Direct and Indirect Initiatives*

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Abstract

Institutional provisions for popular initiatives differ with respect to the possibilities they offer the legislature to react to direct legislation. In states with direct initiatives (19), the legislature cannot react directly to an initiative proposal once it has been qualified. In states with indirect initiatives (9), the legislature may or has to respond to the proposal. The present paper proposes a theoretical model incorporating these two types of initiative processes. The results suggest that the role interest groups play in the initiative process differs under these two provisions for direct legislation. Suggestive empirical evidence supports these theoretical claims.

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1 Introduction

Direct legislation allows groups and individuals to bypass the traditional legislative process and to propose policies of their own making. While this decision-making procedure is far from ubiquitous at the national level,[1] it is much more widespread at the subnational level. In the United States 23 states allow either statutory or constitutional initiatives (e.g., Magleby 1994), in Switzerland all cantons have provisions for direct legislation (e.g., Wisler and Kriesi 1996) and similar arrangements exist in many countries at the subnational level.

Several studies have demonstrated that direct legislation may have beneficial effects. Matsusaka (1995) shows that states with provisions for direct legislation have lower expenditures and tend to have more fee-based taxation.[2] Gerber (1996) finds that parental consent laws on teenage abortion and legislation on the death penalty reflect more closely the voter's preferences in initiative states than in non-initiative states. Feld and Savioz (1997) and Feld and Matsusaka (2001) demonstrate that voters' control over fiscal instruments has positive economic effects at the municipal level, respectively the cantonal level, in Switzerland.[3]

While these stylized facts suggest that direct legislation is beneficial, it is interesting that most proposals that appear on the voters' ballot fail. Gerber (1998) presents figures illustrating that only slightly more than 40 per cent of the state initiatives have succeeded between 1981 and 1990. In Switzerland of the 116 initiatives on the ballot at the national level between 1891 and 1994, only 12 have passed (Trechsel and Kriesi 1996, 191).[4] This forcefully suggests that the beneficial effects of direct legislation are likely to be of an indirect nature (e.g., Delley 1978, Werder 1978, Hofer 1987, Gerber 1998 and 1999 and Gerber and Hug forthcoming).

Most theoretical models of direct legislation attempt to study this indirect impact by looking at the constraining effects of initiatives (e.g., Steunenberg 1992, Feldmann 1995, Gerber 1996 and Matsusaka and McCarty 1998, Hug 1999 and Besley and Coate 2001). In these models, the legislature or government attempts to anticipate an interest group's or opposition's reaction to policy proposals.[5] The latter may propose an

[1] According to Suksi (1993, 147) only Guatemala, Liberia, Liechtenstein, the Philippines, and Switzerland allow for direct legislation at the national level. Since his study several countries in Eastern and Central Europe have adopted constitutions allowing for initiatives (White and Hill 1996). Hug and Tsebelis (2001) provide detailed and up to date information on these institutional provisions.

[2] In a more recent study Matsusaka (2000) finds that in the first half of this century states with the initiative had higher expenditures. He takes this as evidence that the effect of provisions for initiatives depend on the voters' preferences.

[3] Kirchgässner, Feld and Savioz (1999, chapters 4 and 5) review this literature, giving emphasis to economic studies.

[4] Among the other countries that allow according to Suksi (1993, 147) for initiatives, Guatemala, Liberia, and the Philippines have not seen any such votes. Liechtenstein, on the other hand, has a passage rate very similar to the one of the American states, namely 47 percent (7 out of 15, source: http://c2d.unige.ch/c2d/international/countries/liechtenstein.html (accessed November 7, 1999).

[5] In all models discussed here, basically similar or identical actors appear under different names. In order to reduce confusion, I will employ from now on the following three terms. The government is

alternative policy, which will be pitted against the status quo or a new law in a ballot contest. While these models can demonstrate constraining effects, it is questionable whether they capture the main dynamics of initiative processes. More precisely, focusing on these screening mechanisms, existing models do not model explicitly the initiative threat. Such threats are likely to provide political groups with means for transmitting and signaling information. Gerber (1998) suggests that these are integrative part of the direct legislation process.[6]

While both screening and signaling effects are likely to occur under all provisions for initiatives, their relative importance relates strongly to a crucial distinction between direct and indirect initiatives. More precisely, signaling processes are tantamount in direct legislation states which have the so-called indirect initiative. Under these institutional provisions, bills submitted in the initiative process have first to be voted on by the legislature. In some cases, e.g. in Switzerland, initiatives may, as a consequence of a counterproposal by the legislature, be withdrawn (e.g., Hofer 1987). These signaling processes are likely to be much weaker in states which have the so-called direct initiative. Proposals directly appear on the ballot and legislatures can only preempt them by anticipating likely demands.[7]

Consequently, in this paper I propose a game-theoretic model that directly addresses this crucial difference between direct and indirect initiatives. In the first version of the model the interaction reflects a screening mechanism which is likely to predominate under institutions allowing for direct initiatives. The second version of the model emphasizes the signaling of information, and thus reflects what we would expect to occur under institutions allowing for indirect initiatives. Comparing these two mod-

the actor that in the absence of direct legislation determines policy. Other terms used in the literature are legislature, legislator, representative etc. The opposition covers all groups or individuals that may launch direct legislation. Other terms used for the same actor are interest group, voters, etc. Finally, the median voter subsumes the voters, electoral body etc.

[6]Boehmke (1999) proposes a model where the government may propose a policy change, which is possibly followed by lobbying and an initiative proposal by the opposition. The author assumes, however, that there is no informational asymmetry between government and opposition with respect to the median voter's preferred policy. Hence, the game does not allow for any transmission of information between the players. Given this, and the restriction to a binary policy choice, I will not discuss this model in detail here.

[7]It is likely that the importance of these two aspects of direct legislation also relates in some ways to the policy issues under consideration (I wish to thank Ken Kollman for suggesting this point to me.). It might be that in well known policy areas, where the government has accurate information on the preferences of the median voter, the screening effect will predominate. The government is likely to balance off the preferences of the opposition and the median voter and factor these into its policy proposal. In new issue areas or areas where preferences have undergone changes, however, the government might have very little information on the preferences of the median voter. Similarly, the credibility of the opposition groups may be difficult to assess. One source of information about the median voter's preferences in that case might well be initiative threats. Depending on the opposition's credibility and policy preferences, an initiative proposal may transmit some information to the government about where the median voter's ideal point is. Consequently, if the two models predict different types of outcomes and the previous reasoning is correct, some empirical patterns might be observed which are linked to the issue area of direct legislation.

Table 1: Direct and indirect initiative in the American states[a]

direct initiative	indirect initiative
Arizona (C), Arkansas (C/S), California (C/S), Colorado (C/S), (DC (C/S)), Florida (C/S), Idaho (C/S), Illinois (C), Michigan (C), Missouri (C/S), Montana (C/S), Nebraska (C/S), Nevada (C), North Dakota (C/S), Ohio (C), Oklahoma (C/S), Oregon (C/S), South Dakota (C/S), Utah (S), Washington (S),	Alaska (S), Maine (C/S), Massachusetts (C/S), Michigan (S), Nevada (S), Ohio (S), Utah (S), Washington (S), Wyoming (S),
n=19	n=9

[a] *Source:* http://c2d.unige.ch/c2d/international/usa/usa.html (accessed October 30, 1999), C indicates constitutional initiatives, and S statutory initiatives.

els suggests that in a signaling framework, the impact of voters are more likely to be reduced, compared to the screening model. In the latter, the opposition may target much more directly the median voter's preferences. This suggests that differences in the institutional setup for direct legislation, e.g. direct and indirect initiatives, impact the way interest groups may influence policies. Given that the American states allowing for initiatives differ considerably with respect to whether they allow for direct or indirect initiatives (Table 1), the state-level provides an ideal testing-ground for these theoretical implications. I provide some cursory evidence in support of the theoretical model presented here.

The paper is organized as follows. In the next section I motivate in more detail the models that I will propose. I offer a discussion of existing models of direct legislation and suggest that they cannot capture an important element of the initiative process. Section three presents the general setup and the two models that I propose to study. Results based on these two models appear in section four. A comparison between the models contrasts the main findings. In section five I provide tentative empirical evidence in support of the theoretical model before concluding with suggestions for further theoretical and empirical explorations.

2 Motivation

Recently a series of theoretical models proposed to study the direct legislation process. Drawing on the literature on agenda-setting, models by Lupia (1992 and 1993) and Ursprung (1994a and 1994b) have highlighted how interest groups can provide cues and information to voters, when they have to choose between policies. Extensions by

Gerber and Lupia (1995) show how the electorate can learn useful things about policy proposals by observing simple cues, like interest group endorsements.

While these models focus on the information that voters can obtain in the initiative process, Steunenberg (1992), Feldmann (1995), Gerber (1996), Matsusaka and McCarty (1998) and Hug (1999) focus on the constraints that an agenda-setter faces, when an opposition may challenge a new policy with an alternative proposal. While these models all differ with respect to details in their assumptions, they have the structure of the game in common. In all these models the government first chooses a policy from the policy space.[8] Second, the opposition may propose an alternative policy, and finally, voters choose between these two policies.

Steunenberg (1992), in his model of "direct initiative," assumes that voters can propose costlessly an alternative policy to the government's proposal. Obviously, in that case, the voters will propose "their" most preferred policy, which corresponds to the median's ideal point. Gerber (1996) extends this work, by modeling more directly the initiative process. In her model, the opposition with preferences possibly different from the median voter may challenge the government with a costly initiative proposal. Depending on the configuration of ideal-points, the government will be considerably constrained in its policy-making. Under complete and perfect information, the government proposes policies, which lead the opposition to refrain from submitting a policy.

Matsusaka and McCarty (1998) extend under restrictive assumptions Gerber's (1996) model to cover incomplete information. They assume that opposition and government ignore the exact location of the median-voter, while sharing a common prior belief. In addition they allow for the possibility that the government is a perfect agent of the median-voter. Given the uncertainty that both government and opposition face, they find that direct legislation has beneficial effects from the perspective of the median voter if the government pursues its own interests. If the government is a perfect agent of the voters, however, direct legislation may have negative effects. These results echo Hug's (1999) findings, which stem from a one-sided incomplete information game of the initiative process.

Besley and Coate (2001) combine in their model the policy effects of representative democracy with those to be expected from initiatives. They assume that candidates can run campaigns on two issues, one of them they consider to be regulatory. Depending on the precise assumptions, this regulatory issue may not be solved in a representative democracy according to the wishes of the voters. If the latter may propose direct legislation, however, either directly or indirectly the outcome will lead again to a solution of the regulatory issue more closely reflecting the voters' wishes. Finally, Feldman (1995) emphasizes the bargaining in parliament or government before an opposition may launch an initiative. With his reduced-form model he shows that the possibility of launching an initiative may influence considerably the bargaining process in the legis-

[8]The assumed policy space is systematically one-dimensional, which is hardly restrictive, since direct legislation often has to satisfy a single-issue criterion. In Besley and Coate's (2001) model the policy space is two-dimensional, but only one of these dimensions is possibly addressed by initiative proposals in equilibrium. Thus, for our purposes the model reduces policy space again to one dimension.

lature. In addition, it may reduce the incentives of individual legislators to specialize and gain detailed knowledge about the policy consequences of particular proposals.

All these models assume that the government moves first, and that it can learn nothing from the opposition's potential demands prior to adopting a policy.[9] Consequently, provided that the policy effects of direct and indirect initiatives differ in the degree to which they allow for signaling of information, these models fail to address this crucial distinction.[10] Gerber (1998) suggests, however, that both signaling and screening play an important role in the indirect influence of direct legislation.

3 Two models of direct legislation

Consequently, I propose two models of direct legislation, which share many of their core elements. The first model attempts to capture the screening aspects of the direct legislation process. It is largely an extension of Gerber's (1996) model, but allows for one-sided incomplete information. Given this informational structure, it is also related to Matsusaka and McCarty's (1998), who assume two-sided incomplete information. The signaling model is a slight adaptation of a "cheap talk" model to the situation of an initiative process.

