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Representative versus Direct Democracy: The Role of Informational Asymmetries

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Representative versus Direct Democracy: The Role of Informational Asymmetries*

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Abstract: The paper studies the relative merits of direct and representative legislation in a setting where voters are uncertain both with respect to the likely consequences of different policies *and* with respect to the political preferences of their fellow citizens. Under representative legislation, the latter translates into uncertainty on the elected official's future policy intentions which involves a loss of control. The resulting discretionary power, however, also leads officials to endogenously acquire competence on the issues they oversee and specialize in policy formation. Policies determined in representative democracies are therefore better tailored to relevant contingencies but less close to the preferences of a majority than those determined in popular ballots. It is shown that the extent of the resulting trade-off depends on the set of alternatives among which the policy is to be chosen. Two extensions, referenda and the possibility of re-election, are briefly considered.

Keywords: Direct Democracy, Representative Democracy, Constitutional Choice, Delegation, Asymmetric Information
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1 Introduction

Most democratic countries allow in their constitution for the provision of direct legislation. Switzerland, the most well-known exponent of direct democracy, has held almost five hundred popular ballots at the federal level since direct legislation has been embodied in the modern Swiss constitution of 1848.[1] Legislation by direct vote rather than by elected representatives has also become an essential part of the political system in the some U.S. states: at the beginning of the century, a number of states with California (1911) as the prominent state have adopted law-making through ballot initiatives and statewide referenda.[2] More recently, the enlargement and further integration of the EU has triggered a series of important referenda in Europe and there are currently campaigns in several European countries under way that aim to promote direct democratic institutions.

This paper studies the determinants and the consequences of direct and representative legislation from a positive point of view. To this end, I develop a theoretical framework designed to capture the stylized features of either legislative regime and the environment in which political choices take place. I consider a jurisdiction that has to decide on some specific policy issue. The citizens can either resolve the issue through a direct ballot or, alternatively, elect one citizen as their representative who subsequently determines the policy for the jurisdiction. A central element of the model is that these choices take place in an inherently uncertain environment. Specifically, citizens are incompletely informed both on the future political preferences of their fellow citizens *and* on the likely consequences of the policies that can be enacted. That is, although their preferences over potential candidates for office and over political outcomes are well defined, they are uncertain as to their (potential) representative's future policy

[1] More precisely, the Statistical Yearbook of Switzerland 2000 lists 194 mandatory referenda, 137 optional referenda and 114 popular initiatives held over the period from 1848 to 1999, with many more referenda and initiatives on the cantonal and local level. I am grateful to an anonymous referee for providing this information.

[2] See Feldman (1999) for a complete list of U.S. states that adopted such measures. In New England, direct democracy in the form of open-town meetings has been present on the local level ever since the first settlements there were founded. Yet, the U.S. is one of the few democratic countries that does not permit referenda at the national level.

intentions and as to how policies map into outcomes. A natural trade-off between representative and direct democracy therefore emerges: if the policy decision is delegated to an elected official, the representative has an incentive to become knowledgeable on the issue he oversees, *provided that he has discretionary power*. Voters in a direct ballot, in contrast, will rationally remain ignorant because their vote is unlikely to be decisive. Hence, the main advantage of a representative government is that the official (endogenously) specializes in policy formation. Political outcomes will be thus more sensitive to contingencies that are relevant for the determination of policy. Yet, the delegation of political decisions also comes at a cost because elected officials necessarily enjoy some discretion in their political acts: since citizens are imperfectly informed on the policy intentions of candidates at the time of election, the representative's future political choices need not reflect the popular will.

To investigate this trade-off in more detail, I consider two examples which differ in the set of alternatives among which the policy is chosen. In a first scenario, this set is sufficiently rich so that an official's incentives to acquire competence (gather information) are independent of his political views. In this case, the constitutional choice between the two regimes is taken unanimously: representative democracy is preferred by all citizens if and only if the common gains from informed political decision making exceed the loss of control associated with delegation. The second scenario involves a limited set of alternatives that so that the gains from information are not equal across the political spectrum. In such a situation, if a majority of the population strongly favors a specific course of action, it strictly prefers to resolve the issue in a popular ballot, irrespective of how confident voters can be that an elected official represents the political center. Conversely, representative legislation is preferred for issues on which a majority has no strong opinion in favor of a particular alternative: provided citizens are sufficiently confident that their representative's superior knowledge will not be 'abused', constituents are willing to accept policies that do not reflect the views of a majority.[3] Finally, the possibility of ex post referenda on legislative actions and re-

[3]For example, in a recent article on the abolition of the death penalty, *The Economist (March 15th, p. 96)* observes that "...the abolitionists' success [...] has occurred despite public backing of the death penalty [because] political elites apparently lost faith in the death penalty as a just and effective crime-fighting tool".

elections as two natural extensions to the model are briefly discussed. Both possibilities hold elected officials responsible for their actions to some extent, thereby diminishing their potential to enact extreme policies. However, the need to cater to public opinion at the same time reduce an officials' willingness to acquire competence.

The importance of uncertainty and informational asymmetries in political decision making has already been laid out in the seminal work of Downs (1957) and his view on rational voter ignorance and on elected officials specializing in political matters has widely been accepted among scholars in economics and political science. Yet, the early the literature comparing these democratic institutions has remained largely informal. A number of authors [Niskanen (1971), Tullock (1980), Kalt and Zupan (1990)] have emphasized the inefficiencies associated with agency problems between constituents and their representatives in the absence of effective voter control.[4] Matsusaka (1992), in contrast, argues that representatives are uncertain about their constituents' preferences. As a result, even well-intentioned representatives may fail to enact policies that reflect the preferences of a majority. Alternatively, they may prefer to put certain issues to a popular vote, thereby avoiding being punished at the polls for not choosing the majority-favorable outcome. More recently, Matsusaka and McCarthy (1998) have formally explored the benefits and costs associated with direct democratic devices in model where a representative with (exogenous) preferences of his own is imperfectly informed about the median voter's preferences.[5] It is shown that initiatives proposed by interest groups need not always lead to policies that are closer to the median voter's ideal point. In a similar framework, Feldmann (1999) shows that voter initiatives may constitute a credible outside option for special interest groups in bargaining with the legislators. Although efficiency in negotiations implies that the policy enacted remain

[4]Pommerehne (1983) and Matsusaka (1995) present empirical evidence that government expenditures are ceteris paribus lower in democracies with direct legislation. Similarly, Feld and Matususaka (2000) find that mandatory referendums have a significant negative effect on the size of the budget in Swiss cantons. Feld and Savioz (1997) conclude from their empirical results that economic performance is higher in direct democracies. In a study on Connecticut townships, however, Santerre (1989) finds that communities with a representative democratic form of government tend to have lower public spending than those with town-meetings.

[5]For a formal analyisis of direct legislative measures under full information, see, among others, Romer and Rosenthal (1979), Steunenberg (1992), and Gerber (1999). Lupia (1992) accounts for imperfect information in the Romer-Rosenthal model and shows that if voters lack information about the official's proposal, then the latter always proposes his ideal point.

unaffected, campaign contributions are therefore lower with an initiative provision.

Finally, the paper is related to the principal-agent literature on 'experts' who posses or can generate information that is relevant but not directly observable for the principal.[6] In particular, Aghion and Tirole (1997) develop a theory of the separation between formal authority (the right to decide) and real authority (the effective control over decisions) that is based on a similar trade-off as the present analysis: delegation promotes initiative (effort) but results in a loss of control for the principal. Mariano and Matsusaka (2000) study the costs and benefits of several budget procedures commonly used in the private and public sector decision making. In contrast to this paper, the preferences of the agent and his information structure are exogenously given. Assuming that the agent is biased toward large projects and always informed, they compare full delegation to partial delegation where the principal can veto or override the proposed project ex post, which would correspond, e.g., to a referendum or an initiative. In those cases, the agent has an incentive to distort the information he transmits to the principal in order induce her to accept larger projects. Surprisingly, the authors demonstrate that this effect may be sufficiently severe so that full delegation is preferable for 'routine' projects that have little upward potential.[7]

The remainder of the paper is organized as follows. Section 2 describes the general framework, characterizes equilibrium outcomes under representative and direct legislation and presents two specific examples that highlight the costs and benefits of either regime. Section 3 briefly addresses referenda and the possibility of re-election as natural extensions of the model. A final Section 4 provides a discussion of the results and

[6] In this context, Osband (1989) derives optimal compensation schemes that induce agents with unknown expertise to acquire information.

[7] This information distortion problem also arises in the two extensions of referenda and re-elections discussed below. As we will see, however, curtailing the representatives discretion through such ex post control instruments may in addition negatively affect his incentives to gather information and thus may favor no-delegation, an effect not present in Mariano and Matsusuka. The fact that intervention is not always desirable even in their framework where the optimality of delegation is independent of the agent's information structure can be explained as follows: the need to convince the principal not to veto larger projects may lead the agent to overstate his case in equilibrium, further increasing project size. Under full delegation, in contrast, his discretion allows him to fine-tune project size and may therefore reduce spending on average. The authors also consider more general incentive mechanism and show that the optimal delegation rule entails a threshold project size above (or below) which that the principal can override the agent's proposal.

concludes.

