Expert Captured Democracies

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Expert Captured Democracies[*]

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Abstract

Does public cheap talk by a biased expert benefit voters? The answer depends on the nature of democratic institutions and the extent of communication possibilities. Expert endorsements induce office-seeking parties to serve the expert's interests, hurting voters. Expert advocacy makes policies respond to information, helping voters. Together, policy advocacy and partisan endorsements are often better than either alone. Their interaction creates a delegation benefit of indirect democracy. Voters may prefer this institution to one where policymaking is geared to serving the public interest. Direct expert capture of one party is another form of delegation and the best institution for voters.

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Keywords experts, endorsements, advocacy, electoral competition, indirect democracy, cheap talk, intermediation, delegation.

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1 Introduction

Democratic decision making in modern societies increasingly relies on critical scientific input. The following questions are instantly recognizable from contemporary policy debates. Is there anthropogenic global warming? If so, how large an economic cost should we bear to reduce carbon emissions? Are genetically modified foods safe to eat? Does austerity prolong a recession or does it revive economies by restoring fiscal health? Can radiation from cell phones cause cancer?

These kinds of questions are central to the design of environmental policy, food and drugs regulation, business cycle management, technology policy and international relations. Voters and politicians must turn to a small coterie of specially trained experts to learn the answers. Yet, incorporating expert advice into policy making is not straightforward because experts are often perceived as biased. Scientists who certify GM foods as safe are accused of being funded by large agribusiness companies.[1] Climate scientists who warn of climate change do not face the economic burden of abatement the way coal miners and steel workers do.[2] Advocates of austerity are thought to have other right wing goals such as keeping government small or resisting redistribution. Scientists who certify safety of consumer products like cell phones are accused of bias due to their reliance on research funding from industry.[3]

The rift between expert opinion and popular sentiment is starkly illustrated by the public debate over the economic consequences of Brexit. The British Treasury, OECD, IMF, think tanks

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[1] The homepage of Britain's *Royal Society* (https://royalsociety.org/topics-policy/projects/gm-plants/is-it-safe-to-eat-gm-crops/) says, "Since the first widespread commercialisation of GM produce 18 years ago there has been no evidence of ill effects linked to the consumption of any approved GM crop." Yet, the anti-GMO movement is strong all over the world. *Greenpeace* has declared golden rice, a fortified rice variety developed by scientists working for the biotech industry to tackle Vitamin A deficiency, as "simply the wrong approach and a waste of money" that is "subjecting the population to unknown health risks" (Greenpeace (2013)). The mistrust between scientists and activists on this issue was underscored when 107 Nobel Prize winners signed a letter condemning the opposition to GM technology (Washington Post (2016)).

[2] In 2009, a global controversy was triggered by email correspondence among climate scientists that were made public when servers at the University of East Anglia were hacked. "These e-mails show a pattern of suppression, manipulation and secrecy that was inspired by ideology, condescension and profit," said Rep. James Sensenbrenner (R-Wisconsin) in the U.S. Congress. The scientific community denied the charges (Borenstein (2009)).

[3] A critical report in the *Guardian Observer* says: "(L)ike the tobacco and fossil-fuel industries, the wireless industry has "war-gamed" science...War-gaming science involves playing offence as well as defence – funding studies friendly to the industry while attacking studies that raise questions; placing industry-friendly experts on advisory bodies such as the World Health Organisation..." (Dowie and Hertsgaard (2018)).

and an overwhelming majority of economists surveyed (Sodha et al., (2016)) warned that Brexit will negatively affect the British economy for years to come. But Conservative MP Michael Gove declared: "People in this country have had enough of experts." The results of the 2016 referendum vindicated Gove, even as David Cameron's decision to hold a referendum in the first place was labelled by critics as "Russian roulette for republics" (Rogoff (2016)), on the grounds that popular opinion on such a complex issue can be ill-informed and unstable. This paper examines the role of experts in shaping public policy and compares alternative institutional mechanisms, direct and indirect democracy, from that perspective.

Optimal policy is usually a function of both objective information and subjective preferences. When the expert's preferences are known to be different from that of the average member of the public, perhaps due to differences in economic interest or ideology, the public and the expert would disagree as to what the best policy is even under symmetric information. In processing expert advice under asymmetric information, the public and the politicians face a signal extraction problem – to what extent is the advice derived from the expert's scientific knowledge and to what extent is it shaped by her non-scientific preferences or values?

We study how democracy is affected by expert opinion in the presence of such credibility constraints. We present a simple Downsian model in which voters and an expert have state-contingent distance-based quadratic preferences. Only the expert is privately informed about the state-of-the-world, which she can communicate through public cheap talk messages. Office seeking politicians commit to policy platforms and compete for votes. The expert may send a public message before platforms are chosen to influence political parties (we call this *policy advocacy*) and communicate after platform choice to influence voters (we call this *partisan endorsement*). The framework combines in a natural way the Hotelling (1929) model of spatial competition and the Crawford and Sobel (1982) model of strategic communication. It is a model of representative or *indirect democracy*, operating under the influence of an informed expert who has an ideological conflict with the average voter.[4]

What is the value of an expert in such a setting? To the extent policy choices incorporate

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[4]The idea that an informed interest group, possibly aligned with the elite, exerts a disproportionate influence on the democratic process has widespread currency. Frank (2005) argues that ordinary voters are persuaded to vote against their economic interests by propaganda and slanted media coverage. See also Herman and Chomsky (1988) on "manufacturing consent" and Schumpeter (1942) on how the "common will is often manufactured by those with an axe to grind."

the expert's information, she serves the public interest. To the extent they are influenced by her preference bias, she may impose harm on the average voter. How these two forces will play out is the central concern of the paper.

Since policies are not directly chosen by the voter but mediated by third parties (politicians) with their own motives, Blackwell's theorem cannot be invoked to infer that the social value of experts must be non-negative in a representative democracy. As it turns out, voter welfare critically depends on which form(s) of communication the expert can engage in, policy advocacy aimed at parties or partisan endorsements aimed at voters; in particular, it depends on their interaction.

Suppose first the expert only practices partisan endorsements. Policy advocacy is shut down by assumption. Then platform choice cannot benefit from expert knowledge since the expert speaks only after platforms have been selected. For reasons familiar from the complete information Hotelling model, electoral competition leads to platform convergence. There is no real choice facing the voter. So voters do not benefit from the expert's information either. Yet electoral incentives lead political parties to pander to the expert. The lure of expert endorsements forces both platforms to converge not at the expected ideal point of the median voter but closer to the expected ideal point of the expert. This platform distortion, not counteracted by any informational gain, means the expert imposes a net harm on the average voter. The social value of expertise is negative. Experts are a liability if their engagement with public policy is purely short term, nothing more than partisan endorsements of platforms that are already established.[5]

Suppose next the expert cannot provide endorsements but can engage in policy advocacy, i.e., express opinions about the merits of alternative policies before election campaigns are launched. Since there is no last minute partisan endorsement to influence voter choice, equilibrium platforms will always converge to the policy that is optimal for the median voter conditional on the expert's policy advice. Since platforms maximize the median voter's expected payoff conditional on available information, the expert's presence can only be welfare enhancing for the median voter in this case.

An interesting *synergy* can arise when the expert engages in both kinds of communication, policy advocacy followed by partisan endorsements. We show that the average voter may be better off in this scenario compared to situations where the expert practices either form of communication alone.

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[5]Interestingly, the magnitude of platform distortion is related to the expert's bias in a non-monotonic fashion. For a given level of uncertainty about the underlying state, maximum distortion is caused by moderately biased experts. Extremely biased experts have little or no influence on platforms because their endorsements are more indicative of their bias than their information.

Partisan endorsements reduce voter welfare ex post by distorting platforms. But this distortion encourages the expert to engage in informative policy advocacy, creating a synergy that raises ex ante voter welfare beyond what policy advocacy alone could achieve.

The key intuition behind this result is related to the delegation literature for cheap talk games (Holmstrom (1984), Dessein (2002)). An uninformed decision maker, in deciding whether to delegate decision making to an informed but biased advisor, faces a trade-off between tolerating distorted choices (in the case of delegation) versus less informed choices (when relying on cheap talk advice). Unless the advisor is extremely biased, the trade-off is resolved in favor of delegation. A similar force is at play here. The expert assumes de facto decision making power through her ability to pull electoral outcomes towards her preferred policies using her endorsements, which incentivizes her to reveal more information before campaigns rather than withholding information to manipulate choices. Most voters are better off gaining information at the cost of policy distortion.[6]

We precisely identify the delegation benefits of indirect democracy by comparing its outcome with a benchmark that we call direct democracy. Under direct democracy, policies are not chosen by competing office seeking parties. Instead, they are chosen by a utilitarian social planner, or parties motivated by the public interest rather than electoral prospects. Given the available information from the expert, policies under direct democracy maximize voter welfare. But absent the slant of policies towards the expert's bias that is a key feature of indirect democracy, the expert is less informative under direct democracy. Exactly when the interaction of advocacy and endorsements creates synergies, indirect democracy is better than direct democracy for most voters.