Before presenting the two models in detail, I state the assumptions that they share. Throughout the paper I assume the presence of three actors: a government G, an opposition O and a median voter M. All actors have ideal-points in a policy space P which corresponds to the subset $[\underline{X_M}, \overline{X_M}]$ of the real line, where for simplicity $-\underline{X_M} = \overline{X_M} = \frac{1}{2}$. All actors have Euclidian preferences over the policy space and the utility associated with the final policy (X_f) corresponds to the following:[11]

$$
\begin{aligned}
U_G(X_f) &= -|X_f - X_G| - rc_G && (1)\\
U_O(X_f) &= -|X_f - X_O| - rc_O && (2)\\
U_M(X_f) &= -|X_f - X_M| && (3)
\end{aligned}
$$

c_G and c_O correspond to the costs that G and O face when running an initiative

[9] A possible motivation for such models would be that before the opposition qualifies a proposal for the ballot and runs the campaign, no credible information can be transmitted. The reason might be, as in Matsusaka and McCarty (1998), that opposition and government have exactly the same information, or that the opposition cannot credibly signal its information. In that case the opposition might well make demands to the government, but this part of the game would be basically a "cheap talk" model, possibly with babbling equilibria (e.g., Banks 1991, 24).

[10] Matsusaka and McCarty (1998) suggest that their model may give a rationale for signaling processes of voters' preferences across time and space. Each vote about a particular initiative signals information about the median voter to the government and opposition. Based on ballot outcomes oppositions and governments in a later stage or in another state might incorporate this information on voters' preferences. However, this particular feature is not modeled by the two authors.

[11] Given these assumptions, Black's (1958) median voter theorem applies. Consequently, M may represent a whole electoral body provided the voters fulfill these assumptions.

campaign, and in addition, in the case of O, of qualifying a proposal for the ballot. r is equal to 1 if a popular vote occurs, and 0 else. All aspects of the games that I will present below are common knowledge, except the location of M's ideal-point. I assume that O has private information on M's preferred policy, while G only has a probabilistic assessment. For simplicity I assume this prior belief to be uniform over the whole policy space $[\underline{X_M}, \overline{X_M}]$.[12] The motivation for this informational assumption is that the government is likely to face in each issue area specialized opposition groups. The latter devote most of their time studying the particular issues they are concerned with. The government, on the other hand, cannot devote as much time studying each issue as thoroughly.[13]

In addition, I impose the following assumptions:

(A1) $X_G = 0$

(A2) $X_O > 0$

(A3) $c_O, c_G \in (0, \frac{1}{2})$

(A4) If M is indifferent between X_i and its alternative (either X_G or X_p) she votes in favor of X_i.

(A5) G, O and M never use weakly dominated strategies.

These additional assumptions are largely innocuous. $(A1)$ positions X_G in the middle of the policy space. The motivation for this assumption is that the government's election most likely depended on the support of a majority of voters. Consequently, it should be as likely that the median voter is to the left of the government, as that it is to the right. $(A2)$ gets rid of mirror equilibria, which can easily be reconstructed based on the results I present below. $(A3)$ restricts the costs of holding a referendum to be strictly positive and smaller than $\frac{1}{2}$. Since the utility function includes these costs without any scaling factor, they can be understood in terms of policy-distances. Consequently, if the costs of holding a referendum were equal to $\frac{1}{2}$, the expected utility of accepting the government's ideal-point would always exceed the one from challenging the policy with a new proposal. $(A4)$ corresponds to a tie-breaking rule and simplifies the analysis without altering any of the main results. Finally, $(A5)$ guarantees the existence of unique subgame perfect equilibria.

3.1 Direct initiatives: A screening model

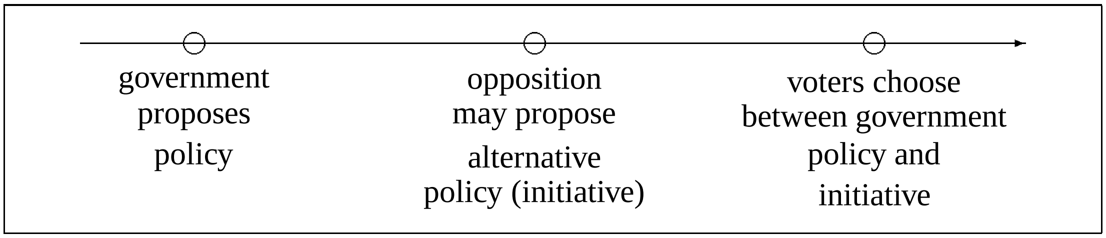
In this model the interaction (Figure 1) starts with the government proposing a new policy $X_p \in P$. O follows suit by either submitting an initiative proposal $X_i \in P$ or

[12] Consequently, the prior belief of the government has the following properties: $f(x|x \in [\underline{X_M}, \overline{X_M}]) = 1$, $f(x|x \notin [\underline{X_M}, \overline{X_M}]) = 0$, $F(x|x < \underline{X_M}) = 0$ and $F(x|x > \overline{X_M}) = 1$.

[13] Similar assumptions appear in the lobbying literature (e.g., Kollman 1998, 58ff).

backing down $X_i = \emptyset$.[14] In this latter case the game ends with the adoption of X_p, while in the former case M chooses between X_p ($a_M = 1$) and X_i ($a_M = 0$) and both G and O pay their respective costs for the campaign.

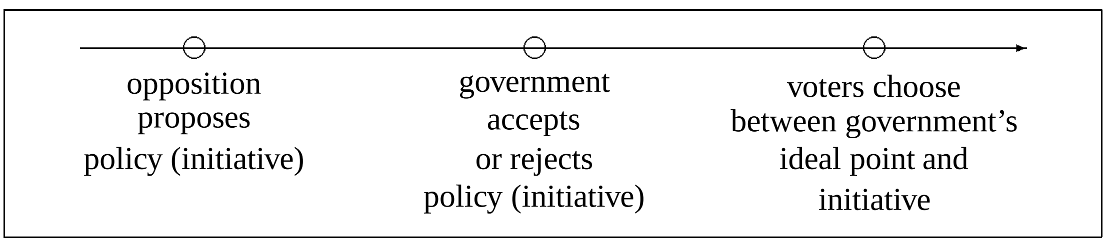
Figure 1: Direct legislation as a screening process



3.2 Indirect initiatives: A signaling model

In this second model (Figure 2) the game starts with O choosing an initiative proposal $X_i \in P$ or $X_i = \emptyset$, in which case G's ideal-point is adopted as final policy (X_f). If $X_i \neq \emptyset$, G can accept O's proposal, which terminates the game with final policy X_i, or it can reject it. In this latter case, M chooses between X_i ($a_M = 0$) and X_G ($a_M = 1$) the final policy outcome.

Figure 2: Direct legislation as a signaling process



Offering an alternative policy is costless as long as no vote takes place. The opposition pays cost c_O, however, if the proposal appears on the ballot.[15] In addition, the opposition is committed to stick to its policy proposal X_i even if the government rejects it. This setup may seem rather awkward, but it has a few advantages. First, it is probably the simplest model that can illustrate the signaling phenomenon in the process of direct legislation. Second, despite the fact that making a proposal (the signal)

[14]This screening model corresponds to the model proposed by Hug (1999) for covering direct legislation by initiative. There, the model is compared to similar ones for other types of referendums.

[15]A rationale for this assumption might be that the opposition which successfully moves the government into action will obtain benefits offsetting the costs of qualifying an initiative. An opposition failing to convince the government of its proposal will not be able to count on such a "reimbursement" of costs.

between

in itself is costless, the model differs from "cheap-talk" models (Crawford and Sobel 1982). The difference resides in the model's structure, which forces the opposition to stick to its policy proposal after a government rejection and to pay the cost of running a campaign. Allowing the opposition to change its mind after a rejection of its policy by the government, would turn the first two moves of the game into a simple "cheap-talk" model. Results derived by Crawford and Sobel (1982) would easily apply. In that case, however, it might be of more interest to consider results from Lupia and McCubbins (1998) emphasizing the importance of the sender's "persuasiveness" and "knowledgeability."[16]

4 Results

I solve both models for their perfect Bayesian equilibria. Such equilibria induce subgame perfection in each subgame and require that actors update their beliefs according to Bayes' rule where possible. Below I present these equilibria and their characteristics for each game separately. I will then go on to compare them.

4.1 Screening model

Proposition 1 clearly shows that G is often constrained by the direct legislation process, and thus echos similar results of related models. The type of equilibrium that occurs depends strongly on the position of O and the costs that O and G have to pay for running an initiative campaign.

Proposition 1 *The unique Perfect Bayesian equilibria (if $X_G < X_O$) are of the following four forms: i) if $X_O \leq c_O$ then $X_p = X_G$ and $X_i = \emptyset$ and $X_f = X_G \forall X_M$. ii) if $\frac{c_O^2 - c_O c_G + c_G + 2c_O}{2c_O + 1} < X_O \leq c_O + \frac{1-2c_G}{3}$ and $c_G \leq \frac{3c_O^2+1-c_O}{5+c_O}$ then $X_p = X_G$ and $X_i = \emptyset$ if $X_M \leq \frac{c_O}{2}$, $X_i = 2X_M - X_p + \epsilon$ if $\frac{c_O}{2} < X_M \leq \frac{X_O + X_p}{2}$ and $X_i = X_O$ if $\frac{X_O+X_p}{2} < X_M$ with respectively $X_f = X_G$, $2X_M + \epsilon$, and X_O; iii) if $c_O < X_O \leq \frac{c_O^2 - c_O c_G + c_G + 2c_O}{2c_O+1}$ and $c_G \leq \frac{3c_O^2+1-c_O}{5+c_O}$, or $c_O < X_O \leq c_O + \frac{1-2c_G}{3}$ and $\frac{3c_O^2+1-c_O}{5+c_O} < c_G$, or $c_O + \frac{1-2c_G}{3} < X_O \leq \frac{2\sqrt{5c_G + c_O c_G + 5c_O + c_O^2} - 2c_G - c_O - 1}{3}$ and $\frac{8c_O^2+c_O+1}{5+c_O} \leq c_G$ then $X_p = X_O - c_O$ and $X_i = \emptyset$ which implies $X_f = X_O - c_O$; iv) if $c_O + \frac{1-2c_G}{3} < X_O$ and $c_G < \frac{8c_O^2+c_O+1}{5+c_O}$ or $\frac{2\sqrt{5c_G+c_O c_G+5c_O+c_O^2}-2c_G-c_O-1}{3} < X_O$ and $\frac{8c_O^2+c_O+1}{5+c_O} \leq c_G$ then $X_p = \frac{3X_O - 1 - 3c_O + 2c_G}{6}$ which leads to $X_i = \emptyset$ if $X_M \leq X_p + \frac{c_O}{2}$ or $X_O \leq X_p + c_O$, or $X_i = 2X_M - X_p + \epsilon$ if $X_p + \frac{c_O}{2} < X_M \leq \frac{X_O+X_p}{2}$ and $X_p + c_O < X_O$ or $X_i = X_O$ if $\frac{X_O+X_p}{2} < X_M$ and $X_p + c_O < X_O$. Respectively, $X_f = X_p$, $2X_M - X_p + \epsilon$ and X_O.*

[16] I will return to the question of modeling choices in section 5.

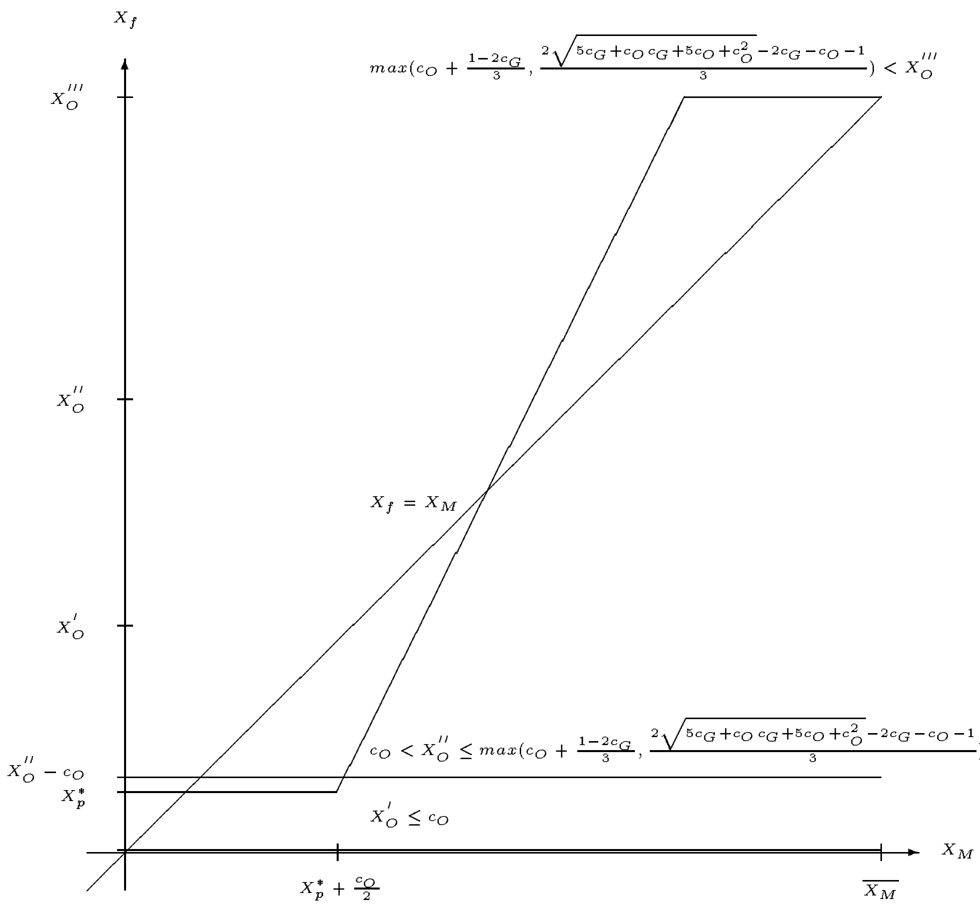
Figure 3 illustrates the different equilibrium outcomes derived from proposition 1. I depict the relationship between the median-voter's ideal point and the final policy for different values of X_O. I only depict the relationship between X_M and X_f for median voters with ideal points to the right of the government (at the intercept). It is easy to show that the final policy in cases where the median voters have ideal points on the opposite side of O will equal the policies adopted when $X_M = X_G$.