2 The Model

Consider a jurisdiction composed of a continuum of individuals i that must decide on a single policy issue x from a set of alternatives $X \subseteq \mathbb{R}$ with $x_0 \in X$ denoting the status quo. Each feasible policy $x \in X$ generates an outcome $y \in Y \subseteq \mathbb{R}$ over which agents have Euclidian preferences,

$$V(y, \theta_i) = -(y - \theta_i)^2,$$

i.e., each individual i's preferences solely depend on the distance between y and her ideal position θ_i which is known only to herself. For analytical convenience, the distribution of θ across the population is assumed to be normal with mean θ_M and a variance of σ_θ^2. While an individual's ideal position is her private information, not all citizens are perceived by the population to have the same ideological view. This notion is formally modeled as a noisy signal $s_i = \theta_i + \epsilon_i$ on the ideal point of individual i that is received by all citizens. The noise term ϵ_i is independently and normally distributed with zero mean and variance σ_ϵ^2.

In addition to their uncertainty with respect to the preferences of their fellow citizens, agents are also doubtful as to how policies map into outcomes. Specifically, I assume that a policy's consequences y depend not only on x but also on a random state of the world $\omega \in \Omega \subseteq \mathbb{R}$,

$$y = x - \omega.$$

The stochastic variable ω is introduced to capture the effect of uncertain present or future circumstances on the ideal policies of agents over and above those conditions that are already known: although individuals know which outcome they prefer, they are not always sure as to how this outcome may be achieved, because it also depends on exogenous circumstances.[8] It is important to note that the effect of those circumstances on a citizen's most preferred policy is identical across agents, i.e., a particular

[8] See also Harrington (1993) and Cukierman and Tommasi (1998) for a similar assumption.

realization of ω shifted the ideal policies of *all* individuals in the same direction. Consequently, ω should be interpreted as representing a state of the world that determines the efficiency (rather than the distributional) consequences of a policy x. For instance, although people may differ with respect to their desired level of a publicly provided good, everybody will prefer to reduce that quantity if the costs of raising public revenue are known to be higher than expected.[9] Combining the two equations above, we can write an individual's preferences over policies x in the state of the world ω as

$$V(x, \omega, \theta_i) = -(x - \omega - \theta_i)^2. \tag{1}$$

Although the outcome y of a policy x is not known at the outset, agents can learn more about the likely consequences of a policy. It seems reasonable to presume, however, that this information on ω comes at a personal cost $c > 0$.[10] For simplicity, suppose further that the information – if acquired – is perfect, i.e., once an individual has incurred the information cost c she learns ω and thus $y = x - \omega$ with certainty.

To summarize, individuals are initially uncertain both with respect to the future consequences of a policy x and with respect to the ideologies of their fellow citizens. In deciding which policy to implement, citizens have two choices. They can either

a) vote on $x \in X$ directly in a popular ballot (direct legislation); or

b) select a representative r who then chooses x (representative legislation)

To keep the analysis focused, I will consider in the main part of the paper both regimes in their most stylized forms. That is, under *direct legislation*, the policy under consideration is automatically put on the ballot. This assumption best reflects a democratic system where there is no representative in charge, as is the case in town meeting decision making. Alternatively, one could interpret the setting as a representative democracy where citizens are allowed to draft new legislation by placing their policy proposal on the ballot. As long as such popular initiatives can be proposed at no or very little

[9] Another illustrative example is the recent formation of the European Monetary Union (EMU). Voters in a country contemplating to join are – irrespective of their individual opinion on the monetary union – inclined to revise that opinion in favor of membership if they can be convinced that the potential gain in monetary stability is likely to be high.

[10] See Section 4 for a discussion of this assumption.

cost, the constraints thus imposed on the representative imply that his final decision will correspond to the policy that would have been chosen if it had been put directly to a vote.[11] Likewise, under *representative legislation*, the elected official has full discretionary power on which policy he implements. In particular, his choice is neither subject to subsequent approval of the public (through referenda), nor is it constrained by any future consequences on his political career that an unpopular policy might have (through re-elections).[12]

If the jurisdiction decides to solve the issue with a representative at date 0, all citizens can simultaneously choose whether to become candidates and run for office at date $\frac{1}{2}$, thereby incurring a (small) cost $\delta > 0$. The winner r is chosen out of the set of candidates through an election at date 1. This notion that elected officials are chosen among the citizens themselves follows the recent approaches of Osborne and Slivinsky (1996) and Besley and Coate (1997) and differs from the seminal work on policy choice in representative democracies [Hotelling (1929) and Downs (1957)] in that candidates are endogenously determined and care about the policy that they will carry out. At date 2, individuals can acquire information about the state of the world ω. At date 3, the policy x is chosen either by the elected official or through a direct ballot and subsequently implemented. This time structure implies that an office holder can enact her preferred policy, i.e., candidates cannot make binding commitments.[13] Finally, the state of the world ω as well as individual payoffs are realized. The sequence of events is summarized in Figure 1:

[11] This claim has been shown formally by Steunenberg (1992). Intuitively, any proposal made by the legislature that does not fully reflect the median preferences is successfully challenged by an initiative closer to the median. As a result, the legislature will propose (and implement) the policy equal to the median voter's preferred policy. One should note, however, that initiatives are costly in practice because they are generally subject to a signature requirement, i.e., a proposed policy is placed only on the ballot after a given number of signatures has been collected. See Section 4 for a further discussion of this point.

[12] Both extensions will be discussed in Section 3 below.

[13] Note that once elected officials have a preferred policy, it is unclear how they could ever commit to enact anything else. Below, I also analyze the case where candidates can make binding commitments or have no political preferences of their own, as is the Hotelling-Downs model of political competition.

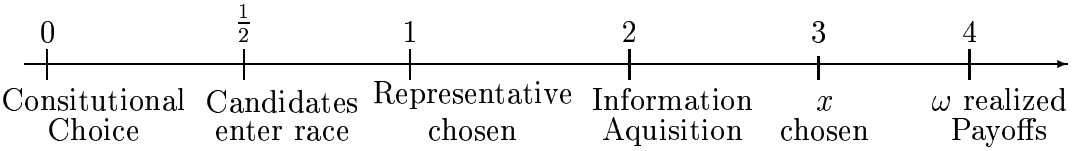

Figure 1

The assumption that the organizational form of legislation is determined *before* an elected official is in place is made to highlight the constitutional element in a jurisdiction's choice of regime. Alternatively, one could assume that representative democracy is the default regime which is more in accordance with reality. Then, citizens would elect their representatives first at date 0, and subsequently at date 1 decide whether or not to address a particular issue through a direct vote instead of having it resolved by the legislature. Both formulations are equivalent in the present framework.

To complete the description of the model, the rule that governs the respective elections needs to be specified, i.e., how the winning policies or candidates are chosen. I assume that in either election all individuals simultaneously cast their vote. Voting is sincere in that citizens always vote according to their true preferences. Furthermore, in order to facilitate comparing the two regimes of direct and representative legislation, both elections are based on the same majority rule:

Definition. *A political equilibrium in the direct (representative) democracy is an alternative $x \in X$ (a candidate r) that is preferred to any other feasible policy (candidate) by a majority of the population.*

In other words, the alternatives or candidates that are chosen in the respective elections are Condorcet winners. As will be seen shortly, the requirement that the election winner is preferred to any other feasible alternative in pairwise comparison together with the assumption on individuals' preferences, ensures that the election outcome is well defined.[14] In the examples discussed below, it will also be unique.

[14]It is necessary to apply the Condorcet criterium since X is allowed to contain more than two alternatives. In the representative legislation regime, one could alternatively assume that office holders are chosen by plurality rule, possibly followed by a run-off. Using arguments from Osborne and Slivinsky (1996) and Besley and Coate (1997), it is straightforward to show in the present framework

Before analyzing the political equilibrium under either regime, it is useful to characterize the expectations of voters with regard to the ideological viewpoint of others. Let $E[\theta_i|s_i]$ denote the voters' common perception of citizen i's ideal point after having observed $s_i = \theta_i + \epsilon_i$. Under the normality assumptions, the conditional distribution of θ_i given s_i is again normal with mean[15]

$$E[\theta_i|s_i] = \gamma s_i + (1-\gamma)\theta_m \equiv \hat{\theta}_i \tag{2}$$

where $\gamma \equiv \sigma_\theta^2/(\sigma_\theta^2 + \sigma_\epsilon^2)$, and a variance of

$$Var[\theta_i|s_i] = \frac{\sigma_\theta^2 \sigma_\epsilon^2}{\sigma_\theta^2 + \sigma_\epsilon^2}. \tag{3}$$

Policy Choice under Direct Legislation

Consider first a regime where the issue in question is to be decided by direct legislation. To determine the outcome of the popular ballot, note that further information on the likely consequences of x is useful to an individual only if a) it changes her decision of how to vote (the individual ranking of alternatives) *and* b) this change in her voting behavior translates into the election outcome (the social ranking of alternatives). Since individuals are infinitesimally small, however, their voting decisions have no impact on political outcomes. Put differently, the probability that any one voter is decisive is zero. In such a situation, it is immediate that citizens have no incentive to gather additional information on the likely consequences of a policy irrespective of their personal value of information and how small the cost of information are.[16] Assuming that information is costly (and an investment rather than a consumption good) the voting population will thus rationally decide to remain ignorant about the state of the world ω.[17] Using (1),

that there always exists a political equilibrium under plurality in which citizen i's ideological platform is a Condorcet winner. Also observe that if the number of voters is finite, the Condorcet criterium implies that individuals vote sincerely in any Nash equilibrium in undominated strategies.