When the expert's bias is very large, the gain from better information under indirect democracy can be swamped by the loss from distorted policies. But this is an extreme case. As long as there is any possible benefit from making policies responsive to information, under either direct or indirect democracy, it is indirect democracy that delivers the greater net benefit.[7]

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[6] The trade-off between informed policy making and democratic policy making that is our focus is a concern that has ancient roots. Mill (1861), discussing similar issues, suggested allocating more votes to better educated voters. Even earlier, Plato argued that enlightened philosopher kings, not popular mandate, should steer the ship of state. We take as given democratic participation. We show how well (or badly) the institution performs in aggregating information via de facto, not de jure, delegation.

[7] The literature views direct and indirect democracy as processes that trade off politicians' corruptibility (Kalt and Zupan (1984), Peltzman (1984), Gerber (1996)) against voters' ignorance of policy issues (Maskin and Tirole (2004)). We bring a different perspective to this debate, comparing direct and indirect democracy as mechanisms for acquiring information from third parties (experts). The increasing use of referendums and ballot measures in many

The de facto delegation property of electoral competition is further illustrated in an extension of the model where experts are endowed not just with the power of making public statements but are assumed to dictate the platform choice of one party to promote their policy objectives. We show that under such direct capture of the democratic process by experts, average voter welfare is even higher. Indeed, there exists an equilibrium where the optimal mechanism (Holmstrom (1984)) from the median voter's perspective is replicated through electoral competition. This optimal mechanism takes the form of capped delegation, i.e., the expert's preferred policy is chosen in equilibrium subject to an upper (lower) bound if the expert has an upward (downward) bias.

Several broad lessons emerge from our analysis. First, for expertise to improve democratic outcomes, it is necessary that experts have a long term engagement with the political process, conveying their opinion about the intrinsic merits of different policies and shaping the political agenda before elections, not merely throwing their support behind particular parties and candidates late in the game. Experts must engage in public debate on both policy and politics. It is the synergy gain from the interaction of the two forms of expert participation that generates a positive social value of expertise and makes indirect democracy preferable to direct democracy for most voters.

Second, the institution of representative government formed by narrowly office seeking parties plays an important commitment role in aggregating policy relevant information. These parties distort platforms and pander to experts to win their endorsement, but in the process, incentivize those biased experts to reveal more information ex ante. It is important in this respect that parties are able to commit to specific policy platforms rather than commit merely to a policy stance by nominating a candidate with the appropriate ideology. In the latter case, electoral competition leads to convergence on candidates who share the median voter's preference, and who will therefore not pander to experts to elicit more information from them. Programmatic politics dominates personality centred politics in our framework.[8]

Finally, the expert's incentive or credibility constraints also play a key role in our analysis. Expert pandering by office-seeking parties creates value for voters exactly because it relaxes these

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democratic nations (Matsusaka (2005)) makes this normative issue relevant.

[8]The difference between platform commitment versus a policy stance is reminiscent of Burke's (1774) distinction between "delegate" versus "trustee" modes of representation. A delegate faithfully implements his pre-election pledges while a trustee can use his judgment and opinion to decide on actual policy once elected. In our model, the delegate mode of representation is better for voters. It provides more commitment to the voter and aggregates more information from the expert.

constraints and allows the expert to credibly reveal better information. When the expert can commit to a information revelation policy and there are no credibility constraints, this force is reversed. Because political parties choose policies that serve the expert's ideological interests to a greater extent under indirect democracy, the expert prefers to hide at least some information and obtain policies that favor her, even when she can commit to an information policy. Under direct democracy, where there is no such policy drift, the expert would commit to revealing all her information, a better outcome for voters. Indirect democracy is the better institution only if experts cannot be trusted.

The rest of the paper is organized as follows. Section 2 reviews the related literature. In Section 3 we present our model of indirect capture in which an informed expert influences the political process purely through public speeches. We also present two benchmarks that help us make our welfare comparisons, one where there is no expert and another where there are no parties. Sections 4.1 and 4.2 characterize the effect of partisan endorsements and policy advocacy on electoral competition. Section 4.3 compares voter welfare across alternative institutions and discusses the role of various commitment assumptions. Section 5 provides a model where the expert has directly captured policy making by one or both of the parties. Section 6 contains our concluding remarks. All proofs and ancillary results are in the Appendix.

2   Related Literature

Our paper is broadly related to a theoretical literature on media bias which examines selective or distorted presentation of information to the voting public. The media, like the expert in our framework, is assumed to have an informational advantage over the public, which can be leveraged for profit or influence. One set of papers investigates the causes rather than consequences of information suppression, asking why it may not be in the interest of profit maximizing information providers to supply the best available information (Mullainathan and Shleifer (2005), Baron (2006), Gentzkow and Shapiro (2006), Burke (2008), Besley and Prat (2006), Bernhardt, Krasa and Polborn (2008), Anderson and McLaren (2012), Shapiro (2016)). Unlike an ideologically disinterested commercial media assumed in these papers, the expert in our model has an intrinsic motivation to manipulate policy choices. More pertinently, our focus is on how biased information shapes platforms, policy outcomes and voter welfare, i.e., its electoral consequences.

Other papers on media bias endogenize electoral competition and find that biased information providers can have policy influence and welfare implications even if their bias is common knowledge. In some papers, the conclusion rests on the assumption that the informed manipulator can restrict her message to a subset of voters (Grossman and Helpman (1999), Stromberg (2004), Chan and Suen (2008)). In others, voting behavior (Andina-Diaz (2004)) or media strategy (Carrilo and Castanheinra (2008)) is exogenously given and not derived from purposive, strategic considerations. Wittman (1983), Calvert (1985), and Gul and Pesendorfer (2011) differ from our paper in terms of both assumptions and conclusions. These papers assume policy motivated parties or candidates as opposed to office motivated ones, and the departure from the median voter theorem takes the form of platform divergence rather than convergence of platforms to a policy that does not maximize the median voter's utility.

There is a literature on spatial voting where voters have state dependent preferences and political parties have private information about the state-of-the-world. This literature investigates to what extent private information is revealed through platform choices (Martinelli (2001), Martinelli and Matsui (2002), Heidhues and Lagerlof (2003), Laslier and Van de Straeten (2004), Kartik, Squintani and Tinn (2015)) or cheap talk messages, i.e., non-binding campaign promises (Harrington (1992), Schnakenberg (2016), Panova (2017), Kartik and Van Weelden (2017)). In contrast, in our framework, political parties have no informational advantage over voters. Rather, an ideologically biased expert or media outlet conveys policy relevant information and influences electoral outcomes. Gilligan and Krehbiel (1987, 1989; see also Krishna and Morgan (2001)) study policy advice under asymmetric information, but in a legislative rather than electoral setting. A committee, whose members have different preferences from the median member of a legislature but superior information about the consequences of various policies, strategically conveys its information to the legislature through cheap talk. Unlike in our framework, the legislature's choice set, upon receiving policy advice, is given by pre-determined rules (open, closed and modified) rather than platform choices of self-interested office seekers.

Finally, there is a literature on candidate valence, which may be a source of asymmetric information and electoral manipulation but of a fundamentally different kind. In our framework, voters do not know their policy preference since it is state-contingent. In the valence literature, voters have deterministic preference over policies but also care about a second dimension—the ability or character of elected candidates. Groseclose (2001) and Aragones and Palfrey (2002) examine policy

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outcomes when one candidate has a *known* valence advantage, while Kartik and McAfee (2007), Boleslavsky and Cotton (2015) and Chakraborty and Ghosh (2016) look at asymmetric information. In particular, the results in Chakraborty and Ghosh (2016) suggest that private information about *valence* can give substantial manipulative powers to the media or expert that can reduce voter welfare. The message of this paper is that private information on *policy* can lead to manipulation but the welfare effect on the average voter is generally positive if communication possibilities are rich enough.

3 A model of indirect capture

3.1 Players, preferences and information

A unit mass of *voters*, indexed by $b \in [-1, 1]$, face an uncertain state of the economy captured by a random variable $y \in [0, 1]$, where y follows the uniform distribution. The utility of voter b in state y from a policy $x \in \mathbb{R}$ is given by a quadratic loss function

$$u(x; y, b) = -(y + b - x)^2. \tag{1}$$

Thus, the ideal policy of voter b in state y is $y + b$, where b is the voter's ideological bias. Let G be the (atomless) distribution of voters when they are ordered according to their ideology and normalize so that $b_{mv} = 0$ is the ideology of the median voter.

Policies are not directly chosen by the voters. Instead they are determined via electoral competition. Two office-seeking parties commit to platforms x_L and x_R respectively that they will implement if elected to office. The parties do not know the realization of y and neither do any of the voters, except for one, *the expert*. The expert, with ideological bias $b_e > 0$, privately learns the realization of y. The two political parties and all voters hold uniform priors about y.[9]

The expert can publicly communicate with the electorate and with the parties via cheap talk. We allow for two stages of communication. The first stage of communication takes place before the parties have made their platform choices. We call this the *policy advocacy* stage and denote

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[9]In what follows, we focus on the case $b_e < \frac{1}{2}$. If $b_e \geq \frac{1}{2}$, the expert's presence has no effect on outcomes. Equilibria are identical to the classical Hoteling-Downs model without any informed voter and both parties located at the expected ideal policy of the median voter.
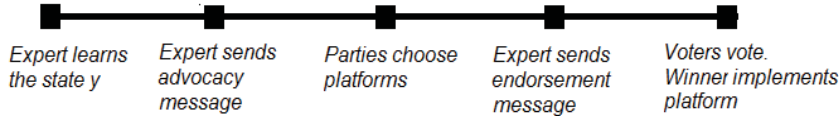
Figure 1: Timing of moves

the expert's message at this stage by m_a.[10] The message m_a may contain information about the state y and influence the platform choices of the parties and the subsequent voting behavior of the electorate.