Two scenarios should help to understand the representation adopted in figure 3 (and figure 4 below). If initiatives had no policy effect, the final policy should be unrelated to the voters' preferred policy and always be equal to the government's ideal-point. Thus, in figure 3 this should appear as a horizontal line through the origin. If, on the other hand, initiatives should allow the voters always to get their most preferred policy, this should lead to the final policy being equal to the voters' ideal-point. In figure 3 this would appear as the 45^o-line. Any other lines depicting the link between the voters' preferences and the final policy outcome suggest a reduced effect of initiatives.

Overall, figure 3 shows that, except special circumstances, direct legislation influences the final policy in a way that reflects to some degree the median voter's preferences. I depict the results for three positions of the opposition. If X_O is very close to X_G, the government will stick to its preferred policy. Only if X_O is larger will the government propose a compromise policy to buy off moderate Os ($X_p = X_O - c_O$). This proposal is never challenged by the opposition. If the opposition's ideal point becomes more distant to the government's, the latter will propose another compromise policy, which, as a function of the location of X_M will be challenged by the opposition with an initiative proposal.[17]

[17] The three locations for X_O induce the described equilibrium behavior for almost all combinations of c_O and c_G. The ranges in which these different behavioral patterns appear, however, differ strongly as a function of the costs.

Figure 3: Final policy outcomes in screening model[a]



[a]Notes: $X_p^* = \frac{3X_O - 2\overline{X_M} - 3c_O + 2c_G}{6}$, $X_O^* = max(c_O + \frac{1-2c_G}{3}, \frac{2\sqrt{5c_G + c_O c_G + 5c_O + c_O^2} - 2c_G - c_O - 1}{3})$

4.2 Signaling model

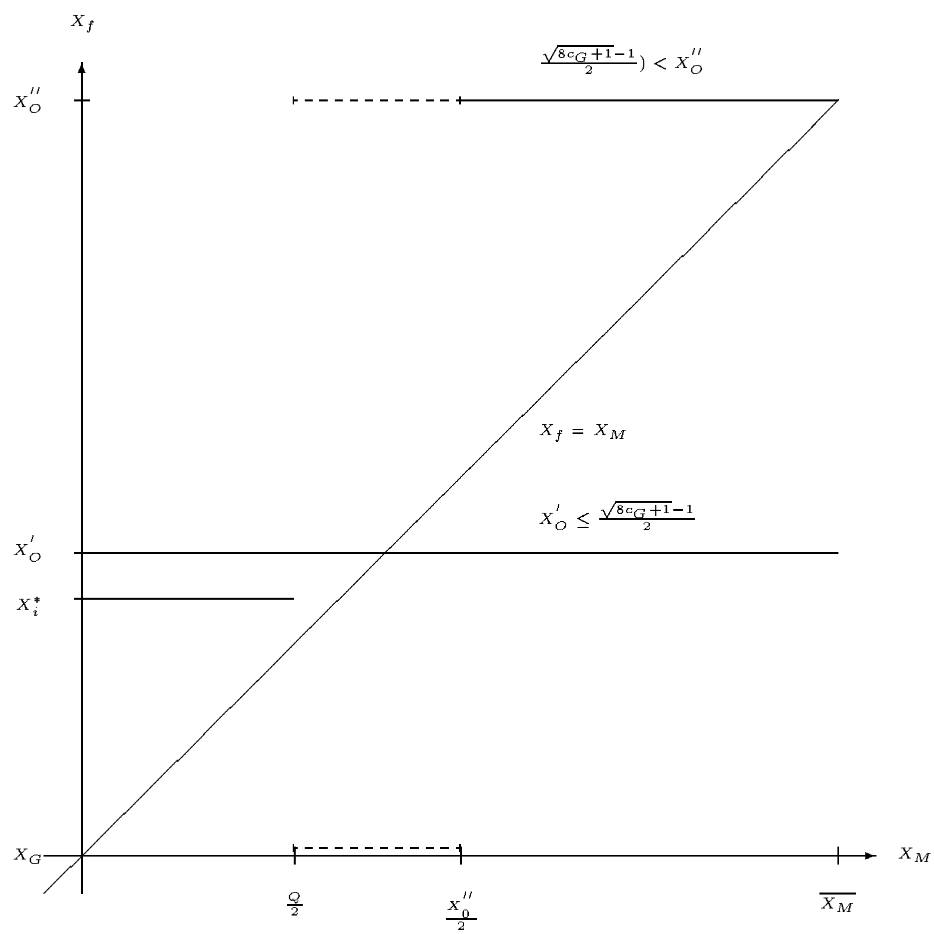
Propositions 2 and 3 present three equilibria that occur for different positions of the opposition's ideal point. The first one (proposition 2) demonstrates the existence of a pooling equilibrium, for cases where X_O is relatively close to the government's ideal-point. In that case O can propose its ideal point as initiative, and, given G's costs, G is better off accepting $X_i = X_O$, given its prior beliefs. Proposition 3 characterizes a semi-pooling equilibrium, where O transmits some of its knowledge about X_M to G. More precisely, if X_M is close to X_G O will propose $X_i = X_i^* = \frac{\sqrt{X_O^2-2c_GX_O+c_G^2+4c_GX_O^3-12X_Oc_G+4c_GX_O^2-4c_G^2X_O^2+8c_G^3}+c_G-X_O}{2(X_O-c_G)}$, and if X_M is further away, O will propose $X_i = X_O$. G will accept $X_i = X_i^*$ with certainty, since this is a weakly dominant strategy, while the acceptance of $X_i = X_O$ will only occur with probability $a_G < 1$.[18]

Proposition 2 *If* $X_O < \frac{\sqrt{1+8c_G}-1}{2}$ *then the signaling game has a pooling equilibrium of the following form:* $X_i = X_O \forall X_M$, $a_G(X_i|X_i < \frac{\sqrt{1+8c_G}-1}{2}) = 1$ *and* $a_G(X_i|\frac{\sqrt{1+8c_G}-1}{2} \leq X_i) = 0$ *with out-of-equilibrium belief* $(p(X_M < 0|\frac{\sqrt{1+8c_G}-1}{2} \leq X_i) = 1)$, *and* $a_M(X_G|X_M < \frac{X_i}{2}) = 1$ *and* $a_M(X_G|X_M \geq \frac{X_i}{2}) = 0$.

Proposition 3 *If* $\frac{\sqrt{1+8c_G}-1}{2} < X_O$ *then the signaling game has a semi-pooling equilibrium of the following form:* $X_i = X_O \forall X_M < \frac{X_O^2-c_G}{2(X_O-c_G)}$, $X_i = X_i^* \forall \frac{X_O^2-c_G}{2(X_O-c_G)} \leq X_M$, *where* $X_i^* = \frac{\sqrt{X_O^2-2c_GX_O+c_G^2+4c_GX_O^3-12X_Oc_G+4c_GX_O^2-4c_G^2X_O^2+8c_G^3}+c_G-X_O}{2(X_O-c_G)}$, $a_G(X_i|X_i = X_i^*) = 1$ *and* $a_G(X_i|X_i = \frac{X_O^2-c_G}{2(X_O-c_G)} = \frac{X_i^*+c_O}{X_O+c_O}$ *with out-of-equilibrium belief* $p(X_M < 0|X_i \notin \{X_i^*, X_O\}) = 1$, *and* $a_M(X_G|X_M < \frac{X_i}{2}) = 1$ *and* $a_M(X_G|X_M \geq \frac{X_i}{2}) = 0$.

[18] This type of separation echos Lupia's (1992) result for a similar signaling model.

Figure 4: Final policy outcomes in signaling model[a]



[a]Notes: $X_i^* = \frac{\sqrt{X_O^2-2c_GX_O+c_G^2+4c_GX_O^3-12X_Oc_G+4c_GX_O^2-4c_G^2X_O^2+8c_G^3}+c_G-X_O}{2(X_O-c_G)}$, $Q = \frac{X_O^2-c_G}{2(X_O-c_G)}$

Based on propositions 2 and 3 figure 4 shows again the relationship between the final policy and X_M for different values of X_O. It suggests that in the cases covered by propositions 2 and 3 the final policy is only slightly related to the median voter's ideal point. The horizontal line at $X_O^{'}$ illustrates the pooling equilibrium of proposition 2. The pooling nature of this equilibrium makes the final policy completely independent of X_M. Only, as X_O becomes more distant from X_G it becomes possible that O can transmit some information about the location of X_M to G. This is illustrated in figure 4 as the set of remaining lines, where O offers $X_i = X_i^*$ for low values of X_M and $X_i = X_O$ for higher ones. In the case of this latter proposal the probabilistic acceptance by the government leads to two possible outcomes for a range of values for X_M.[19] If the government rejects the proposal, then the outcome corresponds to G's ideal-point, provided M prefers X_G to $X_i = X_O$. If to the contrary the government accepts the proposal, $X_f = X_O^{''}$ independent of M's preferences. As the median's location moves away from the government's position ($\frac{X_O^{''}}{2} \leq X_M$), the latter's decision to accept or reject X_i becomes irrelevant for the final policy outcome. X_f will always equal X_O, either adopted by the government or in the initiative process.

4.3 The models compared

At first blush a comparison between the results of the two models suggests that when the government can anticipate opposition behavior, the final policy outcome is more likely to reflect the median voter's preferences. This stems from the fact that in the signaling model, the number of "credible" signals in terms of initiative proposals are severely restricted. This restriction reflects some "cheap talk" aspects of the signaling game proposed here. As the government's and opposition's costs decrease, however, it is likely that the "coarseness" of the signals will become less important. Nevertheless, a completely informative signal, given the setup of the game, can easily be ruled out.

A more detailed comparison between the models suggests the importance of the location of O and the costs c_O and c_G. Reducing the costs c_G leads the government in the screening game to be very reluctant to offer a compromise solution. Consequently, the opposition proposes policies which the median voter just barely prefers to the government's ideal point. In the signaling framework, similarly small values for c_G decrease the range for X_O where pooling equilibria are possible. Hence, O's initiative proposals become more informative. If c_G is very large, the range for X_O with pooling equilibria extends, while in the screening model such costs induce the government to buy off the opposition.

[19] I depict these probabilistic results by dotted lines in figure 4.

5 Policy effects of direct and indirect initiatives in the American states

The models presented in this paper suggest that policy outcomes should be more closely related to the voters' preferences in states that allow for direct legislation. In addition, a comparison of the two models implies that the voters' preferences should be more closely related to policy outcomes in states allowing for direct initiatives than in those permitting only indirect initiatives. So far such direct tests have been correctly carried out only in the context of policies that can be represented as dichotomous choices (Gerber 1996 and 1999). Scholars attempting to extend Gerber's (1996 and 1999) approach to policies measured on a continuous scale (e.g., Lascher, Hagen and Rochlin 1996 and Camobreco 1998) have fallen into the trap of misspecifying their empirical model (Matsusaka forthcoming and Hug 2001). Following Hug (2001) I employ an empirical specification which allows for tests of theoretical models of direct legislation in areas where policies are measured on a continuous scale. For such policies equation 4 provides a general specification of the empirical model:

$$|PO_i - X_{m_i}| = f(dl_i, X_i) \tag{4}$$

where PO_i is the policy outcome in a particular issue area in state i, while X_{m_i} is state i's median voter's preferences in this issue area. The absolute difference between these two quantities should be a function of the presence of institutions allowing for direct legislation (dl_i) and possibly some other control variables (X_i).[20] For tests of the two models discussed above dl corresponds to two vectors measuring the presence of provisions allowing for direct and indirect initiatives.