[15] See, e.g., DeGroot (1970).

[16] One should point out that this reasoning continues to apply if there is a finite but sufficiently large number of voters, as long as agents are uncertain about the preferences of others. To see this, consider a vote on two alternatives x and x' and suppose the probability that voter i attaches to voter j's decision being in favor of x is strictly between zero and one for all i and j. From i's point of view, the probability that x receives exactly $\frac{n}{2}$ of the votes converges to zero as n grows large.

[17] Collier et al. (1989) report experimental evidence that voters' rationally decide to remain ignorant (rather than acquire costly information) if their vote is unlikely to matter.

the preferred policy of a voter with ideal position θ_i at the election date is therefore the solution to

$$\max_{x \in X} \; E_\omega[V(x, \theta_i, \omega)] = E_\omega \left[-(x - \omega - \theta_i)^2 \right],$$

which after some manipulation can be rewritten as

$$\max_{x \in X} \; -(x - E(\omega) - \theta_i)^2 - Var(\omega). \tag{4}$$

Clearly, preferences over policies are single peaked and can be ordered according to the voters' ideal points θ_i. As a consequence, the policy that is chosen in the political equilibrium under direct legislation is equal to the feasible policy that is most preferred by the citizen with median preferences, θ_m. Substituting for θ_m in (4) and using the fact that the last term in (4) does not depend on x, we obtain for the equilibrium policy x_D^* under direct legislation,

$$x_D^* \in \text{argmin}_{x \in X} \; (x - E(\omega) - \theta_m)^2. \tag{5}$$

Policy Choice under Representative Legislation

Now consider the representative legislation scheme. At date 3, the elected official can implement whatever policy he prefers out of the set of alternatives. A representative with ideal position θ_r therefore chooses

$$x_R^* = \begin{cases} x^I(\theta_r, \omega) \in \text{argmin}_{x \in X} \, (x - \omega - \theta_r)^2 & \text{if } r \text{ has acquired information} \\ x^N(\theta_r) \in \text{argmin}_{x \in X} \, (x - E(\omega) - \theta_r)^2 & \text{otherwise.} \end{cases} \tag{6}$$

In this model, one crucial difference between solving an issue through a representative and solving an issue by a popular ballot are the incentives of citizens to gather information on the consequences of x. It is obvious from (6) that in contrast to the voters in a direct vote on x, the elected official perceives a nonzero benefit from obtaining information: the fact that he alone is in charge of determining the policy of the jurisdiction strongly increases his willingness to become knowledgeable on x. Since the elected official is 'decisive with probability one', what matters in his decision whether to become informed are the cost of effort c and his personal value of information, i.e., the extent to which new information changes his ranking of alternatives. Formally, he is willing acquire competence on the issue if and only if his expected gain from doing

so exceeds the personal cost c he has to incur:

$$E_\omega \left[V(x^I(\cdot), \theta_r, \omega)\right] - E_\omega \left[V(x^N(\cdot), \theta_r, \omega)\right] \geq c. \tag{7}$$

Next, consider the election of the representative. Although preferences over candidates need not be single peaked, it is straightforward to show that the median voter is again decisive: a candidate j is preferred by a majority of the population to another candidate k if and only if j is preferred to k by the individual with median preferences.[18] Knowing this, only those citizens that are most preferred by the median voter among all citizens will run for office: given that any such candidate has entered the race, any other individual faces a zero probability of winning the election. It follows that a single such candidate runs and is elected unopposed if the cost of running δ is sufficiently high. Otherwise, there may be several such candidates who then face equal probabilities of winning, their number being determined by the cost of entering the race. In either case, any winning candidate's perceived ideal position must satisfy

$$s_r \in \text{argmin}_{s_j} \; E_{\theta_j|s_j} E_\omega \left[(x_R^* - \omega - \theta_m)^2\right]. \tag{8}$$

Having characterized political outcomes under direct and representative legislation, respectively, we can now turn to the question of which regime citizens prefer at date 0. While I have deliberately left the rule that governs this constitutional choice unspecified, the analysis above has demonstrated that voters generally face the following trade-off: on the one hand, delegating the responsibility for political decisions to an elected official creates incentives for political agents to specialize in policy formation by making themselves knowledgeable on those issues they oversee. When issues are decided in a popular ballot, in contrast, the political agents' incentives to do so are marginalized because no single voter is 'responsible' for the outcome of an election. As a consequence, policy outcomes under direct democracy will tend to be less sensitive to future (or present) contingencies that are relevant for the decision. On the other hand, delegation also comes at a cost because voters are uncertain with respect to the exact political preferences of their representative which in turn determine his preferred policy. Since the electorate cannot control the determination of those policies directly, there is

[18] See the Appendix for a formal proof.

the risk of electing an official whose future political choices do not reflect the popular will. As formulated in the model, the latter stems from citizens' imperfect information on the ideological position of candidates at the time of election. Note, however, that one could equally well interpret this uncertainty as originating from a potential change in the official's position over time that could, for example, be attributed to rent-seeking activities and political pressure from interest groups.[19]

Given the above mentioned costs of representative legislation, one might be tempted to argue that agents should simply set up a mechanism by which candidates for political office must commit themselves to particular outcomes. For example, all political candidates could be required by law to publish a list of their future decisions on each issue that could potentially arise during their term of office. If they later deviate from their statement, they are punished severely.[20] Moreover, political candidates may not have political preferences of their own, which is a prevalent presumption in the public choice literature on the subject, notably in the standard Hotelling-Downs model of political competition. Upon closer inspection, however, neither of these possibilities is suited to provide a solution to the above problem:

Proposition 1. *Suppose that political candidates must either fully commit themselves to a particular decision on x or, alternatively, that they have no preferences over x of their own. Then, the equilibrium outcomes under representative and direct democracy coincide, i.e.,*

$$x_R^*(\omega, \cdot) = x_D^* = \theta_m + E(\omega) \qquad \forall \omega \in \Omega.$$

The proposition states that representative and direct legislation are equivalent in such a situation. Moreover, decisions in both regimes are taken in ignorance of the state of the world. Since the rationale behind this result is straightforward a formal proof

[19] In view of this interpretation, one might wonder whether the analysis hinges on the assumption that $E(\epsilon) = 0$. If candidates were subject to a systematic bias $E(\epsilon) \neq 0$, a rational electorate would correct for any such bias in its choice of representative. One can therefore without loss generality assume $E(\epsilon) = 0$.

[20] Naturally, it may be impossible or very costly to enforce such an arrangement as one would have to include all future contingencies in the list so that candidates can be held responsible for breach. In Section 3 below, we will explicitely consider two mechanisms that work in a similar way but are less demanding in terms of enforceability: ex post referenda and the possibility of re-election.

is omitted. Clearly, if candidates must commit themselves to future actions, they are unable to adjust their decision to any new information they might obtain. Similarly, if they do not care about policy outcomes, new information has no value. In both cases, office holders will not acquire information and simply act as bureaucrats that carry out the will of the electorate. Given that no information is gathered in any continuation equilibrium, only those candidates that adopt the position of the ignorant median voter stand a chance of winning the election. Hence, the equilibrium policy under representative democracy will be identical to the policy that is determined in a popular ballot. Of course, this equivalence result crucially depends on the assumption that investment in information cannot be enforced (e.g., because it is not observable) so that candidates *cannot* commit themselves to gather costly information for which they would have to be compensated. Notice further that the result requires candidates to make binding commitments, i.e., they are not allowed to preserve their political flexibility on some issue. If such platforms are possible, candidates may be able to win an election precisely because they remain vague on their planned course of action, thereby credibly committing themselves to make themselves knowledgeable. However, this also implies that the control loss inherent in their discretionary power can no longer be avoided. The subsequent analysis therefore invokes the previously made assumption that candidates cannot credibly commit to their future policy choices.

As will be seen shortly, the trade off between direct and representative legislation laid out in the preceding arguments is determined to some extent by the richness of the policy space X. To analyze the costs and benefits of either regime in more detail, it will therefore prove useful to consider two specific examples of the set of alternatives. A first example examines the case where $X = \mathbb{R}$. In a second example, X is finite and for simplicity, is assumed to contain only two alternatives.