The second stage of communication takes place after the parties have committed to their platforms but before voters vote. We call this the *endorsement* stage and denote the corresponding message by m_e. Since m_e arrives after parties have committed to platforms, endorsements can only affect the behavior of voters, although anticipated future endorsements can affect platforms. In the final stage of the game, each voter votes in favor of her preferred platform after taking into account all available information. The party that wins a majority of votes is elected and implements its platform. Ties in votes are resolved uniformly.[11] The equilibrium notion is perfect Bayesian equilibrium with some restrictions that we detail below. Figure 1 describes the timing structure of our model of *representative* or *indirect democracy* in the presence of an informed expert.

This simple model of electoral competition among two office seeking parties differs from the canonical Hotelling-Downs framework in two ways. First, we introduce an uncertain state of the world that is relevant to determine the ideal policies of all voters. Second, we suppose that one particular voter, the expert, is privately informed about this state. The expert only uses public communication to influence the electoral process but does not directly control any other aspect of the elections. This is a model of *indirect capture*, in contrast with models of direct expert capture of policymaking by one or both political parties or any other institution.[12]

While we model the expert as a single agent, this assumption should not be taken literally.

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[10] As is standard in cheap talk games, messages have no intrinsic cost or benefit associated with them or even any meaning. Rather, meaning is derived in equilibrium after taking into account incentives. We assume that the underlying message space is rich enough so that information transmission is constrained only by incentives and not by the availability of messages.

[11] This simplifies the exposition. Assuming uniform tie breaking does not affect our conclusions. In many cases, it is a necessary property of any equilibrium.

[12] We consider a version of such direct capture of a political party by the expert in Section 5.

The expert in our model represents a particular interest group, such as the scientific community or an elite who have an informational advantage over the average voter and are able to exploit this advantage because of their access to scientific journals and media outlets.[13] A common theme heard both from the left and the right about the functioning of modern democracies is that its proper operation is distorted by the concerted actions of an ideologically biased elite. Our formulation allows us to evaluate this kind of critique in its bleakest form.[14]

We conclude the description of our model by presenting a simple lemma that will be useful throughout the paper.

Lemma 1 *Fix x_L, x_R. If the median voter strictly prefers one platform given all available information, then so does a majority of voters.*

Lemma 1 states that it is enough to focus on the behavior of the median voter to determine electoral outcomes.[15] This is true not only under the institution of indirect democracy described above, but also under alternative institutions that we consider below, such as direct democracy or indirect democracy with more restricted communication possibilities than in the main model.

3.2 Two benchmarks

The fundamental goal of this paper is to understand the effect of experts and office seeking (as opposed to public spirited) political parties on voter welfare. To evaluate these effects, we need to construct benchmarks where either the expert or political parties is absent from the setup. We

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[13]We assume the expert's information can only be revealed through unverifiable cheap talk and not through voluntary public disclosure of verifiable information (Milgrom (1981)). This seems to be the appropriate assumption if the relevant information is highly technical in nature whose implications can be understood only by those who have specialized training and education.

[14]As we show, even with a monopolist expert, the overall welfare effect of indirect capture is quite beneficial for voters because the electoral process results in significant information revelation. With multiple ideologically distinct and competing groups of experts, this information revelation effect should only be enhanced (see, e.g., Krishna and Morgan (2001)).For instance, with three or more experts with the same information, speaking simultaneously, full revelation is an equilibrium. If the public ignores a dissenting minority opinion, no expert has an incentive to deviate. In this sense we look at the worst case scenario from the perspective of average voter welfare.

[15]For general twice continuously differentiable preferences $u(x; y, b)$, Lemma 1 obtains if $u_{13} > 0$. In our setting where the state y and ideology b enter the utility function in the addtive form $y + b$, this is identical to the condition $u_{12} > 0$, a sorting condition used to generate informative communication. See, e.g., Crawford and Sobel (1982).

discuss these two benchmarks in this section, returning to the main model of indirect democracy outlined above in the next section.

In our first benchmark, there is no expert. Uninformed office-seeking parties simultaneously propose platforms. Then voters cast their votes.

Benchmark 1 *(Uninformed democracy) Suppose there is no expert. In the unique equilibrium both parties locate at $E[y] = 1/2$, the ex ante expected ideal policy of the median voter.*

When there is no expert, both parties locate at the unconditional mean of the state y, the expected ideal policy of the median voter. This follows immediately from Lemma 1 and standard logic familiar from the Hotelling-Downs model under complete information. The median voter's expected payoff is equal to (the negative of) the unconditional variance of y. We call this benchmark uninformed democracy. Its outcome is the classical median voter theorem, adjusted to account for uncertainty.

In what follows, we will consider many alternative institutions (direct democracy, indirect democracy, etc.) and for each institution we will define the *social value of expertise*. When the expected payoff to the median voter is greater than under uninformed democracy, we will say the social value of expertise for that institution is positive. If the median voter is worse off compared to uninformed democracy, the social value of expertise for that institution is negative.

We define the social value of expertise in terms of the median voter's welfare for the following reasons. Under our specification of voter preferences, when the median voter prefers one institution to another (e.g., indirect democracy over direct democracy), so will a strict majority of voters. Only a minority may prefer the alternative institution. Evaluating different institutions according to the median voter's welfare corresponds to a majoritarian welfare criterion. In addition, as long as the mean of the distribution G of voter ideologies equals its median, the utilitarian sum of ex ante voter welfare equals the median voter's welfare plus a constant equal to the variance of voter ideologies according to G. In these cases, using the median voter's payoff as our welfare criterion is the same as the utilitarian welfare criterion.[16] For these reasons and also Lemma 1, we will track the median voter's behavior and welfare in what follows, often referring to the median voter simply as the voter.

We now introduce our second benchmark. In this benchmark, the expert is present but political

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[16] If one allows additive transfers, then using the utilitarian criterion is equivalent to using the Pareto criterion.

parties are absent. The informed expert sends a public cheap talk message after which the median voter directly chooses a policy. We will call this *direct democracy.* This scenario will obtain when the median voter is the mean voter and policy choice is determined not through electoral competition but by a utilitarian planner. Alternatively, following Osborne and Slivinski (1996), consider a citizen-candidate model preceded by expert cheap talk where the cost of running for office and the intrinsic benefit of being elected are small and comparable to each other. The median voter emerges as an uncontested winner in such a scenario.[17]

The equilibrium outcome of direct democracy corresponds to that of the Crawford-Sobel (1982, henceforth CS) game of strategic information transmission between an expert and a decision-maker who in this case is the voter. For ease of reference, we describe the key properties of equilibrium outcomes for this benchmark that we will use.

Benchmark 2 *(Direct democracy) Suppose there are no parties and policies are chosen to maximize voter welfare after communicating with the expert. The expert is informative if and only if $b_e < 1/4$. The social value of expertise is positive when the expert is informative and zero otherwise.*

Under direct democracy the expert cannot credibly reveal the exact value of y. For if she is expected to do so, the chosen policy will equal the expert's stated value of y. This cannot be an equilibrium since $b_e > 0$ and the expert then has an incentive to overstate the value of y in order to get policies that are closer to her own ideal policy. In equilibrium, the expert can only credibly transmit coarse information, revealing for each state an interval in which the state lies. The number, size and location of these intervals is determined by b_e, the conflict of interest between the expert and the decision maker.

As shown in CS, the number of intervals N is finite and in our setting the expert is informative ($N > 1$) if and only if $b_e < 1/4$. Figure 2 illustrates Proposition 2 for the case where $b_e = 1/16$. In the ex-ante payoff optimal equilibrium for the voter (and the expert), the expert reveals in which of three intervals the state belongs: $[0, 1/12]$, $[1/12, 5/12]$, or $[5/12, 1]$.[18] The voter chooses actions

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[17]In Osborne and Slivinski (1996, Propositions 1 and 2), office is sought not by professional politicians but by citizen candidates who are primarily motivated by the desire to affect policy outcomes. Citizens have a cost of running for office and an intrinsic benefit of being elected themselves, in addition to policy payoffs.

[18]For fixed b_e, there are many interval cheap talk equilibria, but the one with the highest number of intervals is the ex ante optimal one from the perspective of all voters. Following the literature, we select this equilibrium in what follows. Given our assumptions the exact intervals for this equilibrium can be found via the difference equation
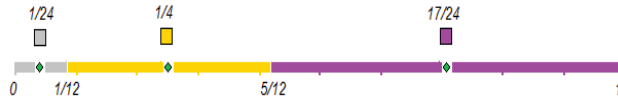
Figure 2: Direct democracy

1/24, 1/4 or 17/24, equal to the expectation of the state conditional on the message, once he learns the relevant interval.

