across decision makers. The best feasible solution involves trading off the gains in support form using better information with the political costs of doing so. These costs include the loss in support that occurs because resources are diverted to information and coordination activities away from the provision of public goods. The politically optimal rate on base k thus lies somewhere between the two rates shown in Figure 1. The replication of the optimal political program by the problem in (4) suggests that this intermediate rate will be Pareto-efficient.

Further characterization of the tax system corresponding to this rate remains to be accomplished. One way of proceeding may be to recast the analysis as a statistical decision problem and to assume that policy makers determine the optimal rate by using resources to reduce the error associated with estimation of the C and D terms. In this context, it may also be possible to specify restrictions on C and D that are implied by the structure of the model and that decision makers can exploit in making their choices.

While such extensions appear promising, they have implications that go beyond the purpose of this paper. Formal introduction of uncertainty in one part of the model calls for a reformulation of the remaining parts of the theoretical framework. Voters, for example, may have imperfect information on the impact of government policies, while politicians must guess the extent of voter knowledge when choosing particular policies. The model of expected vote maximization, as reflected in (4), does not take account of the effects of such uncertainty and would have to be expanded to serve as a basis for a broader analysis of this nature."

5. Political Market Failure and the Policy Process

Normative analysis has two aspects; the search for optimal outcomes and the analysis of market failure. While we have concentrated so far on the first aspect, we also want to suggest how the analysis can be related to the second type of investigation.

The demonstration in (4) that the equilibrium is efficient depends on the existence of political competition. It is essential to ask what happens to policy choices when political competition is weak and political markets "fail". The challenge to the researcher is to find a link between the functioning of political markets and the operation of particular policy processes and to illustrate the nature of the inefficiency that arises.

While imperfect or weak political competition must ultimately refer to a lack of free entry into the political marketplace, modelling the consequences of this lack of entry is not straightforward.

One possible consequence is that the government may not be under sufficient pressure to resist the demands of certain interest groups, and may give in to their demands without taking into account the broader social implications of doing so. Such a case has recently been characterized by Rodrik (1992) as subordinate government.

To investigate such a situation in the present framework, assume there are just two tax bases, domestic production B_j and imports B_k , and assume that the incumbent party is partly subordinate to the interests of domestic producers who seek protection against foreign competition but who are not strong enough to dictate actual tariff and other tax rates. Following Rodrik, we model this type of government as one that acts as a Stackelberg follower of domestic producers who (as a group) are the leader in the policy process that results in the setting of tax rates. This is the exact opposite of the situation in problem (4) where tax policy is set by the government after taking the effects of taxation on private behavior fully into account.

By a Stackelberg follower of domestic producers, we mean that the government sets tax rates while taking the behavior of domestic producers, as represented by B_i^* , as given where

$$B_{j}^{*} = \underset{B_{i}}{argmax} \quad v_{j}(B_{j}, t_{j}(B_{j}), t_{k}(B_{j}), G(B_{j}))$$
(12)

is the level of activity chosen by domestic producers taking into account the reaction of the government to their 'demands'.¹²

In order to compare results with those given previously, we continue to assume that the government seeks to maximize expected support, so that the problem for the government now is:

$$\max_{\{t,G\}} S(t_j, t_k, B_j, B_k, G)$$
(13)

subject to

.,

$$B_i = B_i^* \tag{14a}$$

$$t_i \cdot B_i + t_k \cdot B_k = G. \tag{14b}$$

Since (13) is subject to the additional constraint (14a), the maximum value of S cannot attain that of the support function in problem (4).

The first order condition for tax rate t_k is:

$$-\left\{\frac{\partial S}{\partial t_{k}}\right|_{B} + \frac{\partial S}{\partial B_{k}} \cdot \frac{\partial B_{k}}{\partial t_{k}} + C'\right\} = \lambda_{k}' = \lambda \cdot \left\{B_{k}(1+\epsilon_{k})+D'\right\}$$
(15)

where (14a) implies that

$$C' = \frac{\partial S}{\partial B_j} \cdot \frac{\partial B_j}{\partial t_k} = 0$$
(16)

$$D' = t_j \cdot \frac{\partial B_j}{\partial t_k} = 0.$$
 (17)

The first order condition for rate t_i is:

$$-\left\{\frac{\partial S}{\partial t_{j}}\right|_{B}+C''\right\}=\lambda_{k}''=\lambda\cdot\left\{B_{j}+D''\right\}$$
(18)

where

•••

$$C'' = \frac{\partial S}{\partial B_k} \cdot \frac{\partial B_k}{\partial t_j}, \qquad (19)$$

$$D'' = t_k \cdot \frac{\partial B_k}{\partial t_i} \,. \tag{20}$$

Since equations (15), (16) and (17) imply that the interaction effects C' and D' will be ignored in the setting of t_k , we have the same solution as that represented by t_k in Figure 1. In our

framework, therefore, subordinate governments will choose tax rates on activity not controlled by powerful interests as if the costs of information and co-ordination in the setting of these rates are prohibitive. Alternatively, we can say that these rates will be set as if complete decentralization was the most desirable policy process.