Generally the problem with tests of models of direct legislation is that the median voters' preferences are not directly measurable.[21] Hence, we also presume that

$$X_{m_i} = f(P_i) \tag{5}$$

Equations 4 and 5 can be easily combined, if we assume for both equations linear relationships:[22]

$$X_{m_i} = \beta_0 + \beta_1 \times P_i + \epsilon_i \tag{6}$$
$$|PO_i - X_{m_i}| = \gamma_0 + \gamma_1 \times dl_i + \gamma_2 \times X_i + \theta_i \tag{7}$$

[20] Matsusaka (forthcoming) suggests using the square of the difference between the policy outcome and the median voter's preferred outcome. Such an alternative specification could easily be adopted in the empirical model that follows.

[21] Hug (2001) discusses these problems as well as various empirical specifications used in the literature in more detail.

[22] The model that follows as well as an alternative empirical specification are discussed in more detail in Hug (2001).

Equations 6 and 7 can be reduced to a simple system of equations in the following way:

$$\begin{aligned}
&if PO_i - X_{m_i} > 0 \\
&\qquad PO_i = \beta_0 + \beta_1 \times P_i + \epsilon_i + \gamma_0 + \gamma_1 \times dl_i + \gamma_2 \times X_i + \theta_i \\
&\qquad\quad = \beta_0 + \beta_1 \times P_i + \gamma_0 + \gamma_1 \times dl_i + \gamma_2 \times X_i + \epsilon_i + \theta_i \\
&if PO_i - X_{m_i} \leq 0 \\
&\qquad PO_i = \beta_0 + \beta_1 \times P_i + \epsilon_i - \gamma_0 - \gamma_1 \times dl_i - \gamma_2 \times X_i - \theta_i \\
&\qquad\quad = \beta_0 + \beta_1 \times P_i - \gamma_0 - \gamma_1 \times dl_i - \gamma_2 \times X_i + \epsilon_i - \theta_i
\end{aligned} \tag{8}$$

Assuming that $\epsilon_i \sim N(0, \sigma_\epsilon^2)$ and $\theta_i \sim N(0, \sigma_\theta^2)$ and that ϵ and θ have covariance $\sigma_{\epsilon,\theta}$ it follows easily that $\epsilon + \theta \sim N(0, \sigma_\epsilon^2 + \sigma_\theta^2 + 2\sigma_{\epsilon,\theta})$ and $\epsilon - \theta \sim N(0, \sigma_\epsilon^2 + \sigma_\theta^2 - 2\sigma_{\epsilon,\theta})$. This allows us to derive the log-likelihood function for PO:

$$\begin{aligned}
llik &= \sum_i a_i * f_N(PO - \beta_0 - \beta_1 \times P_i - \gamma_0 - \gamma_1 \times dl_i - \gamma_2 \times X_i, \sigma^2_{\epsilon+\theta}) \\
&\quad + \sum_i (1 - a_i) * f_N(PO - \beta_0 - \beta_1 \times P_i + \gamma_0 + \gamma_1 \times dl_i + \gamma_2 \times X_i, \sigma^2_{\epsilon-\theta})
\end{aligned} \tag{9}$$

where $a_i = 1$ if $PO_i - X_{m_i} > 0$ and $a_i = 0$ else. Since the distribution functions in the two pieces of the log-likelihood function differ, an additional parameter has to be estimated, which corresponds to a multiple of the covariance of ϵ and θ. Apart this complication, the estimation of the parameters through maximizing equation 9 is almost trivial.

I use this empirical specification to re-analyze the presence of two sets of policies in the 50 American states. The two policy areas are affirmative action in public contracting and policies of comparable worth. Both of these policies have been recently analyzed by Santoro and McGuire (1997). Based on a reconstruction of their dataset I analyze how states differ with respect to the summary index of policies created by these two authors in these two policy areas as a function of provisions for direct legislation. I use their set of independent variables as proxies for the preferences of the median voters (e.g., as variables making up P_i in equation 5) but add one additional survey-based variable. For the affirmative action policy I add a variable measuring the average response in each state to a question in the 1988-1992 NES Pooled Senate study on government support for blacks,[23] while for the comparable worth policies the

[23]The exact question wording is the following: "Some people feel that the government in Washington should make every effort to improve the social and economic position of blacks. Others feel that the government should not make any special effort to help blacks because they should help themselves.

additional variable corresponds to the traditional liberal-conservative scale from the same source.[24]

For both policies I first estimate baseline models which do not distinguish between the effects of direct and indirect initiatives. Thus I only include a dummy indicating whether a state allows for direct legislation. Additional control variables are, following in part work by Gerber (1996 and 1999), Matsusaka and McCarty (1998), Hug (1999), Matsusaka (2000), Feld and Matsusaka (2001), and Gerber and Hug (2001), the signature requirement for launching a ballot initiatve as a percentage of the state's total voting population, the professionalization of the legislature and the turnover rate in the state's house of representative.[25] Against the results of these baseline estimates one can assess whether introducing the distinction between direct and indirect initiatives adds to the explanation of policy outcomes. In addition, the estimates for the two direct legislation dummies should demonstrate that the effect is stronger in states with direct initiatives than in those with indirect initiatives. A complication with these tests appears clearly in table 1, since several states allow for both direct and indirect initiatives. To bias the results against my hypothesis I adopt the following coding rule: if a state allows for indirect initiatives it is coded as having indirect initiatives, while a state is coded as having direct initiatives if its constitution allows such initiatives but does not allow for indirect ones.[26]

Table 2 reports the results for affirmative action policies in the area of public contracting. In the first half of the table, where only the overall effect of direct legislation is assessed, we fail to find any significant effect. The estimated coefficients for the direct legislation dummy are small and fail to reach statistical significance. In three out of the eight specifications, the estimated coefficient has the expected negative sign, though.[27] Allowing for the effect of direct legislation to vary across institutional contexts shows first that we find the negative effects for all except one specification. In five out of the remaining seven specifications we find that the effect of direct initiatives is on average stronger than the same effect for indirect initiatives. This suggests that for affirmative action policies in public contracting institutions allowing for direct

Where would you place yourself on a scale from one to seven where a measurement of one means you feel the government should make every effort to support blacks and seven means you feel the government should not make any special effort to help blacks because they should help themselves?" 1 corresponds to "Government Should Make Every Effort to Support Blacks," 7 "Government Should Not Make Any Special Effort to Help Blacks," while values between 1 and 7 represent intermediary values (Miller, Kinder, Rosenstone and NES 1999).

[24] In the appendix I provide descriptive statics for all variables employed in the analyses, as well as their sources.

[25] These variables make up the additional control variables X_i in 4.

[26] I also estimated the same model with the reverse coding between direct and indirect initiatives, as well as with a complete coding, i.e. allowing for states having a 1 on both dummy variables. The results of these additional analyses appear in the appendix.

[27] As transpires from the tables, I fail to report estimations for some models. The reason for this is that the estimations failed to converge in a reasonable time-frame. The fault lies more with my impatience and probably also with the sensitivity of the estimation procedure to the starting values. Monte-Carlo simulations should give us a much more robust assessment of the proposed estimation procedure.

Table 2: Explaining affirmative action in public contracts (summary index) in the American states

	init b (s.e.)	init turnhous b (s.e.)	init proflegi b (s.e.)	init turnhous proflegi b (s.e.)	init initp b (s.e.)	init initp turnhous b (s.e.)	init initp proflegi b (s.e.)	init initp turnhous proflegi b (s.e.)	dir,indir b (s.e.)	dir,indir turnhous b (s.e.)	dir,indir proflegi b (s.e.)	dir,indir turnhous proflegi b (s.e.)	dir,indir initp b (s.e.)	dir,indir initp turnhous b (s.e.)	dir,indir initp proflegi b (s.e.)	dir,indir initp turnhous proflegi b (s.e.)
init	-0.15	0.04	-0.05	0.36	0.07	-0.10	0.07	0.19								
	(0.35)	(0.38)	(0.42)	(0.42)	(0.68)	(0.81)	(0.74)	(0.83)								
dir2									-0.65	-0.65	-0.69	0.19	-0.85	-1.02	-0.02	-0.90
									(0.44)	(0.44)	(0.49)	(0.83)	(0.55)	(0.59)	(0.00)	(0.42)
indir2									-0.45	-0.48	-0.50	0.02	-0.86	-1.04	-0.01	-0.64
									(0.44)	(0.46)	(0.53)	(0.10)	(0.72)	(0.76)	(0.00)	(0.58)
initp					-0.01	0.02	-0.02	0.02					0.09	0.06	-0.01	0.01
					(0.08)	(0.10)	(0.08)	(0.10)					(0.06)	(0.07)	(0.00)	(0.05)
turnhous		0.01		0.01		-0.00		-0.01		-0.01		-0.01		0.24		-0.00
		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(1.60)		(0.01)
proflegi			-0.76	-2.73			-0.76	-2.18			0.29	-2.18			-1.24	-0.25
			(1.58)	(1.67)			(1.58)	(1.59)			(1.62)	(1.59)			(0.00)	(1.54)
bo	2.73	2.56	2.89	3.21	2.71	2.84	2.88	3.36	2.88	3.30	2.82	3.36	3.03	2.84	2.98	2.95
	(0.24)	(0.46)	(0.41)	(0.59)	(0.26)	(0.45)	(0.41)	(0.57)	(0.25)	(0.41)	(0.42)	(0.57)	(0.28)	(0.41)	(0.00)	(0.55)
womenlpe	-0.06	-0.07	-0.06	-0.06	-0.07	-0.07	-0.06	-0.07	-0.07	-0.05	-0.07	-0.07	-0.09	-0.07	-0.06	-0.08
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.00)	(0.03)
black80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
demprmea	0.02	0.02	0.01	-0.01	0.02	0.01	0.02	-0.02	0.02	-0.02	0.03	-0.02	-0.02	0.01	0.02	0.01
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.00)	(0.03)
deep	15.20	-2.55	13.95	-6.89	-3.01	1.36	14.20	-3.08	18.49	14.94	19.01	-3.08	-4.61	17.81	9.17	11.27
	(8.09)	(8.55)	(8.46)	(8.75)	(8.45)	(7.87)	(8.56)	(8.32)	(8.17)	(7.65)	(8.68)	(8.32)	(8.41)	(8.76)	(0.00)	(8.60)
dempdeep	-0.39	0.06	-0.36	0.17	0.07	-0.05	-0.37	0.05	-0.47	-0.39	-0.48	0.05	0.13	-0.45	-0.22	-0.27
	(0.19)	(0.20)	(0.20)	(0.20)	(0.20)	(0.19)	(0.20)	(0.20)	(0.19)	(0.18)	(0.20)	(0.20)	(0.20)	(0.20)	(0.00)	(0.20)
blackl89	0.03	-0.10	0.03	-0.10	-0.10	0.03	0.03	0.03	0.04	-0.03	0.04	0.03	-0.06	0.05	-0.09	-0.09
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.00)	(0.03)
meanblac	1.26	0.42	1.24	0.30	0.45	1.54	1.28	1.55	0.79	-0.07	0.78	1.55	-0.58	0.59	0.23	-0.54
	(0.87)	(0.87)	(0.87)	(0.85)	(0.89)	(0.97)	(0.89)	(0.97)	(0.91)	(0.92)	(0.91)	(0.97)	(0.96)	(0.92)	(0.00)	(0.75)
inccap	0.31	0.33	0.30	0.28	0.35	0.37	0.30	0.36	0.31	0.26	0.31	0.36	0.34	0.29	0.24	0.28
	(0.09)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.00)	(0.10)
c0	-9.01	-5.29	-8.29	-2.31	-5.56	-10.07	-8.56	-8.34	-6.93	-1.21	-7.10	-8.34	1.22	-5.34	-3.45	-0.25
	(4.68)	(4.61)	(4.90)	(4.90)	(4.83)	(5.32)	(5.09)	(5.43)	(4.81)	(4.94)	(4.90)	(5.43)	(5.22)	(5.18)	(0.00)	(4.18)
$\sigma_\epsilon^2 + \sigma_\theta^2 + 2 \times \sigma_{\epsilon,\theta}$	2.31	2.33	2.30	2.25	2.33	2.46	2.30	2.40	2.24	2.22	2.24	2.40	2.29	2.21	2.03	1.91
	(0.13)	(0.15)	(0.12)	(0.15)	(0.15)	(0.11)	(0.13)	(0.11)	(0.13)	(0.12)	(0.13)	(0.11)	(0.14)	(0.13)	(0.00)	(0.16)
$\sigma_{\epsilon,\theta}$	0.10	0.19	0.09	0.18	0.18	-0.01	0.10	-0.02	0.11	0.01	0.11	-0.02	0.18	0.11	0.28	0.32
(0.07)	(0.09)	(0.07)	(0.08)	(0.09)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)	(0.08)	(0.08)	(0.00)	(0.09)	
llik	-75.98	-76.24	-75.86	-74.93	-76.31	-78.42	-75.84	-77.51	-74.88	-74.53	-74.86	-77.51	-75.75	-74.41	-71.17	-69.07
n	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50

initiatives lead on average to policies more closely reflecting the voters' preferences. While institutional provisions permitting indirect initiatives still reduces the difference between the policies preferred by the voters and those adopted, the effect is smaller.