Since the payoff of the voter is maximized conditional on any information coming from the expert, by Blackwell's theorem, he cannot be worse off ex ante compared to our previous benchmark of uninformed democracy. The social value of expertise under direct democracy cannot be negative. It is positive whenever the expert reveals non-trivial information.

While the social value of expertise is always non-negative under direct democracy, voter welfare is lower than the case where the state y is common knowledge. The credibility constraints of the expert create two kinds of informational (and welfare) loss. First, information is coarsened, as captured by the partitioning of the state space by the expert's message. Second, the coarsening is not uniform — there is greater coarsening (larger intervals) in the direction of bias. This informational loss is the source of the welfare loss relative to the symmetric information case.

As we show below, indirect democracy shares these sources of welfare loss. Because of intermediation by the political parties, it may also give rise to policies that are not necessarily equal to the voter's ideal given all available information. Consequently, Blackwell's theorem cannot be invoked. The social value of expertise takes into account the value of the information obtained from the expert, net of the average cost of policy distortion away from what the voter would like. It can be either positive or negative under indirect democracy. We turn to our analysis of this institution now.

4   Equilibrium and welfare under indirect capture

In this section we describe the equilibrium outcomes of our main model of indirect democracy outlined in Section 3 and described by Figure 1. We solve the sequential game by backward

$l_{i+1} = l_i + 4b_e$, where l_i is the length of the i-th interval, using the boundary condition that the interval lengths sum up to 1.

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induction. First, assuming voters have interval beliefs after the advocacy message m_a, we solve for what happens at the endorsement stage when platforms are chosen and endorsed by the expert. Next we go back to the advocacy stage and describe the equilibria of the full game. Finally, we evaluate the welfare of voters and the expert under this institution.

4.1 Endorsements and platforms

Suppose that after hearing the advocacy message m_a, voters and parties hold interval beliefs on the distribution of y, i.e., y is believed to be uniformly distributed over a sub-interval $[y_l, y_h] \subseteq [0, 1]$. Suppose further that the contesting parties have chosen platforms x_L, x_R with $x_L \leq x_R$. Let x_{mid} be the midpoint of the two platforms. Our next result describes the effect of the expert's second message m_e on voting behavior. It identifies conditions under which the expert is *influential*, i.e., her endorsement affects voting outcomes. We use this result subsequently to characterize the equilibrium platform choices by the political parties.

Lemma 2 *Suppose the expert has revealed y belongs to $[y_l, y_h]$ with her advocacy message m_a. Suppose also $x_L < x_R$. If the expert's second message m_e influences voting, it can only reveal the platform the expert prefers, i.e., whether $y > x_{mid} - b_e$ or $y < x_{mid} - b_e$; and the platform the expert prefers is elected. An influential endorsement equilibrium exists if and only if $x_{mid} \in (y_l + b_e, y_h - b_e]$. When m_e is not influential, the platform closest to $E[y|m_a]$ is elected regardless of m_e.*

Lemma 2 is a standard result for binary action cheap talk games. When the message m_e influences voting behavior, the expert has an incentive to send the message that elects the expert's more favored platform. Voters account for this incentive and so the message m_e can only convey the expert's preferences to the voter, i.e., whether or not $y > x_{mid} - b_e$.

Lemma 2 identifies the interval $(y_l + b_e, y_h - b_e]$ as the expert's "zone of influence", depicted in Figure 3. When x_{mid} lies in the zone of influence, the expert will endorse either platform with positive probability and her endorsement determines the electoral outcome.[19] We assume throughout that the influential equilibrium is played whenever it exists.[20] When x_{mid} does not lie in

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[19]For the expert to prefer (and endorse) both candidates with positive probability we must have $x_{\mathrm{mid}} > y_l + b_e$. An expert endorsement for the right platform influences a majority if and only if $E[y|y > x_{\mathrm{mid}} - b_e] \geq x_{\mathrm{mid}}$, equivalently, $x_{\mathrm{mid}} < y_h - b_e$. Since the expert has a 'right' bias, an endorsement for the left platform is always influential.

[20]In any cheap talk game, there is always a babbling equilibrium where voters refuse to ascribe any meaning to the message m_e and so the expert can do no better than be uninformative. When endorsements are credible, an influential

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zone of influence

y_l $\qquad$ $y_l + b_e$ $\qquad\qquad\qquad\qquad\qquad\qquad$ $y_h - b_e$ $\qquad$ y_h
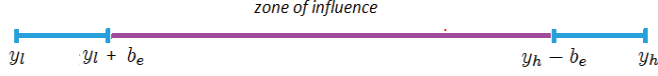
Figure 3: Expert's zone of influence

the zone of influence, either the expert always prefers the right platform and cannot be informative, or her endorsement for the right platform is not influential with the voter. The platform the voter prefers before the expert endorses a platform is the platform that is elected.

We turn now to the determination of equilibrium platform choices. Let $r(m_a) = y_h - y_l$ measure the residual uncertainty about the state faced by the general public after the first message m_a. Lemma 3 shows that this residual uncertainty is a key determinant of equilibrium platforms.

Lemma 3 *Suppose the expert has revealed y belongs to $[y_l, y_h]$ with her advocacy message m_a. Suppose also that whenever an influential endorsement equilibrium exists, it is played. Then the unique equilibrium outcome in platform choice involves the two parties choosing a common policy platform, $x_L = x_R = x^*$ given by:*

$$x^* = \begin{cases} E[y|m_a] + b_e & \text{if } r(m_a) \geq 4b_e \text{ (expert pandering)} \\ y_h - b_e & \text{if } 2b_e < r(m_a) < 4b_e \text{ (partial pandering)} \\ E[y|m_a] & \text{if } r(m_a) \leq 2b_e \text{ (voter pandering)} \end{cases} \qquad (2)$$

Platform convergence occurs for essentially the same reason as in the classical median voter theorem. Suppose $x_L \neq x_R$. If the expert's endorsement is influential, the party which is winning with probability less than $\frac{1}{2}$ can gain by matching its platform with the other party's platform. If, on the other hand, the expert's endorsement is not influential, the right party wins with 0 probability, which implies it has a profitable deviation to the other party's platform. Since the two parties play a zero sum game, it follows that this is the unique outcome in platform choice, under the conditions of Lemma 3.

Where do platforms converge to? Whether parties pander to the median voter or the expert depends on the residual uncertainty r about the state y. Greater uncertainty leads to equilibrium

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equilibrium also exists and it yields higher expected payoff to both the expert and the voter, conditional on m_a and the platforms. We select the Pareto dominant influential equilibrium of the continuation game. In the statement of Lemma 2 we also break ties by assuming that the voter follows the expert's advice when she is indifferent. This is in the spirit of selecting the efficient outcome and does not affect our results. We discuss the equilbrium set in more detail later in the paper.
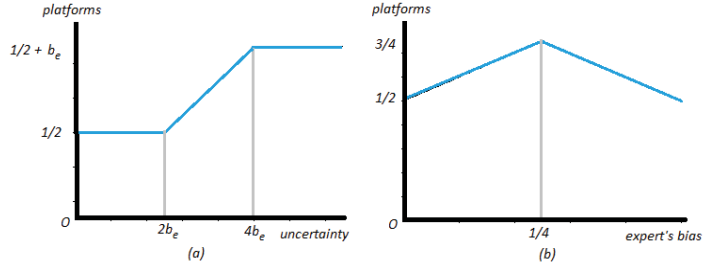
Figure 4: Platforms, uncertainty & bias

platforms being pulled closer to the expert's ideal policy rather than the median voter's. Figure 4(a) depicts the relationship between the degree of uncertainty r and the common equilibrium platform x^*, for fixed bias of the expert. Figure 4(b) plots the common equilibrium platform x^* as a function of the expert's bias b_e, for fixed uncertainty about the state.[21]

To understand Figure 4(a), recall that the expert's endorsements are influential if and only if the average platform lies in the expert's zone of influence $(y_l + b_e, y_h - b_e]$. If the residual uncertainty about the state is small enough $(r \leq 2b_e)$, the zone of influence is empty. In this case, both parties will pander to the voter and locate at $E[y|m_a]$. If any party deviates towards the expert, the expert's endorsement for that party will not be influential and so its rival will win the election for sure. At the other extreme, when the uncertainty about the state is large enough $(r \geq 4b_e)$, both the median voter's and the expert's expected ideal policies lie in the zone of influence. An expert endorsement for any party decides the election. In this case both parties pander completely to the expert.

In the intermediate case $(2b_e < r < 4b_e)$, the voter's expected ideal policy lies in the zone of influence but the expert's expected ideal point lies to its right. In this case, parties will choose platforms at the right edge of the zone of influence, i.e., at $y_h - b_e$. If a party moves its platform further right, it breaches the zone of influence and an endorsement in its favor will not translate into electoral victory, so parties pander to the expert subject to remaining in the zone.