2.1 Example 1: Unrestricted Policy Space

Suppose the set of alternatives is composed of the real line, i.e., $X = \mathbb{R}$. For instance, x could be a policy instrument such as an income tax or the level of public expenditures. In this case, the preferred feasible policy $x \in X$ of an individual of type θ_i when the

state of the world is ω is simply $x(\theta_i, \omega) = \theta_i + \omega$ from (1). As has been argued above, if the policy is decided by a popular ballot, the outcome is the most preferred policy of the voter with median ideal position, θ_m. Furthermore, no single voter has an incentive to gather information on the likely consequences of a particular policy. Using (5), we obtain

$$x_D^* = \theta_m + E(\omega)$$

for the (unique) outcome of majority voting under direct legislation. Inserting this value into (4), the expected utility of a voter with ideal position θ_i under direct democracy can be written as

$$E_\omega[V(x_D^*, \theta_i, \omega)] = -(\theta_m - \theta_i)^2 - Var(\omega) \tag{9}$$

Now consider representative legislation. If the elected official θ_r knows ω, his preferred policy is $x^I(\theta_r, \omega) = \theta_r + \omega$. Otherwise, he optimally sets $x^N(\theta_r) = \theta_r + E(\omega)$. He therefore will invest in information if and only if

$$\begin{aligned} E_\omega[V(x^I, \theta_r, \omega)] - c &\geq E_\omega[V(x^N, \theta_r, \omega)] \\ \Leftrightarrow \qquad Var(\omega) &\geq c, \end{aligned}$$

Note that the official's decision to become knowledgeable on the issue does not depend on his ideological position. Intuitively, since x can be adjusted to accommodate his personal views *as well as* external circumstances, the former do not influence the gains from acquiring information. Hence,

$$x_R^* = \begin{cases} \theta_r + \omega & \text{for} \quad Var(\omega) \geq c \\ \theta_r + E(\omega) & \text{otherwise} \end{cases} \tag{10}$$

As has been argued above, only candidates that are most preferred by the median voter among all citizens will enter the competition. The winning candidate's perceived ideal position s_r therefore maximizes the median voter's expected utility which, using (1), (5), and (10) can be calculated as

$$E_{\theta_r|s_r} E_\omega[V(x_R^*, \theta_m, \omega)] = \begin{cases} -(E[\theta_r|s_r] - \theta_m)^2 - Var(\theta_r|s_r) & \text{for} \quad Var(\omega) \geq c \\ -(E[\theta_r|s_r] - \theta_m)^2 - Var(\theta_r|s_r) - Var(\omega) & \text{otherwise} \end{cases}$$

Recall from (3) that the last terms on the right hand sides of these equations do not depend on s_r: only a candidate's expected ideological position, $E(\theta_r|s_R)$, matters for

the political equilibrium under representative democracy. Consequently, the winner emerging from an election must be characterized by $E[\theta_r|s_r] = \theta_m \Leftrightarrow s_r = \theta_m$ by (2). The expected utility under representative democracy of a voter with ideal position θ_i is thus

$$E_{\theta_r|s_r}E_\omega[V(x_R,\theta_i,\omega)] = \begin{cases} -(\theta_m-\theta_i)^2 - \frac{\sigma_\theta^2\sigma_\epsilon^2}{\sigma_\theta^2+\sigma_\epsilon^2} & \text{for } Var(\omega) \geq c \\ -(\theta_m-\theta_i)^2 - \frac{\sigma_\theta^2\sigma_\epsilon^2}{\sigma_\theta^2+\sigma_\epsilon^2} - Var(\omega) & \text{otherwise.} \end{cases} \tag{11}$$

Comparing (11) with (9), we see that the official's (expected) ideal position does not influence the trade off between direct and representative democracy that the voters face. The reason is twofold. First, all officials are equally inclined to gather information, irrespective of their political viewpoints. Second, the policy choice always reflects the political views of the median voter because she is decisive in either regime. We can conclude

Proposition 2. *Suppose $X = \mathbb{R}$. Then, citizens unanimously agree on their desired legislative regime. They prefer to delegate the issue to a representative if and only if*

$$\max\left\{\frac{\sigma_\theta^2\sigma_\epsilon^2}{\sigma_\theta^2+\sigma_\epsilon^2}, c\right\} \leq Var(\omega) \tag{12}$$

The result states that the costs and benefits of representative legislation take a relatively simple form if the set of feasible alternatives is sufficiently rich. Specifically, all citizens prefer to delegate the decision on x to an elected official if and only if the gains from having him make a more informed decision with respect to the consequences of x, measured by the variance of ω, are sufficiently high. This requires that the official has an incentive to become informed and that the common gains from information must exceed the control loss associated with delegation as measured by the possible variation in a representative's (future) ideological position. One interpretation of this result is that local issues are more likely to be decided by direct legislation because the local population presumably is already well informed on local matters and the gains from additional information are therefore small.[21] Yet, the cost of delegation may also be less significant in such a situation: in particular, the loss of control is small if either a)

[21] Another factor that may be important in this regard is that voters in small communities face a higher probability of being decisive and thus are more inclined to make themselves knowledgeable.

the signal on a politician's ideal position is relatively accurate (σ_ϵ^2 small) *or* b) tastes do not vary significantly within the population (σ_θ^2 small). Loosely speaking, citizens may still feel confident about a representative provided he is 'one of them' and they know that everybody in the polity shares similar views. Arguably, the latter may be more likely to be satisfied in small communities.

Finally, observe that Proposition 2 also has a normative implication: because the decision on representative versus direct democracy is taken under unanimity, the two legislative regimes can be unambiguously ranked according to the Pareto criterium. If condition (12) is satisfied, *all* citizens are in expectations better off under representative legislation while the opposite is true if (12) does not hold.[22] As the second example will demonstrate, this need not always be the case.

2.2 Example 2: Restricted Policy Space

In many situations, the set of policy alternatives is limited in the sense that decisions cannot be finely adjusted to optimally reflect both external circumstances and the popular will. This idea can be formally captured by the fact that X contains only a finite number of elements. For example, one could think of x as the decision of a country whether or not to join the European Union: if it becomes a member, it largely has to accept the rules that are associated with the membership. Likewise, a community can decide to build a particular public utility but once that decision to go ahead with the project is made, the associated costs and benefits may be beyond its control. To illustrate a situation where the set of alternatives is limited, let $X = \{x_0, x_1\}$ in what follows and assume without loss of generality that $x_0 < x_1$. For expositional reasons, I will frequently refer to x_1 as the 'reform' to distinguish it from the 'status quo' x_0. We again begin by determining the policy choice in a direct ballot. Using (5), we have

$$x_D^* = \begin{cases} x_0 & \text{for } \theta_m \leq \frac{1}{2}(x_0 + x_1) - E(\omega), \\ x_1 & \text{otherwise.} \end{cases} \tag{13}$$

[22] If there is more than one candidate in the election, this calculation includes elected officials because those enter the race until their expected utility from doing so equals their expected utility as an ordinary citizen. If there is only one candidate running unopposed in equilibrium, his expected utility under representative democracy may be higher than that of his constituents.

Next, consider the policy chosen by an elected official with ideal position θ_r. Analyzing (6), we find that if the consequences of x are known, he optimally implements $x^I(\theta_r, \omega) = x_0$ for $\theta_r \leq \frac{1}{2}(x_0 + x_1) - \omega$. Otherwise, $x^I(\theta_r, \omega) = x_1$, i.e., he opts for reform. Under ignorance, the decision rule for $x^N(\theta_r)$ is the same as in (13) where θ_m is replaced by θ_r. Observe that new information is useful only if the official is prompted to change his mind.[23] For representatives who would implement the status quo under ignorance, it is easy to verify that this happens for states of the world ω such that $\omega \geq \omega^* \equiv \frac{1}{2}(x_0 + x_1) - \theta_r$, i.e., such an official finds reform desirable only for high realizations of ω while the status quo is still preferred for ω relatively low. Similarly, officials who prefer reform in the absence of new information will choose the status quo if they learn that $\omega \leq \omega^*$.

Solving program (7), a representative with ideological position $\theta_r \leq \frac{1}{2}(x_0 + x_1) - E(\omega)$ gains from becoming informed on the issue if and only if

$$Prob\{\omega \geq \omega^*\} \left[\theta_r + E(\omega | \omega \geq \omega^*) - \frac{1}{2}(x_1 + x_0)\right] \geq c/[2(x_1 - x_0)]. \tag{14}$$

Similarly, a representative with ideological position $\theta_r > \frac{1}{2}(x_0 + x_1) - E(\omega)$ will acquire information if and only if

$$Prob\{\omega \leq \omega^*\} \left[\frac{1}{2}(x_1 + x_0) - E(\omega | \omega \leq \omega^*) - \theta_r\right] \geq c/[2(x_1 - x_0)]. \tag{15}$$

In both cases, the official's willingness to incur the information cost c increases in $x_1 - x_0$. The reason is that the risk of taking the wrong decision is higher, the more pronounced the difference between reform and status quo. For the same reason, the incentives to become informed increase (decrease) in his ideal position as θ_r is less (greater) than $\frac{1}{2}(x_0 + x_1) - E(\omega)$: officials who are very conservative or very reform oriented are less inclined to invest in information. Hence, contrary to the previous example, the incentives of a representative to become informed depend on his ideological position. They are maximal for officials who face the highest risk of making an error due to lack of information, $\theta_r = \omega^* = \frac{1}{2}(x_0 + x_1) - E(\omega)$.