Table 3 reports the results of similar estimations for comparable worth policies. Here, we find systematically the expected negative effect for the direct legislation dummy in the first half of the table. In some specifications the estimated effect even reaches statistical significance. While the negative effect of direct legislation largely holds up for the specifications reported in the second half of the table, the theoretically predicted differences between states with direct and indirect initiatives fail to materialize. More generally, the results suggest that the difference between policy outcomes and the median voter's preferences are smaller in states allowing for indirect initiatives than in those allowing for direct initiatives. Obviously, this result is in contradiction with the theoretically derived hypothesis and the results obtained for the affirmation action in public contracts.

An explanation for this disappointing result for the comparable worth policies appears in Besley and Coate (2001). They suggest, based on their model, that issues closely related to the main political dimension relevant for elections will be adequately addressed in representative democracy. Issues orthogonal or less than perfectly related to the main political dimension, on the other hand, may be addressed by legislators in a way that does not reflect the voters wishes. Besley and Coate (2001) argue that especially in these issue areas initiatives allow for redressing policies possibly at odds with the voters wishes. Why this argument might explain the disappointing results is the fact that I used as one of the preference measures a simple ideological scale, measuring each state's degree of conservatism and liberalism.[28] But obviously, the liberal-conservative dimension is most likely main dimension in elections at the state-level. Thus, it might be that the comparable worth policies are already adequately addressed by the legislature and needs no additional changes through the initiative process.[29]

6 Conclusion

It is likely that direct legislation affects policy making in at least two ways. First, governments, faced with the possibility of an initiative challenge may want to anticipate and accommodate policy proposals of the opposition. Second, such governments may

[28] I also employed the preference measure used for the affirmative action policies, but this variable proved to be less strongly correlated with the comparable worth policies. Other survey-based preference measures proved equally disappointing.

[29] It has to be noted that Besley and Coate's (2001) argument is only convincing up to a point. For the effect of initiatives to disappear it not only has to be the case that the issue is related to the main political dimension, it also has to be the case, that the cutoff point on this dimension is the same in the population and among the legislators. Thus it might well be the case that term-limits are strongly correlated with a liberal-conservative scale, but it might be that among voters all along the liberal-conservative scale there is a majority for term-limits, while there might be only a majority for term-limits among extremely liberal (or extremely conservative) legislators.

Table 3: Explaining comparable worth policies (summary index) in the American states

	init	init	init	init	init	init	init	init	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir
					initp	initp	initp	initp					initp	initp	initp	initp
		turnhous		turnhous		turnhous		turnhous		turnhous		turnhous		turnhous		turnhous
			proflegi	proflegi			proflegi	proflegi			proflegi	proflegi			proflegi	proflegi
	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b	b
	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)
init	-0.42	-0.50	-0.37	-0.50	-0.27	-0.34	-0.91	-0.35								
	(0.24)	(0.23)	(0.25)	(0.23)	(0.53)	(0.49)	(0.60)	(0.50)								
dir2									-0.10	-0.12	-0.05	-0.21	-0.15	0.15	-0.10	0.15
									(0.31)	(0.22)	(0.29)	(0.27)	(0.33)	(0.36)	(0.33)	(0.38)
indir2									-0.43	-0.50	-0.57	-0.30	-0.36	0.24	-0.26	0.05
									(0.36)	(0.25)	(0.33)	(0.33)	(0.42)	(0.47)	(0.44)	(0.53)
initp					-0.01	-0.02	0.03	-0.02					-0.01	-0.07	-0.02	-0.07
					(0.06)	(0.05)	(0.07)	(0.05)					(0.04)	(0.04)	(0.04)	(0.05)
turnhous		0.00		0.00		0.00		0.00		-0.01		-0.01		0.00		-0.00
		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)
proflegi			0.22	0.15			-0.63	0.11			0.69	-0.55			-0.60	0.36
			(0.88)	(0.77)			(1.09)	(0.78)			(0.95)	(0.91)			(0.95)	(0.92)
bo	1.86	1.94	1.79	1.89	1.84	1.93	2.21	1.90	1.68	2.06	1.67	2.12	1.83	1.87	1.96	1.81
	(0.18)	(0.27)	(0.25)	(0.35)	(0.17)	(0.28)	(0.33)	(0.35)	(0.21)	(0.21)	(0.26)	(0.39)	(0.17)	(0.27)	(0.26)	(0.40)
womenlpe	-0.38	-0.25	-0.25	-0.25	-0.61	-0.24	-0.37	-0.25	-0.46	0.12	-0.37	-0.66	-0.59	-0.23	-0.63	-0.53
	(0.17)	(0.14)	(0.16)	(0.15)	(0.14)	(0.15)	(0.16)	(0.15)	(0.18)	(0.11)	(0.17)	(0.19)	(0.14)	(0.15)	(0.15)	(0.17)
womendem	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	-0.00	0.01	0.02	0.01	0.01	0.01	0.01
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
dempmean	0.03	0.15	0.07	0.14	-0.02	0.15	-0.04	0.14	0.01	0.31	0.03	0.02	-0.01	0.15	-0.03	-0.02
	(0.09)	(0.07)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.09)	(0.05)	(0.09)	(0.10)	(0.07)	(0.08)	(0.07)	(0.08)
deep	-0.77	-0.70	-0.66	-0.70	-0.48	-0.69	-0.45	-0.69	-3.30	-0.86	-0.96	-0.67	-0.44	-0.69	-0.45	-0.79
	(0.40)	(0.39)	(0.37)	(0.39)	(0.34)	(0.39)	(0.38)	(0.39)	(0.55)	(0.37)	(0.42)	(0.39)	(0.34)	(0.39)	(0.34)	(0.41)
afscme	-0.07	-0.42	-0.32	-0.40	-0.67	-0.41	0.19	-0.40	0.72	-0.84	0.22	-0.73	-0.63	-0.35	-0.66	-0.24
	(0.30)	(0.26)	(0.29)	(0.27)	(0.27)	(0.26)	(0.30)	(0.27)	(0.31)	(0.20)	(0.34)	(0.30)	(0.28)	(0.27)	(0.29)	(0.30)
unionsta	0.03	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.03	0.03	0.02	0.07	0.06	0.05	0.07	0.05
	(0.03)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
meanposn	-0.01	-0.03	0.01	-0.03	0.03	-0.03	-0.03	-0.03	-0.04	-0.01	-0.01	-0.01	0.03	-0.03	0.02	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
inccap	-0.07	0.10	-0.06	0.10	-0.10	0.10	0.07	0.10	-0.01	-0.00	-0.10	0.07	-0.11	0.11	-0.11	0.09
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.08)	(0.05)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.07)
c0	-1.18	-9.08	-2.07	-8.91	3.23	-9.06	0.37	-8.94	-2.90	-13.79	-0.46	-1.55	2.85	-9.13	3.49	-0.93
	(3.46)	(2.93)	(3.06)	(3.04)	(2.72)	(2.96)	(3.20)	(3.07)	(3.81)	(1.94)	(3.54)	(4.00)	(2.73)	(3.14)	(2.89)	(3.44)
$\sigma_\epsilon^2 + \sigma_\theta^2 + 2 \times \sigma_{\epsilon,\theta}$	1.30	1.14	1.26	1.14	1.15	1.13	1.52	1.13	1.71	1.03	1.30	1.25	1.14	1.14	1.13	1.27
	(0.11)	(0.07)	(0.10)	(0.07)	(0.09)	(0.07)	(0.14)	(0.07)	(0.09)	(0.04)	(0.13)	(0.09)	(0.09)	(0.08)	(0.10)	(0.10)
$\sigma_{\epsilon,\theta}$	0.05	-0.02	0.08	-0.02	0.09	-0.01	0.18	-0.01	0.08	-0.13	0.05	0.06	0.10	-0.00	0.11	0.04
	(0.07)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.07)	(0.05)	(0.06)	(0.04)	(0.08)	(0.06)	(0.05)	(0.05)	(0.06)	(0.06)
llik	-57.01	-53.30	-56.22	-53.28	-53.60	-53.23	-61.64	-53.22	-65.45	-50.86	-57.11	-55.88	-53.35	-53.33	-53.15	-56.40
n	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50

also have to rely on information provided by the opposition's launches of the initiative process. These two types of indirect influences are likely to be present, to various degrees, in all direct legislation processes, but signaling effects are likely to be indicative of the indirect initiative, while the screening effects should predominate where direct initiatives are used. Consequently, the different institutional provisions for initiatives are likely to influence differently the final policies adopted either by the government or in a popular vote.

So far, however, models of direct legislation have emphasized almost exclusively two aspects of the initiative process. First, some models address the question of how informative an initiative campaign is. Second, other models focus on the constraining effects of provisions for direct legislation. A third aspect, namely the signaling element in the initiative process, has, at least to my knowledge, escaped the scholarly attention. My results, based on a comparison between a screening and a signaling model, suggest that this third aspect of the initiative process might lead to considerably different insights.

While the signaling model used here is only one instance of a whole class of games that might be used to study direct legislation, it emphasizes a crucial point, which it shares with all signaling models. Namely, the credibility of the informed "sender" is instrumental in transmitting information to the uninformed government. This point is crucial not only in this signaling model of direct legislation, but also in the screening model. The latter's results are sensitive to the configuration of ideal points, and more particularly to the location of the opposition. But in reality there is often more than one opposition pressuring for changes in opposite directions on a particular policy issue. Will these pressures cancel out if the government engages in anticipating policy making? Probably not. It will carefully balance the positions of the different oppositions and give more weight to credible proposals. Consequently, even in the framework of a screening model credibility and reputation are important elements. But by assumption screening models, also the one presented here, hardwire the credibility of the opposition into the model.

While in the framework of a screening model, the government may heed way to an opposition to avoid a vote, in a signaling framework the government may not call all the bluffs of the opposition. Consequently, in both models it is possible that the median voter's preferences fail to find reflection in the final policy. This may even occur if the government has the same preferences as the median voter.

The empirical evidence I reported for two policies at the level of the American states suggests, however, that on average policies in initiatives states are closer to the voters' preferred policies that in states not allowing initiatives. For one policy, namely affirmative action, it appears in addition, that the voters fare better when they can use direct initiatives instead of indirect ones. For the other policy, namely comparable worth regulations, however, this effect fails to materialize.

Nevertheless, both the theoretical model and the empirical evidence suggests that different institutional provisions allowing for referendums may have considerable policy consequences. Since in several subnational, national and international contexts discussions are under way whether to introduce (e.g., Abromeit 1998), extend or restrict (Moser 1996 and Gerber 1999) direct legislation, it seems important to better understand these effects. While the models presented and discussed in this paper offer some ideas about the circumstances under which direct legislation proves beneficial, theoretical and empirical research has still ways to go to demonstrate these elusive effects.

7 Appendix

This appendix contains proofs of the propositions presented in the main text, information on the data used to test the propositions, as well as results from additional analyses.

7.1 Proofs

In this part I prove the propositions presented in the main text. I start with the screening model and then move on to the signaling model.

7.1.1 Screening model

For the screening model it is useful to state and prove two lemmas before proving proposition 1.