The relationship between uncertainty about the state and the degree of expert (or voter) pandering depicted in Figure 4(a) plays a key role in the analysis of the next section where we analyze the strategic considerations affecting policy advocacy by the expert. Fixing this uncertainty, Fig-

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[21]In Figure 4(a) , we set $y_l = \frac{1}{2} - \frac{r}{2}$ and $y_h = \frac{1}{2} + \frac{r}{2}$, so that $E[y] = \frac{1}{2}$ and vary $r = y_h - y_l$, fixing $b_e = 1/4$. In Figure 4(b) , we fix $[y_l, y_h] = [0, 1]$ and vary $b_e \in [0, 1/2]$.

ure 4(b) depicts a non-monotonicity in the expert's influence on policy as a function of her bias. For small b_e, both parties pander to the expert. If the expert's bias increases slightly, equilibrium platforms move further away from what is ideal for the median voter. The voter's welfare is decreasing in the expert's bias in this zone. For larger values of b_e however, the voter's welfare is increasing in the expert's bias. This is because highly biased experts struggle to issue credible endorsements, reducing the incentive of political parties to pander to them, reverting platforms closer to the voter's ideal policy. Experts lose influence when they desire to change the course of public policy substantially rather than modestly, making such ambitions self-defeating. Overall, experts of intermediate bias exert the most distortionary influence on policies and impose the most harm on the average voter.

Using lemma 3 we now describe the equilibrium outcome of indirect democracy when the expert's public communication is limited only to partisan endorsements.

Proposition 1 *(Endorsements only) Consider the truncated game where the expert cannot send the advocacy message m_a at the beginning. She sends only the endorsement message m_e after platforms are chosen. In equilibrium, the common policy platform, $x_L = x_R = x^*$ is given by*

$$x^* = \begin{cases} \frac{1}{2} + b_e & \text{if } b_e \leq \frac{1}{4} \text{ (expert pandering)} \\ 1 - b_e & \text{if } \frac{1}{4} < b_e < \frac{1}{2} \text{ (partial pandering)} \end{cases} \tag{3}$$

The social value of expertise is negative. But the expert prefers this outcome to that of uninformed democracy.

Proposition 1 is a restatement of Lemma 3 for the special case where $[y_l, y_h] \equiv [0, 1]$. Even when the expert only sends endorsements, there is a *potential* channel for incorporating expert information into policy choices. But this requires the creation of a non-trivial menu of policy choices for voters through platform differentiation. Unfortunately, due to platform convergence in response to electoral incentives, there is no such choice for the voter and so endorsements cannot produce any useful information in equilibrium.

The expert still exerts a distortionary effect on platforms. Her ability to influence choices *off-the-equilibrium-path* allows the expert to move policy towards her own expected ideal. This is why the expert prefers this outcome to that under uninformed democracy described by Benchmark 1. But the social value of expertise is negative. The voter's welfare is driven below its level under uninformed democracy.

4.2 Policy advocacy

Consider now the expert's first period policy advocacy message m_a. We describe first a benchmark where the expert sends *only* the advocacy message m_a before party platforms are chosen. She is not allowed to send the second endorsement message m_e after platforms are chosen.

After every such message m_a, it is not difficult to see that both the parties will locate at $E[y|m_a]$, the expected ideal policy of the voter given m_a. This is the unique equilibrium in platform choices for each m_a.[22] From the expert's perspective, it is as if she faces a decision maker who chooses the policy that maximizes the welfare of the voter after each message m_a. The resulting communication game is outcome equivalent to direct democracy.

Proposition 2 *(Advocacy only) Consider the truncated game where the expert cannot send the endorsement message m_e after platforms are chosen. She sends only the advocacy message m_a at the beginning. The equilibrium coincides with that under direct democracy and the social value of expertise is non-negative.*

With this last benchmark in place, we turn now to the equilibrium of our full model where the expert can engage both in policy advocacy before platforms are chosen as well as platform endorsements after parties commit to platforms. In this full model, the expert faces an additional trade-off between making policies more informed and making them more aligned with her own preferences.

If the expert reveals a lot of information in the first stage, there will be little residual uncertainty at the platform endorsement stage. In accordance with Lemma 3, the parties will not pander to the expert, choosing instead policies that are closer to the voter's expected ideal. On the other hand, if the expert withholds information at the first stage, the higher residual uncertainty at the endorsement stage will lead parties to pander to the expert. By itself, this benefits the expert. But since policies will not be finely tailored to information, there will be an informational cost to the expert as well. This trade off is the key determinant of the incentives that determine the expert's equilibrium policy advice when she provides both early stage advocacy and late stage endorsements.

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[22]The reasoning is identical to that for Benchmark 1 (and Lemma 3, for the case $r(m_a) \leq 2b_e$). Since the expert cannot send any information after platforms are chosen, the parties must locate at the expected ideal policy of the voter given all available information.

The full game of electoral competition with multi-stage cheap talk has a large multiplicity of equilibria. We focus on equilibria where the expert's first period messaging strategy takes an interval partitional form. Lemma 3 shows that platforms must converge after a message m_a that reveals an interval for y. They converge to the policies identified by Lemma 3 as long as we select the informative equilibrium at the endorsement stage whenever it exists, for every possible pair of platform choices. In what follows, we refer to equilibria with these two restrictions, (a) advocacy takes an interval partitional form and (b) endorsements are influential whenever they are credible, simply as equilibria.

In Appendix B, we provide examples of equilibria where advocacy takes a non-interval partitional form. We also illustrate how to generate a large multiplicity of equilibria by suitably selecting between different kinds of continuation equilibria at the endorsement stage. By committing to choose the most informative equilibrium of the endorsement stage, we limit our freedom to select between different kinds of endorsement equilibria made in order to support particular outcomes of the overall game of electoral competition. We do not necessarily select the ex-ante payoff optimal equilibrium, either for the expert or for the other voters. In this sense, we understate the benefits of expert capture for voter welfare. Our selection rule is in the spirit of restrictions usually imposed in the literature on cheap talk games but applied iteratively at each stage of a multi-stage communication game.[23]

The next result identifies the most informative equilibrium, with the highest number of intervals. To present the result concisely, define $\widehat{N} \geq 0$ to be the integer part of $1/4b_e$ and let $R = 1 - 4b_e\widehat{N}$ be the "remainder." Note $R \in [0, 4b_e)$.

Proposition 3 *(Advocacy with endorsements) Suppose the expert provides both policy advocacy and platform endorsements and that the policy advocacy message m_a discloses an interval $[c_{i-1}, c_i]$ that contains y, where $0 = c_0 < c_1 < ... < c_N = 1$, $i = 1, ..., N$. Suppose also that at the endorsement stage, an influential equilibrium is played whenever it exists. Such interval equilibria exist and there is a finite upper bound $N^*(b_e) \geq 1$ such that $N \leq N^*(b_e)$. When $b_e > \frac{1}{3}$, $N^*(b_e) = 1$ and policy*

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[23]We first select the Pareto dominant outcome for the continuation game at the endorsement stage. This selection rule is consistent with refinements such as NITS (Chen, Kartik and Sobel, 2008), applied at the endorsement stage. Given this selection rule, we next select the most informative (and payoff dominant) interval partitional equilibrium of the advocacy stage (that also satisifies NITS applied at the first stage). See Chakraborty and Ghosh (2016) Argenziano, Severinov, and Squintani (2016) for other models where selecting the most payoff-dominant equilibria at later stages of communication games does not necessarily select the ex-ante payoff dominant equilibrium outcome.
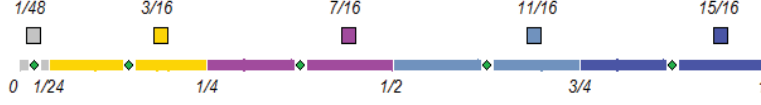
Figure 5: Advocacy & endorsements

advocacy is uninformative. Otherwise, $N^*(b_e) > 1$ and policy advocacy is informative. Ex-ante, the expert and the voter prefer an equilibrium with a N intervals to one with $N' < N$ intervals. The most informative equilibrium with $N^*(b_e)$ number of intervals is given by the following:

1. *If $R > 3b_e$ then $N^*(b_e) = \widehat{N} + 2$ with cutoffs $c_1 = \frac{2}{3}R - 2b_e$, $c_2 = R$, and $c_i = c_{i-1} + 4b_e$, $i \geq 3$.*

2. *If $2b_e \leq R \leq 3b_e$ then $N^*(b_e) = \widehat{N} + 1$ with cutoffs $c_1 = R$ and $c_i = c_{i-1} + 4b_e$, $i \geq 2$.*

3. *If $R < 2b_e$ then $N^*(b_e) = \widehat{N} + 1$ with cutoffs $c_1 = \frac{2}{3}(R + b_e)$, $c_2 = R + 4b_e$, and $c_i = c_{i-1} + 4b_e$, $i \geq 3$.*

Proposition 3 completely characterizes the partition corresponding to the most informative equilibrium, as a function of the expert's ideological bias b_e. For each interval revealed by the expert with her advocacy message m_a, the parties choose common platforms in accordance with Lemma 3. Figure 5 depicts the case where $b_e = 1/16$ and $N^* = 5$.

In the equilibrium depicted in Figure 5, the left most interval is the smallest, with length $1/24$ which is less than $2b_e$. Consistent with Lemma 3, both the parties locate at $1/48$, the expected ideal policy of the median voter conditional on the expert's policy advocacy message that reveals $y \in [0, 1/24]$. The next interval to the right is larger and of length in between $2b_e$ and $4b_e$. In this interval, both parties locate at $3/16$ which is the right boundary of the expert's zone of influence conditional on y belonging to this interval. All remaining intervals starting from the third from the left are each of length exactly $4b_e$. In each such interval, both parties fully pander to the expert and locate at the expected ideal policy of the expert given that the state y lies in that interval, as depicted in the figure.