From (18) it can be seen that a subordinate government will set the rate on the protected domestic market tj at a level that does not take into account the direct incentive effects of taxation (including the effect of tj on Bj). Thus a subordinate government chooses an inefficient policy both because it ignores incentive effects concerning the activity of special interests, the conclusion reached by Rodrik, and because it relies on decentralized decision making to an extent not justified on the basis of information and co-ordination costs.

While more detailed research is needed on the factors that determine political competition, and on their effects on the policy process, the analysis suggest a direction for future work. There is a parallel between the more traditional study of economic markets and the examination of political processes in ORT. In both cases, identification of market failure can serve as a first step in the development of policy recommendations leading to greater efficiency.

6. Tax Policy in Congressional and Parliamentary Political Systems

The formal political model of probabilistic voting is based on a very general description of political competition. In reality, such competition takes place under additional restrictions imposed by specific constitutional arrangements. We use our framework to show that such restrictions matter for equilibrium outcomes and to comment briefly on how they may be evaluated normatively. As a way of simplifying the complex issues, we proceed by comparing tax policy making under two different and well-known constitutional arrangements; the congressional system of the United States

and the parliamentary system of Canada.13

The tax policy process in the congressional system, as described for example by Breton (1991) and Pechman (1987, chp. 3), directly involves members of the executive and legislators from both the House and Senate in lengthy negotiations on tax proposals. The negotiations required to fashion the necessary compromises often centre on the work of standing tax committees in both branches of Congress that have the power to initiate and to block tax legislation. The possibility of exerting meaningful influence at several points in the process, such as in the tax writing committees, draws representations by lobbyists on behalf of various interest groups. The large number of legislators and interest groups involved and the intensity of the resulting negotiations makes the process of passing tax legislation "a gruelling experience, demanding physical stamina as well as analytical and political acumen" (Pechman, p. 62).

The policy process in the Canadian parliamentary system, described by Breton (1991) and Hartle (1982), differs radically from that in the United States. Its most important phase occurs within the federal-bureaucracy, especially the Department of Finance, and is usually conducted in secret." Ministers heading other departments, and even the Prime Minister, normally exercise only minor' influence. The secrecy of the tax policy process, together with the fact that most tax legislation is fashioned behind the closed doors of a non-partisan bureau, makes it difficult for ordinary members of parliament and representatives of interest groups to have a direct impact on tax legislation. Influence may, of course, be exerted indirectly in the course of political debate. But on the whole, the tax policy process in the Canadian system is less responsive to representations by legislators and lobbyists than its counterpart in the congressional system.

While the representation of special interests is more muted and indirect in the parliamentary system, control over the revenue implications is much more direct; The doctrines of cabinet solidarity

and budget secrecy, as well as the strong support by the Prime Minister for the Minister of Finance give the latter substantial control over the expenditure and tax policy processes. All tax policy proposals must pass through his hands or the hands of his senior officials. He can ask for changes in the proposals put forward by specific branches of his department if the aggregate revenue implications of proposed legislation are inconsistent with overall expenditure targets. Most importantly, he can ask for changes in particular aspects of the tax code without rejecting the whole package of reforms, so that the cost of co-ordinating amendments to proposals is substantially lower. The U.S. President can also reject specific proposals, but only by vetoing the entire package. As Breton (1991, 34) points out, such a veto is a crude instrument compared to the power exercised by the Minister of Finance, and can be used only sparingly because it may create difficulties in the future when the support of members of Congress is required on other matters.

To translate the effects of differences in policy processes into our framework, it is useful to first define an optimal rate in the presence of costly information and positive coordination costs, when no specific constitutional structure exists. This rate, shown as t_k in Figure 2, occurs where MS_k intersects λ_k . It is analogous to the optimal rate lying between t_k^* and t_k' in Figure 1. In establishing the optimal rate, the interaction terms C and D in (9) are taken into account subject to the costs and benefits of acquiring information and coordinating decision makers. Both political systems create conditions that lead to departures from this rate.