Lemma 1 *In equilibrium $X_i \in [X_p, X_O]$ if $X_p < X_O$ and $X_i \in [X_O, X_p]$ if $X_O \leq X_p$ provided that $X_i \neq \emptyset$.*

Proof of lemma 1: Suppose to the contrary $X_i < X_p < X_O$. It is easy to show that in equilibrium $X_i \neq \emptyset$ only if $a_M = 0$, and hence we know that $X_M \leq \frac{X_i + X_p}{1}$. But the opposition's expected utility increases as X_i increases. Similarly, as X_i approaches X_p, the range of X_Ms for which $a_M = 0$ also increases. Consequently, $X_i < X_p$ cannot be part of an equilibrium. Similarly suppose $X_O < X_i$ which implies that $\frac{X_i + X_p}{2} \leq X_M$. Assume that $\frac{X_i + X_p}{2} < X_O$ then as X_i decreases the expected utility of the opposition increases, except if $X_p + \frac{c_O}{2} > X_M$, but this can only occur if $X_i < X_M + \frac{c_O}{2}$. So again, $X_O < X_i$ cannot be part of an equilibrium. Q.E.D.

Lemma 2 *In equilibrium $X_p \in [X_G, X_O]$.*

Proof of lemma 2: Suppose first $X_p < X_G$, then given that $X_i \in [X_p, X_O]$ it follows immediately that as X_p tends towards X_G the expected utility of the government increases. Now suppose $X_O < X_p$, which implies that $X_i \in [X_O, X_p]$. But as X_p decreases the probability that $a_M = 1$ increases. When $X_p - c_O \leq X_O$ then $X_i = \emptyset$ and the government's expected utility increases as X_p tends toward X_O. Consequently, in equilibrium with $X_O \leq \overline{X_M}$ $X_p \in [X_G, X_O]$. Q.E.D.

Proof of proposition 1: Since no information transpires in the course of this game, I can solve it by backwards induction.

If a referendum occurs, the voters can choose between the government's proposal (X_p) and the opposition's proposal X_i. Since $X_G < X_O$ the voters will vote for X_i as long as $\frac{X_i + X_p}{2} < X_M$ (by lemmas 1 and 2). Given M's decision rule at the last node, O's expected utility corresponds to the following, given lemmas 1 and 2:

$$EU_O = \begin{cases} X_p - X_O & \text{if } X_i = \emptyset \\ X_p - X_O - c_O & \text{if } X_i \neq \emptyset \text{ and } a_m = 1 \\ X_i - X_O - c_O & \text{if } X_i \neq \emptyset \text{ and } a_m = 0 \end{cases} \tag{10}$$

We know from lemma 2 that the government proposes $X_p \in [X_G, X_O]$, which with lemma 1 suggests that $X_i \in [X_p, X_O]$. It follows that $X_i \neq \emptyset$ only if $X_i - X_O - c_O > X_p - X_O$ and $\frac{X_p+X_i}{2} < X_M$, which implies that $X_i - c_O > X_p$. Consequently, O maximizes $X_i - X_O - c_O$ subject to $\frac{X_p+X_i}{2} < X_M$ which leads it to propose $X_i = X_O$ if $X_O < 2X_M - X_p$ and $X_i = 2X_M - X_p - \epsilon$ else. Consequently, the opposition adopts the following strategy:

$$X_i = \begin{cases} \emptyset & \text{if } X_O - c_O \leq X_p \\ & \text{or } X_M \leq X_p + \frac{c_O}{2} \\ X_O & \text{if } X_p < X_O - c_O \text{ and } \frac{X_p+X_O}{2} < X_M \\ 2X_M - X_p - \epsilon & \text{if } X_p < X_O - c_O \text{ and } X_p + \frac{c_O}{2} < X_M \leq \frac{X_p+X_O}{2} \end{cases} \tag{11}$$

From this follows the government's expected utility function:

$$EU_G = \begin{cases} -X_p & \text{if } X_i = \emptyset \\ -X_p - c_G & \text{if } X_i \neq \emptyset \text{ and } a_m = 1 \\ -X_i - c_G & \text{if } X_i \neq \emptyset \text{ and } a_m = 0 \end{cases} \tag{12}$$

From this it follows directly that if $X_p \geq X_O - c_O$ then $EU_G(X_p) = -X_p$. Consequently, if $X_O \leq c_O$ then $X_p = X_G$ and $X_i = \emptyset$ which establishes the equilibrium for $i)$. If $X_O > c_O$ the government might propose $X_p = X_O - c_O$, which implies $X_i = \emptyset$. In that case the expected utility for the government equals $EU_G(X_p = X_O - c_O) = -X_O + c_O$. If G proposes $X_p < X_O - c_O$, then the expected utility for the government of proposing X_p is the following:

$$
\begin{aligned}
E(U_G(X_p)) &= p(X_M < X_p + \frac{c_O}{2})(-X_p) \\
&+p(X_p + \frac{c_O}{2} \leq X_M < \frac{X_p + X_O}{2})(-(2X_M - X_p) - c_G) \\
&+p(\frac{X_p + X_O}{2} \leq X_M)(-X_O - c_G) \qquad (13)\\
&= (\frac{1 + 2X_p + c_O}{2})(-X_p) \\
&+(\frac{1 + X_p + X_O}{2} - \frac{1 + 2X_p + c_O}{2}) \\
&(-2\frac{X_p + X_O}{2} + X_p + 2(\frac{2X_p + c_O}{2}) - X_p - c_G) \\
&+(1 - \frac{1 + X_p + X_O}{2})(-X_O - c_G) \qquad (14)\\
&= (\frac{1 + 2X_p + c_O}{2})(X_O - 2X_p - c_O + c_G) - X_{sq} - c_G \\
&+(\frac{1 + X_p + X_O}{2})(X_p + c_O) \qquad (15)
\end{aligned}
$$

Taking derivatives with respect to X_p yields as critical point

$$
X_p^* = \frac{3X_O - 2\overline{X_M} - 3c_O + 2c_G}{6} \qquad (16)
$$

The second derivative is negative, which indicates that X_p^* maximizes G's expected utility provided that it respects the border constraints. X_p^* exceeds 0 if $X_O > \frac{1-2c_G}{3} + c_O$. Also, this solution for X_p is smaller than $X_O - c_O$ provided that $\frac{2c_G - 1}{3} + c_O < X_O$, which is always the case since $c_G < \frac{1}{2}$ and $c_O < X_O$. Consequently, we have to look at two cases. First, if $c_O < X_O \leq c_O + \frac{1-2c_G}{3}$ then X_p^* is not feasible and G chooses between $X_O - co$ and X_G. The former yields $EU_G(X_p = X_O - c_O) = -X_O + c_O$, while the latter yields $EU_G(X_p = X_G) = \frac{2X_O c_O - c_O^2 + c_O c_G - X_O - c_G}{2}$.[30] Setting equal these two expected utilities and solving for X_O yields $\frac{c_O^2 - c_O c_G + c_G + 2c_O}{2c_O + 1}$ which is always larger than c_O and larger than $c_O + \frac{1-2c_G}{3}$ if $\frac{3c_O^2 - c_O + 1}{5 + c_O} < c_G$. Consequently, if $\frac{3c_O^2 - c_O + 1}{5 + c_O} < c_G$ and $c_O < X_O \leq c_O + \frac{1-2c_G}{3}$ G proposes $X_p = X_O - c_O$ which leads O to $X_i = \emptyset$ thus establishing the second part of iii). If $c_G \leq \frac{3c_O^2 - c_O + 1}{5 + c_O}$ then $X_p = X_O - c_O$ only if $c_O < X_O \leq \frac{c_O^2 - c_O c_G + c_G + 2c_O}{2c_O + 1}$ which again leads to $X_i = \emptyset$ and establishes the first part of iii). If $\frac{c_O^2 - c_O c_G + c_G + 2c_O}{2c_O + 1} < X_O \leq c_O + \frac{1-2c_G}{3}$ then it follows that $X_p = X_G$, which leads O, given its strategy (11) to back down ($X_i = \emptyset$) if $X_M \leq \frac{c_O}{2}$, propose $X_i = 2X_M - X_p + \epsilon$ if $\frac{c_O}{2} < X_M \leq \frac{X_O}{2}$ or $X_i = X_O$ if $\frac{X_O}{2} < X_M$. These proposals are all

[30] This expression stems from plugging X_G for X_p into equation 15.

accepted by M, which establishes $ii)$. Second, if $c_O+\frac{1-2c_G}{3} \leq X_O$ then X_p^* is a feasible proposal for G and it is easy to show that for such X_O $EU_G(X_p = X_p^*)$ is larger than $EU_G(X_p = X_p)$. Thus, G chooses between $X_p = X_O - c_O$ and $X_p = X_p^*$, and, as before, $EU_G(X_p = X_O - c_O) = -X_O + c_O$. Setting this value equal to $EU_G(X_p = X_p^*)$[31] and solving for X_O yields two solutions of which $\frac{2\sqrt{5c_G+c_Oc_G+5c_O+c_O^2}-2c_G-1-c_O}{3}$ is the relevant one.[32] This expression is smaller than $c_O + \frac{1-2c_G}{3}$ if $c_G < \frac{8c_O^2+c_O+1}{5+c_O}$. If that is the case it follows easily that G proposes $X_p = X_p^*$ if $c_O+\frac{1-2c_G}{3} < X_O$, which O leaves unchallenged ($X_i = \emptyset$) if $X_M \leq X_p^*+\frac{c_O}{2}$ establishing thus the first part of $iv)$. If $\frac{8c_O^2+c_O+1}{5+c_O} \leq c_G$ then it follows that $c_O+\frac{1-2c_G}{3} < \frac{2\sqrt{5c_G+c_Oc_G+5c_O+c_O^2}-2c_G-1-c_O}{3}$. Hence if $c_O + \frac{1-2c_G}{3} < X_O \leq \frac{2\sqrt{5c_G+c_Oc_G+5c_O+c_O^2}-2c_G-1-c_O}{3}$ then $X_p = X_O - c_O$, yielding a higher expected utility to G, is the equilibrium proposal which remains unchallenged ($X_i = \emptyset$), thus establishing the last part of $iii)$. If $\frac{2\sqrt{5c_G+c_Oc_G+5c_O+c_O^2}-2c_G-1-c_O}{3} < X_O$ then G proposes again X_p^*, which remains unchallenged provided that $X_M \leq X_p^*+\frac{c_O}{2}$, but is challenged by O with $X_i = 2X_M - X_p^* + \epsilon$ if $X_p^* + \frac{c_O}{2} < X_M \leq \frac{X_p^*+X_O}{2}$ or $X_i = X_O$ if $\frac{X_p^*+X_O}{2} < X_M$, proposals which are all accepted by M, thus establishing the last part of $iv)$. This establishes equilibrium outcomes for all values of X_O, X_M, c_O and c_G, and (A2), (A3), and (A5) insure their uniqueness. Q.E.D.

7.1.2 Signaling model

Again, I first state and prove a lemma that will prove helpful. Next, I prove proposition 2 and then proposition 3.

Lemma 3 *In equilibrium $X_i \in [X_G, X_O]$ provided that $X_i \neq \emptyset$.*

Proof of lemma 3: Suppose to the contrary $X_i < X_G$. In that case it follows immediately that O is strictly better off not proposing anything ($X_i = \emptyset$). Suppose $X_O < X_i$, then it is obvious that as X_i decreases a_M is at least non-decreasing. Similarly, G is better off accepting X_O than accepting X_i. Together with the fact that O never uses weakly dominated strategies ($A5$), this completes the proof. Q.E.D.

Proof of proposition 2: In a pooling equilibrium G cannot update its beliefs. Its expected utility function is $EU_G = a_G(-X_i) + (1 + a_G)(a_M(-c_G) + (1 - a_M)(-X_i - c_G))$, which determines G's best-reply function:

$$a_G(X_i|X_G, X_M) = \begin{cases} 1 & \text{if } \frac{c_G}{X_i} > a_M \\ [0,1] & \text{if } \frac{c_G}{X_i} = a_M \\ 0 & \text{if } \frac{c_G}{X_i} < a_M \end{cases} \tag{17}$$

[31] This unwieldy expression is easily obtained by plugging X_p^* for X_p into equation 15.

[32] The second is negative with a negative square-root. Given that we look at $X_G = 0 < X_O$ this solution is irrelevant.