The most informative interval equilibrium with $N^* \geq 2$ always has the qualitative features depicted in Figure 5. As b_e falls, the number of intervals N^* rises, with the interval lengths

increasing as one moves from left to right. The left most interval is smallest and of length at most $2b_e$. In this interval, the parties locate at the voter's expected ideal point conditional on all available information. The second from left interval has length in between $2b_e$ and $4b_e$. Both parties locate at the edge of the expert's zone of influence corresponding to this interval. When $N^* \geq 3$, every interval further to the right is exactly of length $4b_e$. The parties pander fully to the expert in every such interval. While the expert gets her expected ideal policy in each such interval, the residual uncertainty created by coarse information transmission has a harmful effect on the welfare of the expert and all other voters.

In the full model of indirect democracy described by Proposition 3, the social value of expertise may be positive or negative. Voter welfare may be as low as when the expert only sends endorsements, or higher than when the expert only engages in advocacy, or it may be somewhere in between. When voter welfare is higher than the best of what the voter can get when the expert engages in only one of the two forms of communication, advocacy and endorsements acting in concert exhibit a positive synergy. This synergy is the key determinant of the social value of expertise under indirect democracy, as we show next.

4.3   Welfare

We turn now to a comparison of democratic institutions and environments from the perspective of voter welfare. Are voters better off under direct democracy than under representative government run by careerist politicians? What is the social value of expertise under in each scenario? Are the welfare effects driven by policy advocacy by the expert or by her partisan endorsements or by the synergy between the two?

The comparison of voter welfare between direct and indirect democracy hinges on a trade-off between informed decisions and distorted decisions. This trade-off is shown in Figure 6 for the same choice of $b_e = 1/16$ used in Figures 2 and 5. The top panel of the figure depicts the most informative equilibrium under direct democracy while the bottom panel depicts the same for indirect democracy.

Comparing the two figures, we see that there is better information transmission by the expert under the indirect democracy— while the equilibrium under direct democracy partitions the state into three intervals, the equilibrium under indirect democracy partitions it into five smaller intervals. But this improvement in information transmission comes at a cost to the voter. Under indirect
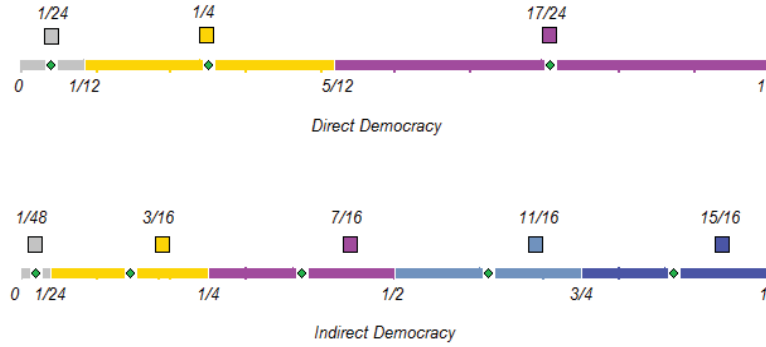
Figure 6: Indirect vs. direct democracy

democracy, platforms are distorted away from what the voter would like and towards what the expert would like for all but the left most interval. Under direct democracy, policies are always optimal for the voter for each message of the expert. The next result compares the two institutions from the perspective of voter welfare.

Proposition 4 *The following statements are equivalent:*

(a) *Indirect democracy is better than direct democracy.*

(b) *Advocacy acting together with endorsements is better than either form of communication alone.*

(c) *The social value of expertise under indirect democracy is positive.*

(d) *The expert's bias $b_e < \frac{5}{18}$.*

In the Appendix we show that statement (a) is equivalent to statement (d). Here we establish the other claims. First, consider the equivalence of (a) and (b). From Proposition 1, the social value of expertise is negative when the expert only engages in platform endorsements. From Proposition 2, the social value of expertise is non-negative when the expert only engages in policy advocacy. Further, the outcome is equivalent to direct democracy. It now follows that (b) is equivalent to a comparison of voter welfare under indirect and direct democracy, namely (a).

Next, consider the equivalence of (a) and (c). Since the social value of expertise is non-negative under direct democracy, when (a) holds the social value of expertise under indirect democracy must be positive. So (a) implies (c). In the other direction, when (a) does not obtain and direct

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democracy is the better institution, since (a) is equivalent to (d), we must have $b_e > 5/18$. But then $b_e > 1/4$ and, via Benchmark 2, the social value of expertise must be zero under direct democracy. It follows the social value of expertise must be negative under the inferior institution of indirect democracy. So (c) implies (a).

The equivalence between (a) and (b) directly links the two institutions of direct and indirect democracy with the two forms of communication, advocacy and endorsements. Precisely when the interaction of advocacy with endorsements under indirect democracy creates a positive synergy, indirect democracy dominates direct democracy. The equivalence between (b) and (c) further clarifies matters. The synergy is the only reason why the social value of expertise under indirect democracy can be positive.

The equivalence between (a) and (c) is the most instructive. It tells us that whenever the social value of expertise is positive under indirect democracy, it must be larger than the social value of expertise under direct democracy, no matter how large the latter is. This makes indirect democracy the better institution to adopt. For biases so large that indirect democracy is harmful, the best option is to expunge expertise altogether and resort to uninformed policy choices based on priors. Direct democracy is outcome equivalent to uninformed democracy in these cases. It is as if the institution of indirect democracy is designed to extract information from the expert. Voters will only want to give up on indirect democracy when they want to give up on acquiring information.

Proposition 4 drives home the important role played by electoral competition among office seeking politicians, as opposed to public spirited decision makers or direct citizen participation in policy making. The agency problem latent in representative democracy may actually help to counteract the welfare loss arising from expert bias and informational manipulation. It does so by providing a *de facto* delegation instrument to voters, who can leverage the pandering motive of politicians to partially commit to policy choices serving the expert's interests, thereby inducing him to reveal more.[24]

As noted by Holmstrom (1984) and Dessein (2002), partial or complete delegation of decision

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[24]To see how the welfare benefits of indirect democracy are driven by the office seeking nature of political competition, imagine a situation where, instead of office-seeking parties, the voter commits to two platforms, chosen *after* the advocacy stage but before the endorsement stage. The voter implements one of these two policies after the expert's endorsement. This mechanism worsens the incentives of the expert to provide informative policy advice. The voter's welfare is higher under indirect democracy with office seeking parties when the expert's bias is small enough ($b_e < 0.12$).
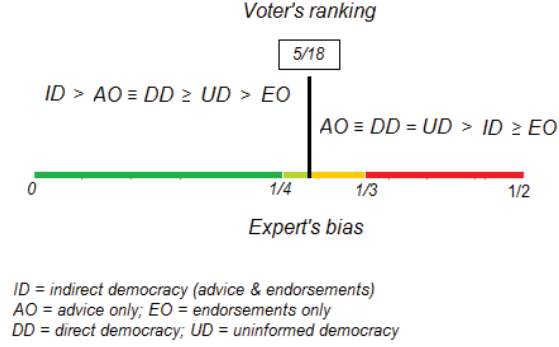
Figure 7: Ranking of institutions

making authority to an informed expert serves the interest of an uninformed receiver of information unless the bias is too high. In our model, electoral competition serves in effect as the *delegation* mechanism, albeit an imperfect one. Since the expert can influence policymaking only through public speeches, the delegation benefits in our model fall short of the benefits of optimal delegation identified by Holmstrom (1984).[25]

Figure 7 provides the ranking of alternative institutions from the perspective of voter welfare as a function of the conflict b_e. Consistent with Proposition 4, indirect democracy is the top choice of the voter when $b_e < 5/18$, while direct democracy is the best institution when $b_e > 5/18$. At $b_e = 5/18$, the benefit of informative advocacy exactly offsets the cost of policy distortions caused by the threat of platform endorsements and the social value of expertise under indirect democracy equals zero.

Direct democracy, which is identical to the advocacy only benchmark, is uninformative and coincides with uninformed democracy when $b_e > 1/4$. Similarly, indirect democracy coincides with the endorsements-only benchmark when $b_e > 1/3$ since policy advocacy is uninformative. In these cases, the synergy effect is absent and the social value of expertise is negative. Even when $5/18 < b_e < 1/3$ and advocacy is informative under indirect democracy, the platform distortion effect is dominant. Although the expert is informative, the social value of expertise is negative and the voter prefers uninformed democracy. When platforms are distorted without any information being gained, the voter is even worse off. The worst institution for the voter in all cases is when

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[25] In Section 5, we extend this intuition and introduce the possibility of direct capture by the expert of the platforms chosen by a political party. We show that in such a situation voter welfare becomes equal to that under optimal delegation.

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the expert only sends partisan endorsements.