[Figure 2 here]

The preceding sketch suggests that the cost of co-ordination involved in realizing the full revenue implications of any tax system are lower in the parliamentary than in the congressional system, since any part of a tax proposal can be easily altered by the Minister of Finance, while in the congressional system such an alteration is subject to extensive renegotiation among legislators



Tax Policy Making in Parliamentary and Congressional Systems



and between Congress and the President. Thus, it is cheaper for a parliamentary government to use information about the interdependencies between tax bases summarized by D in (11). Assuming everything except the costs of taking the cross-effects in D into account in the same in the two systems, we can represent the outcome in the parliamentary system as t_k^p in Figure 2, where λ_k^p intersects MS_k . The curve λ_k^p lies above λ_k since the terms in D will be taken more fully into account and are assumed to be positive. Note that we keep the MS_k curve fixed when shifting the λ_k curve, on the assumption that the introduction of an exogenous constitutional structure which reduces the costs of coordination does not lead to a reallocation of scarce resources from coordination to information acquisition. Otherwise, the effective MS curve would differ from the one shown in Figure 2.¹⁵

The description of the two policy processes suggests that more information about the political consequences of taxation is provided to legislators in the congressional than in the parliamentary system and that the costs of acquiring information about the political margins in C are lower in the U.S. In the congressional system, interest groups have a greater incentive to supply information to the executive and to legislators on the consequences for political support of proposed tax changes than in a parliamentary system, where access to the cabinet is limited and individual legislators have little independent authority. If we assume that interest group competition generates accurate rather than biased information, and that everything besides the costs of coordination is the same in the two systems, the outcome in the congressional system can be represented by t_k^c where MS_k^c intersects λ_k .¹⁶ MS_k^c lies above MS_k since by assumption the terms in C are negative (i.e., they represent opposition to taxation) and interest group competition supplies accurate information about these terms. Again we shift only one curve and ignore a possible reallocation of resources to coordination. One may note that the coordination costs of taking political effects of tax proposals into account

would be lower in a parliamentary system, if the Minister of Finance did know them. But since the role of special interests is muted in comparison to the U.S., less information is supplied in the normal course of events. Thus, in Figure 2, the information supplied by the operation of special interest politics is not reflected in the curves defining the equilibrium rate for the parliamentary system.

The analysis represented by Figure 2 indicates that the basic nature of political institutions shapes tax policy outcomes, and that the congressional system tends to produce lower equilibrium tax rates than the parliamentary system.

The analysis also has implications for tax reform. Periodic reform may be viewed as a way of coping with the build-up of mistakes concerning the interdependencies represented by the C and D terms as well as with the tendency for these terms to increase in importance over time. The difference in political institutions will play a role in determining the frequency of such coordinating tax reforms. We have shown elsewhere (Winer and Hettich 1991) that tax reform happens more often' in the parliamentary system of Canada, where transaction costs of tax changes are lower, than in the' congressional system of the United States, where tax policy is subject to much more extensive political negotiation. One would expect this to be true particularly for reforms aiming to reestablish coordination, since transaction costs play an especially significant role in this case.''

Since the C and D terms are effective whether or not the government knows them and whether or not coordination is attempted, we should expect to observe efforts in the two countries' to take the interaction terms on both sides of-equation (9) into account. In the congressional system, attempts to replicate the direct authority exercised by a Minister of Finance include the Congressional Budget and Impoundment Control Act of 1974 and the Gramm-Rudman-Hollings Act of 1985 (McCubbins 1991). In the parliamentary system, the Minister of Finance regularly meets with representatives of various interest groups while the rather powerless standing committees of the House of Commons hold hearings to learn the views of special interests, communicating the results to the government through party caucuses and official reports.

Whether these policy initiatives and procedures are the best methods consistent with the basic character of the respective political systems remains an open question. It is tempting to conclude that tax policy making in the U.S. would be improved by giving the President a line-item veto similar to the one exercised by the Prime Minister and the Minister of Finance, and that policy in the parliamentary system would be improved by reforms enhancing the incentives of interest groups to supply information to members of Parliament. However, when evaluating proposals for constitutional reform it is not sufficient to consider fiscal issues. Changing a basic institution has implications for many aspects of policy making. Moreover, it is necessary to consider the reasons why such institutions exist in the first place. In the absence of a model that encompasses the evolution of institutions, it is useful to uncover the effects of constitutional structures on particular policy areas like taxation. As this knowledge accumulates, it may be possible to evaluate alternative constitutional proposals for reform of the tax policy process.