The fact that the acquired competence of officials with regard to an issue is no longer independent of their political opinion introduces a new consideration into a voter's

[23] This stands in contrast to the previous example where information on ω was always useful.

decision at the election date. Specifically, taking a representative's future incentives to become knowledgeable into account, a candidate that is closest to their own personal views may not acquire information in equilibrium which essentially eliminates the benefits of delegation. As before, the choice between direct and representative democracy will depend on the parameters of the model such as the cost of information c, the uncertainty with respect to officials' preferences as measured by the conditional variance of θ_r, or the distribution of ω. In the remainder, I will concentrate on a specific parameter that will prove to be of particular importance, namely, the fraction of the population in favor of the majority-supported alternative.

Thus, let $\alpha \geq \frac{1}{2}$ be the fraction of the population that favors the status quo (respectively, the reform) if $\theta_m \leq \frac{1}{2}(x_0 + x_1) - E(\omega)$ [respectively, $\theta_m > \frac{1}{2}(x_0 + x_1) - E(\omega)$].

Proposition 3. *Suppose* $X = \{x_0, x_1\}$. *Then, there is a critical value* $\alpha^* > \frac{1}{2}$ *such that*

a) for $\alpha \in [\frac{1}{2}, \alpha^*)$, *a majority of the population prefers to solve an issue with representative legislation if* σ_θ^2 *or* σ_ϵ^2 *are sufficiently small.*

b) for $\alpha \in [\alpha^*, 1]$, *a majority of the population prefers direct legislation irrespective of* σ_ϵ^2 *and* σ_θ^2.

Proof: See the Appendix.

Loosely speaking, if citizens at the political center are sufficiently divided between the two alternatives, the delegation of policy making to a political representative enjoys popular support, *ceteris paribus*. If there exists a very strong majority in favor of a particular alternative, in contrast, citizens would prefer to solve the issue through a popular ballot.

The intuition behind Proposition 3 is straightforward and has already been laid out in the preceding discussion: suppose for example that a majority is conservative and strictly prefers the status quo under uncertainty, i.e., $x_D^* = x_0$. Now consider representative legislation. For low values of θ_m, the personal value of information for a majority of individuals is very small because the status quo maximizes their utility under most circumstances. In this situation, if the elected official's ideal position is close to the median, his incentives to acquire information will be zero and so will be the benefits from delegation. Furthermore, *if* the official does become knowledgeable, he does not represent the political center because necessarily $\theta_r > \theta_m$ in this case. Both effects work to diminish the merits of representative democracy and a direct ballot on x will be preferred by a majority, even if the uncertainty with respect to official's political preferences is insignificant.[24]

Conversely, for $\theta_m \approx \omega^* = \frac{1}{2}(x_1 + x_0) - E(\omega)$, individuals at the political center value information most. As a consequence, an official whose political views reflects the median invests in information and the benefits of delegation outweigh the costs if

[24] Frey (1994) cites two important examples in which the legislature was strongly in favor of 'reform' but the 'status quo' was preserved by direct vote of their electorate: the Swiss parliament's moves to join the United Nations (1986) and the European Economic Area (1992) were both defeated in a referendum.

the variance in a politicians' ideal positions is sufficiently small. This line of reasoning suggests that the relative merits of direct and representative democracy depend on the position of the political center, θ_m. Since the number of citizens that favor x_0 is monotone in θ_m, we can represent this position by the parameter α as defined above.[25] In particular, there must exist a cut-off value $\alpha^* \in [\frac{1}{2}, 1]$ such that a direct vote is preferred for $\alpha \geq \alpha^*$, irrespective of how small σ_ϵ^2 or σ_θ^2 are. This critical value α^* is determined requiring the median voter to be just indifferent between direct and representative legislation if θ_r is known with certainty.

Interestingly, it can be shown that even if the median voter would not want to acquire information herself (if she were in charge of the issue), she still may prefer delegation to promote informed decisions. This is true despite the fact that informed decision making necessarily involves delegation to an official who does not represent her preferences, i.e., for which $E[\theta_r|s_r] \neq \theta_m$.[26] Hence, the elected official may actually be more reform oriented than a majority of the population, precisely because his incentives to become knowledgable are – in contrast to an official that is at the political center – nonzero. At the same time, however, the need to confer political power to such a politician generates an *endogenous* loss of control which did not arise in a situation where X was sufficiently rich.

3 Extensions

The previous section has laid out a simple model that allows for the comparison of representative and direct legislation. In this section, I briefly discuss two natural extensions that introduce the important aspect of indirect voter control which the preceding analysis has not taken into account.

Ex Post Referenda

So far, when the jurisdiction chose to resolve an issue with direct legislation, there

[25] The argument when a majority supports x_1 is entirely symmetric.

[26] Intuitively, this form of 'strategic' delegation may be beneficial because voters do not have to incur the information costs themselves. See the proof of Proposition 3 in the Appendix for a formal argument.

has been no decisive role for an elected representative: any proposal that put to a popular vote was *de facto* made by the public, i.e., through an initiative process. In practice, however, direct and representative democracy often mingle as acts by the elected legislature are placed on the ballot for a referendum, either by a citizen-initiated petition or by law. The crucial difference between a (costless) initiative and a referendum is therefore that in the former case, the agenda setting power rests with the public at large while in the latter case, it rests with the elected legislature.[27]

The possibility of a public referendum can be incorporated into the model as follows: After the politician has made his decision x_R but before it is implemented, there is an intermediate stage where the official's choice may be placed in a popular ballot against the status quo x_0. Again, I will assume that this referendum is either mandatory or, if it has to be proposed first, can be initiated without additional cost.[28] Then, x_R can be interpreted as a proposal from the legislature that is made into law only if it wins public approval against x_0. The equilibrium policy in a representative democracy with referendum thus satisfies

$$x_R^* = \begin{cases} x_R & \text{if } [x_R - E(\omega|x_R) - \theta_m]^2 \leq [x_0 - E(\omega|x_R) - \theta_m]^2, \\ x_0 & \text{otherwise,} \end{cases} \tag{16}$$

where $E(\omega|x_R)$ is the voters' revised perception of ω after they observe the official's proposal x_R. Provided that some types of officials are (privately) informed about ω, the situation can be formally described as a signalling game with the representative's proposal x_R acting as a signal for the voters on the unknown state of the world.[29] Although voters cannot disentangle the effects of ω and θ_r from their observation of x_R, in a Perfect Bayesian equilibrium, this perception is formed rationally (using Bayes'

[27] See also Romer and Rosenthal (1979) and Frey (1994). Recall that the present formalization of direct legislation most closely reflects town meeting decision making or, alternatively, a democratic system where initiatives are can be introduced at no cost, e.g., because they are not subject to a signature requirement. In the case of costly initiatives, agenda setting power may rest with well-organized interest groups that need not represent the preferences of the political center [as in, e.g., Feldmann (1999) or Matsusaka and McCarthy (2000)].

[28] In Switzerland, for example, all constitutional decisions are subjected to direct popular approval. California requires measures that involve constitutional amendments and the issuing of government bonds to appear on the ballot.

[29] While θ_r is also unknown to the public, it's value does not affect the choice between x_R and x_0 and is therefore unessential for an individual's voting decision (although the equilibrium outcome of course depends on θ_r).

rule) given a representative's equilibrium choice of x_R conditional upon θ_r and – if he gathered information – upon ω. In turn, the equilibrium proposal must maximize the official's utility given voters' beliefs and their corresponding voting decision.

While a full-fledged analysis of the resulting equilibrium is beyond the scope of this paper, several conclusions can be drawn from this informal discussion. First, all proposals win popular support in equilibrium: for the official, any measure x_R that is rejected in a popular vote according to (16) is weakly dominated by implementing x_0 directly.[30] Second, a possible referendum places a constraint on the type of policy that can be enacted by the official: from (16), equilibrium policies must be preferred by a majority to the status quo, given the citizens' revised expectations about the consequences of both x_R and x_0. Clearly, this constraint may act as an impediment for representatives with extreme political views to implement their preferred policies and may therefore be beneficial. At the same time, however, a representative's incentives to invest in information will ceteris paribus decrease due the limitations placed on their policy choice by making it subject to popular approval. The latter effect diminishes the desirability of holding a referendum ex post.[31]

[30] This strong prediction is an artefact arising from the assumption that θ_m is known to the representative with certainty. If the median preferences are subject to uncertainty, some proposals may fail in equilibrium. However, utility maximization of the representative still implies that the probability of having x_R approved is bounded away from zero. Matsusaka (1992) reports that almost 70% of legislative measures referred to the public in California passed as compared to 45% of the initiatives within the same time period.