The expert's ranking of these institutions is similar to the voter's, but not identical. When $b_e < 5/18$, the expert ranks indirect democracy as her top choice, just like the voter. Indeed, in this case all voters to the right of the median do so. But, unlike the voter, indirect democracy is the top choice for the expert regardless of her bias. The expert never ranks direct democracy at the top. This is because indirect democracy is not only more informative but also gives rise to policies that favor the expert more.[26]

We now consider two modifications of our baseline model of indirect democracy. Both modifications concern assumptions about commitment that we have made so far. The first modification varies the commitment available to the parties and provides insight into what allows voters to obtain the benefits of delegation under indirect democracy. The second modification varies instead the commitment power available to the expert when she chooses her information transmission strategies. These two benchmarks identify necessary conditions for the welfare result in Proposition 4.

Consider a scenario where political parties cannot commit to *policy* platforms. Instead, they can achieve a degree of commitment by nominating *candidates* with known preferences (captured by the biases b_L and b_R of the nominated candidates) from the full set of voters. As before, the parties are office-seeking and choose a candidate to maximize their probability of winning the election. The expert provides advice before the parties choose candidates and endorsements after they do so. Subsequently voters vote. The winning candidate chooses a policy to maximize her own payoff given all available information. Our next result shows that the equilibrium outcome in this model of candidate commitment (as opposed to platform commitment) yields the same outcome as direct democracy.

Proposition 5 *In the model of indirect democracy with candidate commitment, both parties choose candidates that are ideologically identical to the median voter, $b_L = b_R = 0$ and so the welfare of the voter is identical to that under direct democracy.*

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[26]Regardless of b_e, the worst institution for the expert is uninformed democracy (UD). Since policies are uninformed also in the endorsements only (EO) benchmark but closer to the expert's ideological interests, she always prefers EO to UD. She may even rank EO as her second choice, above direct democracy. Direct democracy is the expert's second ranked institution, above EO, only when the gain to the expert from greater information exchange under direct democracy offsets the loss from policies that serve the voter's interests ex post. This occurs for b_e less than the cutoff $1/\sqrt{32}$.

Proposition 5 identifies a necessary condition underlying our main welfare result in Proposition 4. It underscores the benefits of programmatic politics over personality centric ones. To reap the delegation benefits of indirect democracy, it is important that parties commit through platforms rather than personalities.

We turn now to the second modification of our baseline model. This has to do with the commitment power (or lack thereof) on the part of the expert. So far we have assumed that the expert has no commitment power and engages in cheap talk. The information she can reveal in equilibrium depends entirely on her incentive or credibility constraints. We now ask how our welfare result depends on these constraints, reverting back to our baseline assumption that parties commit to platforms. Our next result compares voter welfare under direct and indirect democracy, when the expert faces no incentive constraints. She can commit ex ante to a (multi-stage) information policy or persuasion mechanism (Gentzkow and Kamenica, 2011).

Proposition 6 *Suppose the expert can commit to an information policy. Then direct democracy is better for voter welfare than indirect democracy.*

When the relevant institution is direct democracy (i.e., the CS model), it is well known that the optimal information policy with commitment is the policy of revealing all information. In contrast, under indirect democracy we show that the expert's optimal information policy will reveal some but not all information.

From the perspective of voter welfare, direct democracy must then be the superior institution. Under direct democracy, the voter gets his first best full information payoffs. Under indirect democracy, fixing the information policy of the expert, voter payoffs can be at most as high as the benchmark where policies necessarily equal the expected ideal policy of the voter given all available information. But the payoff from this benchmark must be strictly lower than the full information payoff. The expert does not disclose all information under indirect democracy and so the voter faces residual uncertainty about the state of the world. This uncertainty lowers voter payoffs. Proposition 6 shows that a necessary condition for indirect democracy to dominate direct democracy is a lack of commitment on the part of the expert. Voters prefer indirect democracy only if the expert cannot commit and her credibility is a justifiable concern.

We prove Proposition 6 by performing the following thought experiment. Suppose that at the ex-ante stage the expert can commit to delegating her messaging to a voter with ideological bias

b_s. Call this voter the *surrogate*. The surrogate obtains the expert's information and engages in strategic information transmission given her own incentives. The surrogate's ideology b_s is a choice variable for the expert with ideology b_e. Who is the ideal surrogate from the ex-ante perspective of the expert?

The expert can always choose a perfectly voter aligned surrogate who will reveal all information. But we show that under indirect democracy the optimal surrogate is never perfectly voter aligned. The expert resolves the trade off between informed policies and policies that serve her interest by choosing a surrogate who hides some information and ensures that parties pander partially to the expert's ideological interests. Since the set of all possible information policies include the set of policies that can be generated by choosing a surrogate, this shows that the optimal general information policy under indirect democracy will also hide some information.

5   Direct capture

Our model in Section 3 describes situations where the expert influences electoral outcomes purely through public communication. She does not directly affect party platforms but nevertheless has significant influence on electoral outcomes. We now contrast this situation of indirect capture with one where the expert *directly* controls the platform choices of one (or more) of the political parties. To do so, we revert also to our baseline assumptions that the expert cannot commit to an information disclosure policy and that the parties commit to platforms.

Suppose that one of the two political parties is directly controlled by the expert. The expert chooses this party's platform, possibly as a function of her own private information, in order to serve her ideological interests. The other party is uninformed and chooses its platform to maximize its chances of being elected. After the two parties simultaneously select their platforms, the voter elects her preferred platform given the information inferred from the observed platform choices. Our next result characterizes the best equilibrium for the voter in this signaling game of electoral competition.

Proposition 7 *Suppose that the expert with ideology $b_e > 0$ directly chooses the platform of one party, while the other uninformed office-seeking party simultaneously chooses its own platform. In the best equilibrium for the voter, the expert's party will choose a platform $x_e^* = y + b_e$ in state y, while the uninformed party will choose a platform $x_u^* = 1 - b_e$, following which the voter will elect*
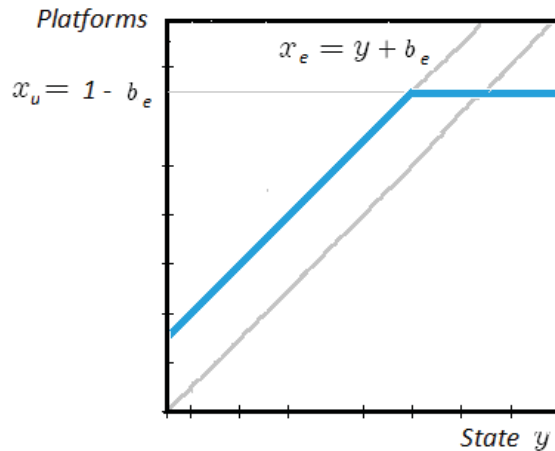
Figure 8: Direct capture

the smaller of the two observed platforms.

In the equilibrium described by Proposition 7, the captured party's platform choice perfectly reveals the state, but the chosen platform is the expert's ideal policy in each state. The voter elects the expert's platform x_e as long as it is to the left of the uninformed office seeking party's platform x_u. If $x_e > x_u$, the voter prefers the uninformed platform and elects it for sure. Figure 8 depicts the platforms and outcomes as a function of the state.

Direct expert capture of one party is good for voters. Seen as a mapping from the state y to elected policies, electoral outcomes take the form of a capped delegation mechanism. In fact, it is the optimal mechanism (in the class of all mechanisms without transfers) in our framework (see Holmstrom (1984)). Direct capture of one party by the expert leads to the best of all possible outcomes for the voter. In particular, it is better than the outcome of indirect capture considered in Section 3.[27]

This variant of the model is reminiscent of Gilligan and Krehbiel (1987), where a biased but informed committee proposes policy choice to a legislature. The closed rule (which does not allow

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[27]The signaling game of direct capture has other equilibria, including other capped delegation type outcomes involving lower caps. We present the voter's most preferred equilibrium in the spirit of our previous equilibrium selection under indirect capture. The simultaneity of platform choices is also important for Proposition 7. If the uninformed party moves after observing the platform choice of the informed party, it can be shown that the equilibrium set under direct capture is identical to that under indirect capture.

the legislature to amend the committee's proposal—policy must revert to the status quo if the proposal is rejected) is usually superior to the open rule (which allows amendments), for informational reasons. In our framework, the uninformed office seeking party's platform acts like the status quo policy in committee settings, except that its position is determined endogenously through electoral competition.

Information gives an enormous competitive edge to the political party captured by the expert. Whenever the expert prefers a policy to the left of the uninformed party's equilibrium platform, he can adopt it as his own platform and get the support of a majority of voters, since the departure from his rival is in a direction opposite to the direction of his bias, indicating a lower state. As a result, for a continuum of states to the left of the uninformed party's platform, equilibrium confers full delegation to the expert under direct party capture as opposed to quasi delegation that arises when influence is wielded through public discourse. The resultant informativeness of decision making is the source of the median voter's welfare gain (Holmstrom (1982)).

What happens if the expert captures not one but both the political parties? It is easy to see that both parties will propose platforms equal to the expert's ideal policy $y + b_e$ in each state and such a policy will be implemented. This corresponds to the notion of full delegation to the expert considered in Dessein (2002). It can be shown that such complete capture of both parties by the expert yields better outcomes for the voter, compared to indirect capture via public communication by the expert, as long as $b_e < 1/3$.