8. Conclusion

Recent advances in the theory of probabilistic voting provide the foundation for developing a normative theory of taxation that includes collective choice as an integral part. While such a theory has many interesting parallels to optimal taxation, there are also significant differences.

Although the information requirements of OT are extensive, those of representative taxation are even larger, since knowledge of political margins must be added to relevant data of an economic nature. We argue that decentralization of policy making is the best solution to the information problem. The paper describes a policy regime where decentralization occurs in accordance with established tax bases. While good information is available on the direct impact of tax rates on a particular base, specialized decision makers must make a costly effort to determine the cross-effects of rate changes on other tax bases. The paper develops interaction terms characterizing such cross-effects and uses them to examine the nature of the information problem and the choice of optimal tax rates. The analysis is simplified by abstracting from the effects of decentralization on the principal agent problem.

Efficiency in representative taxation requires competition in political as well as in economic markets. We illustrate how a particular type of noncompetitive political behavior can effect the treatment of cross-effects among tax bases and the choice of tax rates. Furthermore, we examine tax policy under congressional and parliamentary government in order to study the effects of stylized political institutions on decentralized policy making and the information problem.

The addition of collective choice gives a different thrust to normative analysis, directing attention away from the preparation of optimal tax plans to the study of political competition and the possible effects of political market failure on the policy process. A new welfare economics may become possible that combines the analysis of institutions with the examination of economic incentive effects, pioneered by optimal taxation. Much work remains, however, until the examination of political behavior and institutions, information problems, and the formal analysis of fiscal effects all become part of a cohesive normative theory, of taxation.

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Endnotes

1. The quote is from Gillis (1989, 515). Bird also draws attention to the "chasm" that exists between optimal tax theorists and practitioners (1992, 38). Harberger (1990) suggests simplified policy rules based on packages of complementary or substitute goods. For a review of the issues concerning uniformity versus selectivity in commodity taxation, see Stern (1990).

2. The best-known example where the political environment is acknowledged without being integrated into the analysis is found in the Meade Report (1978, 44). Ahmad and Stern (1991, 69) and Stern (1990, 105) also make reference to the possible influence of interest groups once optimal tax provisions have been established.

3. For the theory of probabilistic voting models, see for example Enelow and Hinich (1984) and Coughlin (1992).

4. Maximization of expected plurality could also be used as the party's objective without altering the argument. Maximization of plurality or votes seems a reasonable objective to impute to political parties that are uncertain about who their opposition will be in the next election.

5. The general idea here is to use an artificial planning problem that has a solution with well known properties as a means of studying the characters of an equilibrium. The trick is to find such a problem having a solution that replicates the equilibrium in question.

6. For an interesting review of this debate, see Simon (1982, chp. 2).

7. A decentralized tax policy process can also be described as a piecemeal policy process. An interesting, early discussion of the advantages of piecemeal policy making in the tax field is provided by Bird (1970, 455-457). Bird also remarks on the obvious connection between piecemeal policy making and Lindblom's (1969) argument for incrementalism in policy making.

8. Each tax rate could also be thought of as a set of closely related tax instruments. Note that in specifying (6) we have not exploited the linearity of the support function in (4). In future work it may be of interest to do so.

9. In a completely general model, the formation of tax bases would be endogenous. Use would be made of the near-decomposability (in the sense of Simon 1981, chp.7) of the economy and political system into semi-independent segments to group taxable activities into bases that are largely independent, so as to economize on the need for co-ordination in tax policy making. Decentralization of economic policy-making along these lines has also been advocated by Tinbergen (1954) among others. See Hettich and Winer (1988) for further discussion of the sorting of activities into tax bases.

10. It should be recalled that the triangle is a partial equilibrium representation of the loss in support.

11. It may be noted here that OT rules of thumb are not derived in a framework that explicitly includes an information problem for tax policy makers.

12. The term 'argmax' refers to the value of Bj that maximizes the welfare of domestic producers

13. Breton (1991) provides an interesting comparison of the structure of decision making in parliamentary and congressional systems, as well as a review of literature on this topic.

14. Occasionally a 'White Paper' may be issued that sets out a proposed reform for general discussion, but this is an infrequent occurrence.

15. The extent of the reallocation between coordination and information acquisition will depend on the precise conditions under which coordination and information are produced.

16. For a recent discussion of the nature of information provided to legislators by interest groups, see for example Austen-Smith and Wright (1993).

17. Maslove (1989) has observed cycles of tax reform in the Canadian parliamentary system. A complementary view of tax reform is found in van Velthoven and van Winden (1991).