O's utility function for proposing X_i corresponds to $EU_O = a_G(X_i - X_O) + (1 - a_G)[a_M(-X_O - c_O) + (1 - a_M)(X_i - X_O)]$. It easy to show that if $a_G = 0$, X_i will depend on X_M and thus a pooling equilibrium can only exist if $a_G = 1$. From this it follows that $\frac{c_G}{X_i}$ must be bigger than a_M, which corresponds to G's prior belief $p(X_M < \frac{X_i}{2}) = \frac{1+X_i}{2}$. Solving the equation $\frac{c_G}{X_i} > \frac{1+X_i}{2}$ for X_i yields $X_i < \frac{\sqrt{1+8c_G}-1}{2}$. From this it follows straightforwardly that if $X_O < \frac{\sqrt{1+8c_G}-1}{2}$ then $X_i = X_O \; \forall X_M \in [\underline{X_M}, \overline{X_M}]$.[33] Q.E.D.

Corollary 1 *The only pure strategy equilibria of the signaling game are of the following type:* $X_i = X_O < \frac{\sqrt{1+8c_G}-1}{2}$ *and* $a_G(X_i < \frac{\sqrt{1+8c_G}-1}{2}) = 1$.

Corollary 1 follows easily from the proof of proposition 2. For $X_i > \frac{\sqrt{1+8c_G}-1}{2}$, the optimal X_i for O is a function of X_M. If X_i reveals perfectly X_M, G will accept all "reasonable" X_is. But this will lead O with private information of a low X_M to imitate higher types. Consequently, $a_G = 1$ cannot sustain a separating equilibrium and is not optimal for G. But if $a_G = 0$ then it is optimal for O to separate according to X_M. Then, however, $a_G = 0$ is not an optimal response.

Proof of proposition 3: The simplest potential semi-pooling equilibrium relies on the following strategy by O:

$$O : X_i(X_M) = \begin{cases} X_i^* & \text{if } X_M \leq \frac{Q}{2} \\ X_O & \text{else} \end{cases} \tag{18}$$

Given its utility function G accepts $X_i = X_i^*$ with certainty, but accepts $X_i = X_O$ with $a_G < 1$. For this to be possible, G's updated belief has to correspond to $\frac{c_G}{X_O}$. The updated belief $p(X_M < \frac{X_O}{2} | X_i = X_O) = (\frac{X_O}{2} - \frac{Q}{2})(\overline{X_M} - \frac{Q}{2})^{-1} = \frac{X_O - Q}{1-Q}$, provided that $Q \leq X_O$.[34] Consequently, in equilibrium X_i^* has to fulfill the following condition:

$$\begin{aligned} \frac{c_G}{X_O} &= \frac{1 - X_O}{1 - Q} \\ c_G - c_G Q &= X_O^2 - Q X_O \\ Q &= \frac{X_O^2 - c_G}{X_O - c_G} \end{aligned} \tag{19}$$

Similarly, if $a_G(X_i^*) = 1$ then it has to hold that $\frac{c_G}{X_i^*} > a_M$. Since a_M corresponds to the posterior belief $p(a_M = 1 | X_i < X_O) = (\frac{1}{2} + \frac{X_i^*}{2})(\frac{1}{2} + \frac{Q}{2})^{-1} = \frac{1+X_i^*}{1+Q}$, this latter expression has to smaller than $\frac{c_G}{X_i^*}$. Solving for X_i^* yields the following condition

[33] It is easy to show that this pooling equilibrium extends to $\frac{\sqrt{1+8c_G}-1}{2} \leq X_O < \frac{\sqrt{1+8c_G}-1}{2} + c_O$. In this region of X_O there exists, however, also a semi-pooling equilibrium. It is easy to demonstrate that in this region the pooling equilibrium fails to survive the application of the D1-criterion

[34] Obviously, if $X_O < Q$ then G's belief $p(X_M < \frac{X_O}{2} | X_i = X_O) = 1$ follows trivially.

$$\frac{\sqrt{1 + 4 * c_G + 4c_G Q} - 1}{2} \;\; > \;\; X_i^* \tag{20}$$

Similarly, the condition that $\frac{c_G}{X_i^*} > \frac{1+X_i^*}{1+Q}$ also imposes a constraint on Q, namely that $Q = \frac{X_O^2 - c_G}{X_O - c_G} > \frac{X_i^{*2} + X_i - c_G}{c_G}$. It is easy to show that solving this equation for X_i^* yields the same condition as equation 20 for the relevant ranges of X_O. Hence, solving equation 20 for X_i gives us the upper limit for the opposition's proposal:

$$X_i^* \;\; < \;\; \frac{\sqrt{X_O{}^2 - 2c_G X_O + c_G{}^2 + 4c_G X_O{}^3 - 12 X_O c_G{}^2 + 4c_G X_O{}^2 - 4c_G{}^2 X_O{}^2 + 8c_G{}^3}}{2(X_O - c_G)} - \frac{1}{2} \tag{21}$$

It is easy (though tedious) to show that this upper limit for X_i^* is strictly smaller than X_O for all $X_O > \frac{\sqrt{1+8c_G} - 1}{2}$. Hence, the limit provides the optimal proposal for X_O.[35] Whether this X_i^* can be part of an equilibrium depends on whether a series of incentive compatibility constraints hold. First, $\forall X_O > \frac{Q}{2}$ it has to hold that the proposal $X_i = X_O$ yields a higher payoff than $X_i = X_i^*$:

$$a_G(0) + (1 - a_G)(a_M(-X_O - c_O) + (1 - a_M)(-c_O)) \;\; \geq \;\; X_i^* - X_O \tag{22}$$

Since we already know that $\frac{Q}{2} < \frac{X_O}{2}$ equation 22 has to hold both for $X_M \in (\frac{Q}{2}, \frac{X_O}{2}]$ and $X_M > \frac{X_O}{2}$. In the former case $a_M(X_i = X_O) = 1$ which reduces equation 22 to $a_G \geq \frac{X_i^* + c_O}{X_O + c_O}$ which is always strictly smaller than 1, given that $X_i^* < X_O$. In the latter case $a_M(X_i = X_O) = 0$ which reduces equation 22 to $a_G \geq \frac{X_i^* - X_O - c_O}{c_O}$ which is never binding, since the right-hand side is strictly negative. Hence, this incentive compatibility constraint reduces to $a_G \geq \frac{X_i^* + c_O}{X_O + c_O}$.

Second, $\forall X_M \leq \frac{Q}{2}$ it has to be true that the accepted proposal X_i^* yields a higher payoff than the gamble of having O's ideal-point accepted with probability a_G. Consequently, the following has to hold:

$$X_i^* - X_O \;\; \geq \;\; a_G(0) + (1 - a_G)(-X_O - c_O) \tag{23}$$

This yields $\frac{X_i^* + c_O}{X_O + c_O} \geq a_G$. Combining the two incentive compatibility constraints yields as unique solution $\frac{X_i^* + c_O}{X_O + c_O} = a_G$. Q.E.D.

[35] This obviously only holds if the upper limit of X_i defined in equation 21 is larger than c_G, since $X_i = c_G$ leads to automatic acceptance by G (by equation 17). This is the case if $\frac{c_G + \sqrt{4c_G - 3c_G^2}}{2} \leq X_O$.

7.2 Data

Tables 5 reports descriptive statistics of the variables employed in the analysis of affirmative action in public contracts and policies of comparable worth. Tables 6-9 report additional results of analysis referred to in the main text. In tables 6 and 8 the dummies dir and $indir$ refer to the coding reported in table 1. In tables 7 and 9 dir is equal to 1 if the state has the direct initiative, while $indir$ is equal to 1 if the state has no direct initiative but only an indirect one.

Table 4: Sources of variables for affirmative action and comparable worth policies

variable	source
AACI	affirmative action composite index (Santoro and McGuire 1995)
MEANBLAC	mean response to question on support for blacks (Miller, Warren E., Donald R. Kinder, Steven J. Rosenstone, and the National Election Studies. 1993)
INIT	presence of initiative (Magleby, 1994)
INITP	signature requirement in percentage of voting population (Magleby, 1994)
INCCAP	income per capita (Council of State Governments 1989)
DEEP	southern states
DEMPRMEA	mean vote for democratic presidential candidate (1980-1988) (Statistical Abstracts of the United States 1990)
PROFLEGI	Professionalization of legislature (Squire 1992)
TURNHOUS	Turnover rate of state house (1994) (Council of State Governments 1997, 70)
DIR	direct initiative (http://c2d.unige.ch/c2d/international/usa/usa.html (accessed October 30, 1999)
INDIR	indirect initiative (http://c2d.unige.ch/c2d/international/usa/usa.html (accessed October 30, 1999)
DEMPDEEP	interaction between deep and demprmea
BLACLE89	number of black US and state legislators in 1989 (Statistical Abstracts of the United States 1990, 260)
BLACK80	black population in 1980 (Statistical Abstracts of the United States 1990)
WOMENLPE	percentage of female state legislators (Council of State Governments 1989)
DIR1	direct initiative
INDIR1	indirect initiative and no direct initiative
DIR2	direct initiative and no indirect initiative
INDIR2	indirect initiative
COMPWORT	comparable worth policies composite index (Santoro and McGuire 1995)
UNIONSTA	number of unions for state employees (Council of State Governments 1980, 254)
AFSCME	affiliation with AFSCME (yes/no) (Council of State Governments 1980, 254)
MEANPOSN	mean response on liberal-conservative scale (Miller, Warren E., Donald R. Kinder, Steven J. Rosenstone, and the National Election Studies. 1993)
WOMENDEM	interaction between women legislators and mean vote for democratic presidential candidate

Table 5: Descriptive statistics for affirmative action and comparable worth policies

variable	minimum	mean	maximum	std dev	N
AACI	-3.27	0	7.99	3.49	50
MEANPOSN	-50.6329	-27.35	-2.4242	11.67	50
MEANBLAC	3.7107	4.23	4.8976	0.23	50
INIT	0	0.48	1	0.5	50
INITP	0	3.72	15	4.37	50
INCCAP	9.08	12.7	20.01	2.34	50
DEEP	0	0.22	1	0.42	50
DEMPRMEA	28.83	43.77	56.7	5.37	50
PROFLEGI	0.04	0.22	0.66	0.14	50
TURNHOUS	2	21.9	55	12.68	50
DIR	0	0.38	1	0.49	50
INDIR	0	0.18	1	0.39	50
DEMPDEEP	0	9.42	45.27	17.95	50
MEANBLAC	3.7107	4.23	4.8976	0.23	50
BLACLE89	0	8.8	31	8.97	50
BLACK80	1	520.92	2402	623.33	50
WOMENLPE	2.11	16.86	32.08	7.56	50
DIR1	0	0.38	1	0.49	50
INDIR1	0	0.08	1	0.27	50
DIR2	0	0.28	1	0.45	50
INDIR2	0	0.18	1	0.39	50
COMPWORT	-2.05	0	5.01	2.4	50
UNIONSTA	0	4.3	20	5.41	50
DEMPMEAN	28.83	43.77	56.7	5.37	50
AFSCME	0	0.52	1	0.5	50
MEANPOSN	-50.6329	-27.35	-2.4242	11.67	50
WOMENDEM	94.15	735.41	1493.15	338.45	50

Table 6: Explaining affirmative action (summary index) (dir/indir)