[31] Also, it should be noted that if there exists an equilibrium where the set of officials who invest in information is unaffected by the constraints imposed by a referendum, the outcome of this equilibrium will be preferred by a majority to the outcome of a representative democracy without referendum. This is true even though referenda may also prevent those politicians that represent the political center from enacting necessary policy changes (for extreme values of ω). To see this, consider again Example 2 and suppose that $c = 0$ so that officials always invest in information. Furthermore, assume that in a situation without a referendum, i.e., where the official's choice of $x(\theta_r, \omega)$ is unconstrained, $x_R = x_1$ would be rejected in a ballot given the correct beliefs formed by the voters,

$$E_{\omega|x_1}[(x_1 - \omega - \theta_m)^2] \geq E_{\omega|x_1}[(x_0 - \omega - \theta_m)^2], \qquad (*)$$

where the expectation over ω is taken conditional upon (θ_r, ω) being such that $x(\theta_r, \omega) = x_1$. Under a referendum, all officials θ_r in states ω where $x(\theta_r, \omega) = x_1$ will therefore have to change their proposal to x_0 in equilibrium, including moderate officials who have learned ω to be very high. Yet, in expectations, the median voter must be strictly better off under the referendum because otherwise (*) would be violated. For more than two alternatives, one may argue that the referendum-induced deviations of extremists from their preferred policies may also have an undesirable effect in that they may change voters' expectations over policies that they previously favored over the status quo, thereby

Finally, suppose that X and the distributions of ω and θ are such that a majority strictly prefers the status quo, unless they learn new information that favors some other alternative. In such a situation, a majority of the population always prefers a referendum under representative legislation to an initiative: as long as the politician's proposal conveys some information on ω,[32] the equilibrium outcome when the issue is delegated to a representative whose proposal must then be approved by the public is weakly dominated to the outcome of an initiative, i.e., the continuation of the status quo. Thus, issues for which there is 'no obvious reason' to deviate from the status quo are best be resolved by a legislative referendum. In contrast, if there is some alternative other than the status quo that is favored by a majority in the absence of new information, a majority may prefer to have it resolved by an initiative. The reason is that in a referendum, the elected official can use his agenda setting to prevent this alternative from appearing on the ballot, thereby having his own proposal approved against an unfavorable status quo.

Re-elections

An important element in representative democracies is the possibility of re-election. Most countries allow a public official to be re-elected to his office at least once. In the present framework, this institutional arrangement can be captured formally by assuming that there are at least two periods, each consisting of the stages 1 through 4 as described in Figure 1. Under representative legislation, the population elects an official at the beginning of each period who then can invest into information and implements his preferred policy. Otherwise, the issue is put to a popular vote. For simplicity, assume that a new issue x^t is to be resolved in each period t so that periods are linked only through possible re-election.[33] Under representative legislation, citizens will take the policies enacted by an official in the past into account because they act as a signal on his ideal position θ_r which is the relevant parameter in a voter's (re)election decision. As before, the politician in his desire to be re-elected faces a constraint on

forcing moderate officials (whose preferred policy would otherwise have won popular support) to alter their proposals as well. This conclusion is incorrect, however: an extremist only adopts a moderate's policy proposal in equilibrium if this proposal continues to win approval.

[32]Recall that expectations are rational so that voters cannot be systematically misled.

[33]If the type of the political decision does not vary over time, incumbent politicians will have a natural advantage over challengers because they have already acquired 'competence' on the issue.

the policies he can implement. Assuming that the incumbent has held office only in the previous period, the re-election constraint that he faces in period t is

$$E_{\theta_i|s_i,x_i^{t-1}} E_{\omega^t} \left[(x_i^t - \omega - \theta_m)^2\right] \leq E_{\theta_c|s_c} E_{\omega^t} \left[(x_C^t - \omega - \theta_m)^2\right],$$

where x_i^{t-1} is the (equilibrium) policy choice of an incumbent with ideal position θ_i in the previous period, $x_i^t = x^t(\theta_i, \omega^t)$ and $x_c^t = x(\theta_c, \omega^t)$ are the optimal policies of the incumbent and the challenger in this period, and the challenger's perceived ideal position s_c satisfies (8). Even without a formal analysis, it is evident that for extreme values of x_i^{t-1}, the incumbent will not be re-elected because the public (correctly) infers that his choice of policy is likely to be attributed to his extreme political views. Instead, a majority will prefer the challenger whose political views are expected to better represent the political center, even though they are subject to more uncertainty than those of the incumbent.[34]

Notice the similarity to the situation discussed above where x is put to a referendum. Indeed, it is easy to see that analogous arguments apply here. On the one hand, provided officials still have an incentive to acquire relevant information, the possibility of re-election enhances the merits of representative democracy because politicians will be more sensitive to the views of a majority. On the other hand, re-elections also imply a need to cater to popular opinion.[35] If the thereby imposed restrictions on the representative's policy choice are too strong, he may no longer invest in information, thus diminishing the advantages of representative legislation.[36]

Yet, there are also important distinctions to be drawn between ex post referenda and the possibility of re-election. One difference lies in the information that is relevant to voters and conveyed to them through a representative's policy proposal or choice,

[34] Since aggregate preferences are known with certainty to the incumbent in this model, a challenger will only have a positive probability of being elected in equilibrium if officials discount the future.

[35] To improve the chances of re-election, governments may therefore enact policies that are inadequate from an efficiency perspective, which is particularly relevant for social policy measures. For empirical evidence and a discussion on increases in government spending in the wake of upcoming elections, see e.g., Schneider (1999) and the references contained therein.

[36] It is quite conceivable that extremists always enact their preferred policy in equilibrium because their cost of accommodating public opinion is higher than the benefit they accrue from being reelected. As a result, extremists may be more inclined to become knowledgeable on an issue than moderate politicians.

respectively. In the former institution, it concerns the state of the world ω while in the latter, it concerns the representative's political views θ_r. Since the distributions of both parameters may differ significantly, their informational content, and hence, the induced incentive structure for the representative need not be identical. This is most clearly seen if only θ_r but not ω is subject to uncertainty. In such a situation, voters could always bring up initiatives (referenda) that would force the legislature to fully comply with the median voter's preferences: direct and representative democracy would thus always yield the same (efficient) outcome. Re-elections, in contrast, would not be as effective: since the preferences of a future challenger in a re-election are unknown to the public, electing a new person into office is costly. As a result, incumbent officials can still enact policies that differ from the median position without fear of loosing their office in a re-election.[37]

A second difference lies in the time span where the costs and benefits associated with the official's decision manifest themselves under either institution. In the case of a referendum, they accrue to the official as soon as the chosen policy is implemented. In contrast, the possiblity of getting re-elected into office is a future benefit, which the official has to compare to the current cost of not implementing his preferred policy. The resulting trade-off therefore depends on his time preferences. In particular, re-election poses no restrictions on the representative's equilibrium behavior and there would be no need to comply with the median voter preferences if he discounts the future sufficiently.

4 Discussion and Concluding Remarks

This paper has presented a framework for studying the relative merits of direct and representative legislation by emphasizing the importance of informational asymmetries

[37] An interesing effect that may counter the negative aspects of re-elections laid out above has been pointed out by an anonymous referee: there is one benefit of this institution that is potentially important but not present in a world where a candidate can only be re-elected once (or any finite number of times). If the probability that office holders serve another term is always positive, the ensuing situation is formally captured by an infinitely repeated game. Under perfect information, the Folk theorem would then tell us that an efficient outcome can be sustained if the voters adopt suitable punishment strategies and the probability of the game ending is sufficiently small.

between the public at large and elected officials. The first observation that emerged from the analysis was that if candidates running for office can either fully commit to their future policy choices or have no preferences of their own, the outcomes under direct and representative legislation coincide. Although political decisions then always reflect the preferences of the median voter, there are insensitive to contingencies relevant for the choice and are thus inefficient. From this perspective, political competition is not perfect in this model even in an ideal world where officials that are forced to be honest (albeit not well-informed).[38] Second, if no commitment is feasible or required, officials with a self-interest toward policies may take more efficient political decisions since they endogenously specialize in policy making: precisely because they can use the democratic system to their own advantage, representatives are then better informed than their constituents about the likely consequences of policies.

The equilibrium policies enacted in a representative democracy may therefore be based on a more informed decision process which takes future or present circumstances better into account. At the same time, however, the fact that officials must be granted considerable freedom in their policy choices is detrimental if citizens are incompletely informed about the political views of candidates at the election date. Acts by the legislature will then not always reflect the preferences of a majority. Hence, while the central advantage of representative democracy is that policies are better tailored to external circumstances, it at the same time *necessarily* involves a loss of control: enacted policies may reflect the preferences of elected officials rather than those of a population as a whole. For this reason, measures that can serve to secure political competition such as re-elections or referenda may be a mixed blessing. Because they constrain officials in their self-interested behaviour, they at the same time may lead to less informed and, hence, less efficient decision making.

The main trade-off in the comparing direct and representative legislation analyzed here is based on ideas that have already been informally discussed ever since Downs' (1957)

[38]Naturally, if politicians and voters can bargain without incurring transaction costs, all efficiencies could be eliminated (the Coase theorem would apply). Also note that this inefficiency result is different from political failure argument contained in Besley and Coate (1998) where potentially Pareto improving public investments are not undertaken because representatives fear that such projects may change the identity or the policy choice of future officials.

seminal contribution. Feld and Krichgässner (2000), for instance, argue that direct legislative measures (such as referenda) may induce elected policy makers to acquire less expertise as they give up discretion to voters as a principal. Nevertheless, the results of this formal model are of interest because they serve to highlight effects that were previously neglected in the discussion. First, elected officials not only need discretion in their legislative acts but also must have policy preferences of their own; otherwise, they will not gain competence on political issues. Second, the social preference ordering of representative versus direct legislation depends on the nature of the policy space. If it is sufficiently rich, the two regimes can be ranked according to the Pareto criterium. Then, because the representative is endogenously chosen (elected), the more information the voters have on his ideal policy, the less disadvantage there is in delegation and vice versa. In contrast, if the set of policies is restricted, an official's incentive to make himself knowledgeable depends on his ideological position. A majority of the population may then strictly prefer to resolve the issue in a popular ballot, irrespective of how confident voters can be that an elected official represents the political center. This is particularly true if a majority strongly favors a specific policy on the issue in question. Finally, the argument that institutional devices promoting political competition can – apart from the attached benefit of additional voter control – also lead to less efficient policy making not only holds for direct democracy institutions such as referenda, but may equally apply to re-elections.

The framework in which these findings were obtained was very simple. In particular, it only accounted for the influence of interest groups in a narrow sense, namely, in that the official's unknown ideal position could also be interpreted as being determined (to some extent) by the positions of specific and well-organized interests. Yet, once initiatives or referenda are costly, interests groups will play an additional role that is not captured in the present model. As only organized groups may command the financial resources needed to collect the required number of signatures, the policy proposal put on the ballot through direct legislative measures will also be affected by special interests, which can change outcomes if interest groups do not reflect the political center.[39] In

[39]This may not be the case if the costs associated with an initiative and collective action are sufficiently small, or if the equilibrium policy enacted by the representative is sufficiently undesirable for the median voter. Otherwise, the basic benefit of initiative or referenda can disappear as has been

other respects, however, the results are quite general. For instance, they continue to apply even if voters do not know the distribution of preferences across the population: all they need to know is that the median voter will be decisive in either regime. Also, the specific representation of preferences which was chosen to highlight the economic forces at work is not crucial. Neither the basic trade-off between the two legislative regimes nor how it varies with the parameters of the model would be qualitatively affected by a generalization in this regard. Finally, the results do depend on the strong assumption that voters remain completely uninformed under direct democracy. Of course, there may be free information available to voters that is provided by state agencies, the media, or interest groups. Alternatively, voters could have an incentive to gather some information, irrespective of whether they can influence the election outcome, e.g., because by being an informed citizen they obey social (moral) rules and therefore increase their well-being as members of the society.[40] What is important to the main insights of the model is that there remains some residual uncertainty, which can at least partially be overcome by personal and costly effort.

shown by Matsusaka and McCarthy (2000): self-interested officials may then select policies further away (rather than closer) to the median due to the threat imposed by special interest initiatives. However, Gerber (1999) finds in a study of several U.S. states that interest groups are not very successful in having initiatives favorable to them accepted by the electorate (but have a significant impact on the rejection probability of unfavorable proposals).

[40] As has been discussed by Kirchgässner (1992) in the context of the voting–paradox, this motivation may be particularly important for low–cost decisions that are irrelevant for the individual but highly relevant for others and may thus explain high election turnouts.

References

Aghion, P. and Tirole, J. (1997). "Formal and Real Authority in Organizations," *Journal of Political Economy* 105, 1-29.

Besley, T., and Coate, S. (1997). "An Economic Model of Representative Democracy," *Quarterly Journal of Economics* 112, 85-114.

Besley, T., and Coate, S. (1998). "Sources of Inefficiency in a Representative Democracy: A Dynamic Analysis," *American Economic Review* 88, 139-156.

Bundesamt für Statistik (1999). *Statistisches Jahrbuch der Schweiz 1999*, Zürich: Neue Züricher Zeitung Buchverlag.

Collier, K., Ordeshook, P., and Williams, K. (1989). "The Rationally Uninformed Electorate: Some Experimental Evidence?," *Public Choice* 60, 3-29.

Cukierman, A. and Tommasi, M. (1998). "When Does It Take a Nixon to Go to China?," *American Economic Review* 88, 180- 197.

De Groot, M. (1970). *Optimal Statistical Decisions*, New York: Mc Graw-Hill.

Downs, A. (1957). *An Economic Theory of Democracy*, New York: Harper and Row.

Feld, L. and Kirchgässner, G. (2000). "Direct Democracy, Political Culture, and the Outcome of Economic Policy: A Report on the Swiss Experience," *European Journal of Political Economy* 16, 287-306.

Feld, L. and Savioz, M.R. (1997). "Direct Democracy Matters for Economic Performance," *Kyklos* 50, 507-538.

Feld, L. and Matsusaka, J.G. (2000). "Budget Referendums and Government Spending: Evidence from Swiss Cantons, " *unpublished manuscript*, University of Southern California.

Feldmann, S.E. (1999). "Legislative Bargaining and the Initiative," *unpublished manuscript*, University of Chicago.

Frey, B. (1994). "Direct Democracy: Politico-Economic Lessons from Swiss Experience," *American Economic Review (Papers and Proceedings)* 84, 338-342.

Gerber, E.R. (1999). *The Populist Paradox: Interest Group Influence and the Promise of Direkt Legislation*, Princeton: Princeton University Press.

Harrington, J.E. (1993). "Economic Policy, Economic Performance, and Elections," *American Economic Review* 83, 27-42.

Hotelling, H. (1929). "Stability in Competition," *Economic Journal* 39, 41-57.

Kalt, J.P., and Zupan, M.A. (1990). "The Apparent Ideological Behavor of Legislators: Testing for Principal-Agent slack in Political Institutions," *Journal of Law and Economics* 33, 103-131.

Kirchgässner, G. (1992). "Towards a Theory of Low-Cost Decisions," *European Journal of Political Economy* 8, 305-320.

Lupia, A. (1992). "Busy Voters, Agenda Control, and the Power of Information," *American Political Science Review* 86, 390-403.

Marino, A.M. and Matsusaka, J.G. (2000). "Decision Processes, Agency Problems, and Information: An Economic Analysis of Budget Procedures," *unpublished manuscript*, University of Southern California.

Matsusaka, J.G. (1992). "The Economics of Direct Legislation," *Quarterly Journal of Economics* 107, 541- 571.

Matsusaka, J.G. (1995). "The Economic Approach to Democracy," in Tommasi, M. and Ierulli, K. (eds.), *The new Economics of Human Behavior*, Cambridge: Cambridge University Press, 140-154.

Matsusaka, J.G. and McCarthy, N.M. (1998). "Political Recource Allocations: The Benefits and Costs of Voter Initiatives," *unpublished manuscript*, University of Southern California.

Niskanen, W.A. (1971). *Bureaucracy and Representative Government*, Chicago: Aldine-Atherton.

Osband, K. (1989). "Optimal Forecasting Incentives," *Journal of Political Economy* 97, 1091-1112.

Osborne, M.J., and Slivinski, A. (1996). "A Model of Political Competition with Citizen Candidates," *Quarterly Journal of Economics* 111, 65-96.

Pommerehne, W.W. (1983). "Private versus Öffentliche Müllabfuhr – Nochmals Betrachtet," *Finanzarchiv*, 41, 466-475.

Romer, T. and Rosenthal, H. (1979). "Bureaucrats versus Voters: On the Political Economy of Resource Allocation by Direct Democracies," *Quarterly Journal of Economics* 95, 563-587.

Santerre, R.E. (1989). "Representative Versus Direct Democracy: Are there any Expenditure Differences?," *Public Choice* 60, 145-154.

Schneider, F. (1999). "Die Entwicklung der Sozialpolitik in Repräsentativen und in Direkten Demokratien: Königsweg oder Sackgasse? Einige Bemerkungen aus der "Public Choice"-Perspektive, *Discussion Paper 9910*, University of Linz.

Steunenberg, B. (1992). "Referendum, Initiative, and Veto Power: Budgetary Decision Making in Local Government," *Kyklos* 45, 501-29.

Tullock, G. (1980). "Efficient Rent Seeking," in Buchanan, J.M., Tollison, R.D., and Tullock, G. (eds.), *Toward a Theory of the Rent-Seeking Society*, College Station: Texas A&M Press.