	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir
					initp	initp	initp	initp
		turnhous		turnhous		turnhous		turnhous
			proflegi	proflegi			proflegi	proflegi
	b	b	b	b	b	b	b	b
	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)
dir	-0.40	-0.19	0.12	-0.73	-0.18	-0.31	-0.70	-0.39
	(0.38)	(0.35)	(0.42)	(0.40)	(0.42)	(0.48)	(0.45)	(0.48)
indir	-0.18	-0.08	0.25	-0.55	-0.10	-0.31	-0.52	-0.33
	(0.44)	(0.44)	(0.44)	(0.47)	(0.56)	(0.66)	(0.55)	(0.62)
initp					0.01	0.05	-0.01	0.04
					(0.06)	(0.07)	(0.06)	(0.07)
turnhous		-0.02		-0.00		-0.00		-0.01
		(0.02)		(0.02)		(0.02)		(0.02)
proflegi			-2.42	3.49			3.58	0.58
			(1.64)	(1.78)			(1.79)	(2.20)
bo	3.05	3.50	3.44	2.42	2.75	2.80	2.36	3.23
	(0.24)	(0.44)	(0.44)	(0.55)	(0.26)	(0.44)	(0.41)	(0.85)
womenlpe	-0.04	-0.02	-0.08	-0.04	-0.07	-0.06	-0.04	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
black80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
demprmea	-0.01	-0.05	-0.02	0.03	0.02	0.01	0.04	-0.05
	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)
deep	13.70	-6.01	-8.02	17.32	-2.94	1.68	18.06	-5.61
	(7.42)	(6.88)	(8.57)	(7.65)	(8.48)	(8.13)	(7.95)	(8.72)
dempdeep	-0.36	0.12	0.21	-0.45	0.07	-0.06	-0.47	0.11
	(0.17)	(0.17)	(0.20)	(0.18)	(0.20)	(0.19)	(0.19)	(0.21)
blackl89	-0.03	-0.01	-0.08	-0.04	-0.09	0.03	-0.04	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
meanblac	0.06	0.94	0.07	-0.04	0.26	1.32	-0.03	0.70
	(0.92)	(0.84)	(0.94)	(0.89)	(0.93)	(1.01)	(0.94)	(0.95)
inccap	0.26	0.38	0.32	0.29	0.35	0.35	0.29	0.36
	(0.09)	(0.09)	(0.11)	(0.09)	(0.10)	(0.11)	(0.09)	(0.10)
c0	-2.15	-6.06	-1.26	-4.32	-4.69	-8.91	-4.59	-4.88
	(4.88)	(4.54)	(4.94)	(4.86)	(4.85)	(5.46)	(5.25)	(4.86)
$\sigma_\epsilon^2 + \sigma_\theta^2 + 2 \times \sigma_{\epsilon,\theta}$	2.26	2.23	2.30	2.14	2.32	2.44	2.14	2.22
	(0.12)	(0.11)	(0.13)	(0.11)	(0.15)	(0.12)	(0.11)	(0.12)
$\sigma_{\epsilon,\theta}$	0.01	-0.21	0.15	0.00	0.18	0.01	0.01	-0.19
	(0.07)	(0.10)	(0.08)	(0.07)	(0.09)	(0.08)	(0.07)	(0.11)
llik	-75.13	-74.68	-75.86	-73.19	-76.22	-78.17	-73.19	-74.48
n	50	50	50	50	50	50	50	50

Table 7: Explaining affirmative action (summary index) (dir1/indir1)

	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir
					initp	initp	initp	initp
		turnhous		turnhous		turnhous		turnhous
			proflegi	proflegi			proflegi	proflegi
	b	b	b	b	b	b	b	b
	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)
dir1	-0.54	-0.18	0.07	-1.08	-0.89	-0.80	-1.41	-1.00
	(0.38)	(0.41)	(0.47)	(0.44)	(0.39)	(0.64)	(0.61)	(0.59)
indir1	-0.67	-0.28	-0.09	-1.28	-1.22	-1.30	-1.82	-1.30
	(0.64)	(0.69)	(0.60)	(0.67)	(0.63)	(1.07)	(0.97)	(0.93)
initp					0.05	0.10	0.06	0.07
					(0.05)	(0.08)	(0.07)	(0.07)
turnhous		-0.00		-0.01		0.00		-0.01
		(0.02)		(0.02)		(0.02)		(0.02)
proflegi			-2.08	3.86			3.75	0.13
			(1.71)	(1.72)			(1.71)	(1.58)
bo	3.12	2.95	3.42	2.50	2.81	2.83	2.42	2.97
	(0.25)	(0.42)	(0.45)	(0.52)	(0.26)	(0.42)	(0.40)	(0.54)
womenlpe	-0.04	-0.07	-0.07	-0.05	-0.07	-0.07	-0.05	-0.07
	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)	(0.03)
black80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
demprmea	-0.01	0.02	-0.01	0.03	0.01	-0.01	0.02	0.00
	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.05)	(0.05)	(0.05)
deep	15.03	3.12	-7.29	20.30	12.44	1.84	19.61	17.01
	(7.48)	(7.91)	(8.76)	(7.75)	(8.12)	(7.91)	(7.67)	(8.80)
dempdeep	-0.39	-0.10	0.19	-0.52	-0.30	-0.07	-0.50	-0.44
	(0.17)	(0.19)	(0.20)	(0.18)	(0.19)	(0.19)	(0.18)	(0.21)
blackl89	-0.03	0.03	-0.08	-0.03	-0.08	0.05	-0.02	0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
meanblac	-0.02	1.44	0.03	-0.22	-0.38	1.07	-0.41	0.64
	(0.83)	(1.00)	(0.96)	(0.88)	(0.72)	(1.03)	(0.90)	(0.92)
inccap	0.24	0.36	0.31	0.28	0.23	0.33	0.26	0.28
	(0.09)	(0.10)	(0.11)	(0.09)	(0.08)	(0.10)	(0.09)	(0.10)
c0	-1.53	-9.88	-1.33	-3.28	-0.50	-6.74	-1.59	-5.13
	(4.47)	(5.24)	(4.99)	(4.73)	(3.87)	(5.76)	(5.21)	(5.24)
$\sigma_\epsilon^2 + \sigma_\theta^2 + 2 \times \sigma_{\epsilon,\theta}$	2.23	2.45	2.31	2.08	1.91	2.41	2.07	2.20
	(0.12)	(0.11)	(0.14)	(0.11)	(0.16)	(0.11)	(0.11)	(0.13)
$\sigma_{\epsilon,\theta}$	0.01	0.00	0.16	0.01	0.33	0.00	0.01	0.12
	(0.07)	(0.07)	(0.08)	(0.07)	(0.09)	(0.07)	(0.07)	(0.07)
llik	-74.69	-78.30	-76.02	-72.15	-69.04	-77.55	-71.91	-74.23
n	50	50	50	50	50	50	50	50

Table 8: Explaining comparable worth policies (dir/indir)

	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir	dir,indir
					initp	initp	initp	initp
		turnhous		turnhous		turnhous		turnhous
			proflegi	proflegi			proflegi	proflegi
	b	b	b	b	b	b	b	b
	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)
dir	-0.18	-0.39	-0.09	-0.15	-0.32	-0.02	0.06	-0.38
	(0.23)	(0.23)	(0.27)	(0.25)	(0.27)	(0.28)	(0.32)	(0.36)
indir	-0.36	-0.18	-0.54	-0.44	-0.32	-0.16	-0.35	0.03
	(0.29)	(0.28)	(0.31)	(0.32)	(0.33)	(0.36)	(0.39)	(0.49)
initp					-0.00	-0.04	-0.03	-0.02
					(0.03)	(0.04)	(0.04)	(0.05)
turnhous		0.00		-0.01		-0.00		-0.00
		(0.01)		(0.01)		(0.01)		(0.01)
proflegi			0.72	0.27			0.51	-0.74
			(0.95)	(0.88)			(0.98)	(1.58)
bo	1.77	1.83	1.67	1.98	1.87	1.84	1.74	3.04
	(0.17)	(0.26)	(0.26)	(0.36)	(0.17)	(0.29)	(0.27)	(0.56)
womenlpe	-0.27	-0.27	-0.37	-0.16	-0.59	-0.26	-0.40	-0.07
	(0.16)	(0.15)	(0.17)	(0.17)	(0.14)	(0.17)	(0.17)	(0.03)
black80	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
demprmea	0.13	0.14	0.03	0.12	-0.00	0.13	0.02	0.02
	(0.08)	(0.07)	(0.09)	(0.09)	(0.07)	(0.08)	(0.09)	(0.04)
deep	-0.56	-0.64	-0.97	-0.67	-0.43	-0.60	-0.97	9.94
	(0.37)	(0.40)	(0.42)	(0.39)	(0.34)	(0.37)	(0.40)	(8.73)
dempdeep	0.09	-0.43	0.21	-0.31	-0.69	0.09	0.24	-0.24
	(0.27)	(0.27)	(0.34)	(0.31)	(0.28)	(0.27)	(0.32)	(0.20)
blackl89	0.03	0.05	0.02	0.04	0.06	0.03	0.02	-0.09
	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
meanblac	-0.02	-0.02	-0.01	0.01	0.03	-0.02	-0.01	-0.12
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.76)
inccap	-0.02	0.09	-0.10	-0.10	-0.10	-0.01	-0.08	0.29
	(0.06)	(0.06)	(0.07)	(0.07)	(0.07)	(0.06)	(0.07)	(0.10)
c0	-6.69	-8.71	-0.66	-3.36	2.44	-6.91	-0.22	-2.63
	(3.52)	(2.96)	(3.61)	(3.30)	(2.69)	(3.50)	(3.51)	(4.21)
$\sigma_\epsilon^2 + \sigma_\theta^2 + 2 \times \sigma_{\epsilon,\theta}$	1.20	1.16	1.30	1.24	1.11	1.18	1.29	1.99
	(0.10)	(0.08)	(0.13)	(0.11)	(0.09)	(0.10)	(0.13)	(0.16)
$\sigma_{\epsilon,\theta}$	0.07	-0.02	0.04	0.06	0.10	0.07	0.06	0.29
	(0.06)	(0.05)	(0.08)	(0.07)	(0.05)	(0.06)	(0.08)	(0.08)
llik	-54.74	-53.79	-57.08	-55.59	-52.73	-54.23	-56.78	-70.58
n	50	50	50	50	50	50	50	50

Table 9: Explaining comparable worth policies (dir1/indir1)

	dir,indir	dir,indir turnhous	dir,indir proflegi	dir,indir turnhous proflegi	dir,indir initp	dir,indir initp turnhous	dir,indir initp proflegi	dir,indir initp turnhous proflegi
	b	b	b	b	b	b	b	b
	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)	(s.e.)
dir1	-0.28	-0.39	-0.40	-0.42	-0.12	0.22	0.15	-0.86
	(0.25)	(0.23)	(0.24)	(0.25)	(0.31)	(0.36)	(0.36)	(0.41)
indir1	-0.06	0.02	0.16	0.17	0.35	1.16	0.32	-1.29
	(0.48)	(0.42)	(0.46)	(0.49)	(0.51)	(0.67)	(0.61)	(0.68)
initp					-0.04	-0.10	-0.07	0.06
					(0.04)	(0.04)	(0.04)	(0.06)
turnhous		-0.02		-0.00		-0.00		0.00
		(0.01)		(0.01)		(0.01)		(0.01)
proflegi			0.12	-0.40			0.16	-0.44
			(0.75)	(0.89)			(0.98)	(1.56)
bo	1.77	2.28	1.82	2.01	1.83	1.95	1.73	2.80
	(0.17)	(0.27)	(0.23)	(0.40)	(0.17)	(0.25)	(0.27)	(0.54)
womenlpe	-0.46	-0.58	-0.26	-0.73	-0.34	-0.26	-0.56	-0.07
	(0.17)	(0.14)	(0.14)	(0.18)	(0.16)	(0.14)	(0.16)	(0.02)
black80	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
demprmea	0.11	0.01	0.15	-0.00	0.13	0.15	-0.04	0.00
	(0.09)	(0.07)	(0.07)	(0.10)	(0.08)	(0.07)	(0.08)	(0.04)
deep	-0.49	-0.54	-0.65	-0.74	-0.37	-0.69	-0.71	12.44
	(0.40)	(0.34)	(0.39)	(0.40)	(0.33)	(0.38)	(0.37)	(8.64)
dempdeep	-0.37	-0.77	-0.42	-0.60	-0.71	-0.43	0.16	-0.30
	(0.28)	(0.25)	(0.26)	(0.30)	(0.26)	(0.26)	(0.28)	(0.20)
blackl89	0.05	0.06	0.05	0.07	0.07	0.05	0.03	-0.08
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
meanblac	0.00	0.04	-0.02	-0.02	0.01	-0.02	-0.01	-0.37
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.72)
inccap	-0.09	-0.13	0.09	0.08	-0.07	0.10	-0.00	0.20
	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.06)	(0.07)	(0.10)
c0	-3.91	3.12	-8.92	-1.53	-4.55	-8.75	0.77	0.07
	(3.46)	(2.66)	(2.93)	(3.70)	(3.26)	(2.65)	(3.22)	(4.23)
$\sigma_\epsilon^2 + \sigma_\theta^2 + 2 \times \sigma_{\epsilon,\theta}$	1.28	1.06	1.16	1.28	1.10	1.06	1.28	1.90
	(0.09)	(0.08)	(0.07)	(0.09)	(0.08)	(0.07)	(0.12)	(0.16)
$\sigma_{\epsilon,\theta}$	0.03	0.06	-0.04	0.03	0.09	-0.04	0.10	0.33
	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.07)	(0.09)
llik	-56.65	-51.37	-53.93	-56.48	-52.35	-51.51	-56.47	-68.92
n	50	50	50	50	50	50	50	50

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