Appendix

Claim. Under representative legislation, a candidate for office j is preferred by a majority of the population to another candidate k if and only if j is preferred to k by the individual with median preferences. Proof. Consider two candidates j and k and suppose without loss of generality that the median voter prefers candidate j, i.e.

$$E_{\theta_j|s_j}E_\omega[(x_j^* - \omega - \theta_m)^2] \leq E_{\theta_k|s_k}E_\omega[(x_k^* - \omega - \theta_m)^2], \tag{17}$$

where $x_j^* = x_j^*(\theta_j, \omega)$ is candidate θ_j's optimal policy choice as given by (6). Next, rewrite the expected utility of a θ_i-type voter from candidate j to read

$$\begin{aligned} E_{\theta_j|s_j}E_\omega[V(x_j^*, \omega, \theta_i)] &= -E_{\theta_j|s_j}E_\omega[(x_j^* - \omega - \theta_i)^2] \\ &= E_{\theta_j|s_j}E_\omega[-(x_j^* - \omega - \theta_m)^2 - 2(\theta_m - \theta_i)(x_j^* - \omega - \theta_m) - (\theta_m - \theta_i)^2]. \end{aligned}$$

Observe that the last term does not depend on a candidate's identity and can therefore be disregarded in θ_i's voting decision. Furthermore, from (17), the first term exceeds the corresponding term in her expected utility from candidate k. Thus, a sufficient condition for a voter with ideal position θ_i to prefer candidate j is

$$2(\theta_m - \theta_i)E_{\theta_j|s_j}E_\omega(x_j^* - \omega - \theta_m) \leq 2(\theta_m - \theta_i)E_{\theta_k|s_k}E_\omega(x_k^* - \omega - \theta_m). \tag{18}$$

Suppose first that $E_{\theta_j|s_j}E_\omega[(x_j^* - \omega - \theta_m)] \leq E_{\theta_k|s_k}E_\omega[(x_k^* - \omega - \theta_m)]$. Then, (18) implies that all voters $\theta_i \leq \theta_m$ prefer j to k. Similarly, if $E_{\theta_j|s_j}E_\omega[(x_j^* - \omega - \theta_m)] > E_{\theta_k|s_k}E_\omega[(x_k^* - \omega - \theta_m)]$, (18) implies that all citizens with ideal points $\theta_i \geq \theta_m$ vote for j. In both cases, a majority of the population prefers candidate j to k. It is straightforward to show that the converse is also true, i.e., if a candidate is preferred by a majority of voters, it is also preferred by the median voter. Hence, the social preferences over the two candidates according to the majority rule coincide with the preferences of the median voter which completes the proof.□

Proof of Proposition 3

Let $\hat{\theta} \equiv \omega^* = \frac{1}{2}(x_1 + x_0) - E(\omega)$ denote the ideal position of an individual who is indifferent between the two alternatives under ignorance. From (14) and (15), a representative's willingness to become informed increases (decreases) in θ_r for values of θ_r less (greater) than $\hat{\theta}$ and is maximal for $\theta_r = \hat{\theta}$. To ensure that some types of representatives gather information, assume that c is sufficiently small so that conditions (14) [respectively (15)] holds with strict inequality at $\theta_r = \hat{\theta}$:[41]

$$Prob\{\omega \geq E(\omega)\}E[\omega|\omega \geq E(\omega)] > c/[2(x_1 - x_0)].$$

Hence, there exists a nonempty set of types $\theta_r \in \Theta^I = [\theta_0, \theta_1]$ with $\hat{\theta} \in \Theta^I$ that will acquire information and make their decision dependent on the predicted consequences of each policy. All other types remain uninformed and always implement either the status quo ($\theta_r < \theta_0$) or the reform ($\theta_r > \theta_1$).

[41] The opposite case where no official gathers information is trivial and therefore ommitted.

Now suppose without loss of generality that a majority in the absence of new information favors the status quo, i.e., $\theta_m \leq \frac{1}{2}(x_0 + x_1) - E(\omega)$ (the case where $\theta_m \geq \frac{1}{2}(x_0 + x_1) - E(\omega)$ is symmetric and can be analyzed analogously). Hence, $x_D^* = x_0$ and the expected utility under direct democracy of the median voter is

$$E_\omega V(x_0, \omega, \theta_m) = -E_\omega[(x_0 - \omega - \theta_m)^2]. \tag{19}$$

To determine the cost and benefits of representative democracy, it will be convenient to consider first a situation where the preferences of candidates are known with certainty, i.e., $\sigma_\epsilon^2 \sigma_\theta^2 = 0$. Also recall that those individuals with median preferences will be decisive in the election.

i) Consider $\theta_m \in \Theta_I$. Since θ_r is deterministic, there is no control loss associated with delegation. Hence, an elected official with $\theta_r = \theta_m$ will become informed and –based on that information– take the decision that reflects the preferences of the median voter. Clearly, all individuals $\theta_i \geq \theta_m$ strictly prefer this outcome to implementing x_0 with certainty (the result of a direct ballot). Consequently, if $\theta_m \in \Theta_I$, representative democracy is strictly preferred to direct democracy by a majority of the population.

ii) Next consider a case where $\theta_m < \theta_0$, i.e., acquiring information is too costly for an official that represents the political center. The official with ideological position that is closest to the median position *and* finds it beneficial to become informed is θ_0. Such an official implements $x_R^* = x_1$ if he finds that $\omega \geq \omega_0 \equiv \frac{1}{2}(x_1 - x_0) - \theta_0$ and $x_R^* = x_0$ otherwise. The expected utility of the median voter from a θ_0-type representative is therefore

$$\begin{aligned} &E_\omega V(x_R^*, \omega, \theta_m) = \\ &\quad - Prob\{\omega < \omega_0\} E_{\omega<\omega_0}[x_0 - \omega - \theta_m]^2 - Prob\{\omega \geq \omega_0\} E_{\omega \geq \omega_0}(x_1 - \omega - \theta_m)^2 \\ &= -E_\omega[(x_0 - \omega - \theta_m)^2] - 2(x_1 - x_0) Prob\{\omega \geq \omega_0\} E_{\omega \geq \omega_0}[\frac{1}{2}(x_1 - x_0) - \omega - \theta_m]. \end{aligned} \tag{20}$$

Comparing (19) and (20) and recalling that $\omega_0 = \frac{1}{2}(x_1 + x_0) - \theta_0$, we see that delegating the decision to an official with ideal position θ_0 is beneficial for the median voter if and only if

$$\theta_m \geq \frac{1}{2}(x_1 + x_0) - E(\omega | \omega \geq \frac{1}{2}(x_1 + x_0) - \theta_0). \tag{21}$$

Notice that (21) is satisfied for $\theta_m = \theta_0$. We also know from Step i) that the median voter strictly prefers delegation for $\theta > \theta_0$. Hence, there is a critical value $\theta_m^* \leq \theta_0$ such that for $\theta \geq \theta_m^*$, a majority favors representative legislation. For $\theta_m < \theta_m^*$, a majority prefers to solve the issue through a direct ballot or alternatively, delegate the issue to an official whom she knows to represent her own preferences θ_m with certainty. In both cases, however, the decision will be made under ignorance about ω and representative and direct legislation are in fact equivalent. Letting $g(\cdot)$ be the density of the Normal distribution and defining

$$\alpha = \int_{-\infty}^{\hat{\theta}} g(\theta) d\theta = \frac{1}{2} + \int_{\theta_m}^{\hat{\theta}} g(\theta) d\theta$$

as the fraction of the population that supports the majority-favored policy x_0 under ignorance, we can define α^* as the value of α evaluated at $\theta_m = \theta_m^*$. Holding all other parameters fixed, α is a monotonically decreasing function of θ_m. Hence, $\theta_m \geq \theta_m^*$ is equivalent to $\alpha \leq \alpha^*$ and representative democracy is preferred by a majority if and only if α is sufficiently small.

Finally, reintroducing uncertainty about θ_r does not qualitatively alter this conclusion. To see this, recall that given a signal s_r, a politician's ideological position is normally distributed. Hence, the probability that an elected official takes the 'wrong' decision from the perspective of the median voter depends only on the mean ideal point (which is a choice variable in the voters' decision problem) and the conditional variance (which is independent of s_r). The argument above has established that for $\alpha \in [\frac{1}{2}, \alpha^*]$, a majority strictly prefers representative legislation if $\sigma_\epsilon^2 \sigma_\theta^2 = 0$. Since the (expected) ideal point of the representative is unaffected by the voters' uncertainty about θ_r, this must by continuity still be true for sufficiently small values of σ_ϵ^2 and σ_θ^2, respectively. Moreover, as the gains from delegation are decreasing in α, so must be the uncertainty that is still tolerable. Conversely, for $\alpha \geq \alpha^*$, all citizens are indifferent between the two legislative regimes if there is no uncertainty with respect to θ_r. It follows immediately that for any positive values of σ_ϵ^2 and σ_θ^2, a majority strictly prefers a direct ballot on x which completes the proof.□