Since the capped delegation mechanism of Holmstrom (1984) is the optimal mechanism, direct capture of only one party is the best of all outcomes for the voter. It is better than direct capture of both parties. So the number of parties that are captured by the expert has an interesting non-monotonic effect on voter welfare. When the expert captures only one party, the presence of the other uninformed, office seeking party provides a constraint on the expert's party that is strictly beneficial for the voter, as long as there is any conflict at all between the expert and the voter. Expert capture of both parties is equivalent to the expert being a dictator, reminiscent of Plato's favored institution of a philosopher-king. Unlike Plato, we find that the philosopher competing in an election against a know nothing office-seeking party is an institution that is better than a philosopher-king.[28]

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[28]The optimal delegation outcome also obtains if one party is captured by the expert and serves her idelogical interests as above, while the other party is uninformed but, instead of being office-seeking, is also idelogical, seeking

6 Conclusion

We reconsider the Hotelling-Downs model of two party electoral competition in the presence of an ideologically biased but informed expert. The expert can engage in strategic and public information transmission, providing platform endorsements as well as policy advice. Platform endorsements may influence voters and determine the electoral prospects of office-seeking parties. In order to obtain favorable endorsements, parties have an incentive to choose platforms that serves the expert's ideological interests. This by itself hurts voters.

However, expert pandering incentivizes the expert to provide detailed policy advice that allows parties to choose platforms that vary with the information held by the expert. This information dependence benefits voters. When the expert is not too ideologically biased, decentralized electoral competition influenced by the expert yields better average outcomes for voters than directly communicating with the expert and choosing their own ideal policies. Voter welfare is maximized if instead of merely engaging in public speech making, the expert directly controls the platforms choices of one of the parties.

7 Appendix A. Proofs

Proof of Lemma 1. For any two platforms x_L, x_R. If $x_L = x_R$ then there is no choice facing the electorate so suppose $x_L < x_R$. Let $x_{mid} = \frac{x_L + x_R}{2}$ be the midpoint of the platforms. Let $\mathcal{I}$ be the information available to all voters at the voting stage. Our specification of voter preferences implies that a voter with ideology b strictly prefers x_R iff

$$E[y|\mathcal{I}] + b > \frac{x_L + x_R}{2} = x_{mid}$$

It follows that if the median voter with ideology $b_{mv} = 0$ strictly prefers x_R (resp., x_L) so do all voters with ideology $b > 0$ (resp., $b < 0$).∎

Proof of Lemma 2. Fix x_L, x_R. If $x_L = x_R$ then endorsements have no role to play, so suppose $x_L < x_R$. In an influential equilibrium, the expert has (at least) two different endorsement messages m_e and m'_e that result in x_R being elected with different probabilities after each message. Whenever $y + b_e > x_{mid}$ so that the expert strictly prefers x_R, the expert will send the message that

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to maximize the welfare of the voter.

elects x_R with the highest probability; and similarly for x_L. It follows that the expert's endorsement can only reveal if $y + b_e > x_{mid}$ or not.

For the expert to endorse both candidates with positive probability we need $x_{mid} - b_e \in (y_l, y_h)$. If the expert endorses x_L, the voter learns $y \leq x_{mid} - b_e$. Then the voter also prefers x_L since $E[y|y < x_{mid} - b_e; m_a] < x_{mid}$. On the other hand, If the expert endorses x_R, the voter learns $y > x_{mid} - b_e$. The voter is willing to vote for x_R iff

$$E[y|y > x_{mid} - b_e; m_a] \geq x_{mid}$$

Since y is uniformly distributed in the interval $[y_l, y_h]$ given m_a, the last inequality holds iff $x_{mid} \leq y_h - b_e$. We conclude that a necessary condition for endorsements to be influential is $x_{mid} \in (y_l, y_h - b_e]$. Sufficiency is immediate.

When endorsements are not influential, it could be because $y_l \geq x_{mid} - b_e$ in which case the expert always prefers x_R; or it could be because $x_{mid} > y_h - b_e$ in which case an endorsement for x_R does not sway the voter. In either case, the voter's decision does not depend on the expert's endorsement and so the voter must prefer whichever platform is closest to $E[y|m_a]$, the expected value of the state before hearing the expert's endorsement m_e. ∎

Proof of Lemma 3. Fix the expert's advocacy message that reveals that $y \in [y_l, y_h] \subset [0, 1]$. We proceed in cases.

Case 1. $E[y|m_a] \geq y_h - b_e$, equivalently, $y_h - y_l \leq 2b_e$.

We show that in this case both candidates locating at $x^* = E[y|m_a]$, with each candidate equally likely to win, is a strict Nash equilibrium in platform choices. For if one candidate deviates to $x' \neq x^*$, since $y_h - y_l < 2b_e$, the expert's zone of influence $(y_l + b_e, y_h - b_e]$ is empty. So by lemma 2, the platform $x^* = E[y|m_a]$ will win for sure, implying the deviation to x' is strictly unprofitable for the other party.

Case 2. $E[y|m_a] + b_e \leq y_h - b_e$, equivalently, $y_h - y_l \geq 4b_e$.

We show that in this case both candidates locating at $x^* = E[y|m_a] + b_e$, with each candidate equally likely to win, is a strict Nash equilibrium in platform choices.

If one candidate deviates rightward to $x' > x^*$ with $(x' + x^*)/2 \leq y_h - b_e$, then by lemma 2, an expert endorsement will be influential and the platform that receives the endorsement will win the election. For the deviating candidate, such an endorsement that guarantees the election will arrive when

$$y > (x' + x^*)/2 - b_e > E[y|m_e].$$

Since this event has probability less than $1/2$, the deviation is strictly unprofitable. So suppose that the candidate deviates rightward to $x' > x^*$ such that $(x' + x^*)/2 > y_h - b_e$. Then by lemma 2 an endorsement for x' will not be influential and the deviating candidate will never win the election so such a deviation is also strictly unprofitable.

Consider next a leftward deviation to $x' < x^*$. Since

$$(x' + x^*)/2 < x^* = E[y|m_a] + b_e \leq y_h - b_e$$

the expert will be influential after such a deviation and the platform that receives the endorsement will win the election. The left platform x' will receive the endorsement if

$$y < (x' + x^*)/2 - b_e < E[y|m_e].$$

which occurs with probability strictly less than $1/2$ and so this deviation is also strictly unprofitable.

Case 3. $y_l + b_e < E[y|m_a] < y_h - b_e < E[y|m_a] + b_e$, equivalently, $2b_e < y_h - y_l < 4b_e$.

We show that in this case both candidates locating at $x^* = y_h - b_e$, with each candidate equally likely to win, is a strict Nash equilibrium in platform choices.

If one candidate deviates rightward to $x' > x^*$ then $(x' + x^*)/2 > y_h - b_e$, then by lemma 2, an expert endorsement for x' will not be influential. Since $E[y|m_s] < y_h - b_e = x^*$, by lemma 2, the deviating candidate will lose the election for sure and so such a deviation is strictly unprofitable.

Consider next a leftward deviation to $x' < x^*$. Since

$$(x' + x^*)/2 < x^* = y_h - b_e$$

the expert will be influential after such a deviation and the platform that receives the endorsement will win the election. The left platform x' will receive the endorsement if

$$y < (x' + x^*)/2 - b_e < E[y|m_e],$$

an event that occurs with probability less than $1/2$ and so such a deviation is strictly unprofitable.

Claim 1 *In each of the three cases above, the Nash equilibrium described is the unique equilibrium in platform choices.*

To prove the claim, we note first that the game of platform choice between the two parties is a two person zero sum game. We recall here a known result that Nash equilibria are *exchangeable*

in two-person zero sum games, i.e., if (a_1, a_2) and (b_1, b_2) are both Nash equilibria (possibly in mixed strategies) then so are (a_1, b_2) and (b_1, a_2) and, further, all these equilibria yield the same payoffs to the two players (see, e.g., Raghavan, 1994). From this it is immediate that a strict Nash equilibrium must be unique.[29]

This concludes the proof of the lemma. ∎

Proof of Proposition *1* Follows from Lemma 3. ∎

Proof of Proposition *2* Follows from the discussion in the text. ∎

Proof of Proposition *3* Existence of an equilibrium where the expert's advocacy message reveals an interval is immediate since the expert can be uninformative in the first stage. From Proposition 3, for any first stage message that reveals an interval, platforms converge. Standard arguments (see, e.g., Lemma 1 in CS) then imply $N^*(b_e)$ is finite.

Consider an N - element partition of the state space $[0, 1]$ given by

$$\{[c_0, c_1), [c_1, c_2), \ldots, [c_{i-1}, c_i), [c_i, c_{i+1}), \ldots, [c_{N-1}, c_N)\}, c_0 = 0, c_N = 1.$$

Let $l_i = c_i - c_{i-1}$ and recall that for an arbitrary interval $[c_{i-1}, c_i)$ of length $l_i = c_i - c_{i-1}$, Proposition 3 implies the following:

- $4b_e \leq l_i$ iff $x^*(c_{i-1}, c_i)) = \frac{c_{i-1}+c_i}{2} + b_e$ (expert pandering);

- $2b_e < l_i < 4b_e$ iff $x^*([c_{i-1}, c_i)) = c_i - b_e$ (partial pandering);

- $l_i \leq 2b_e$ iff $x^*([c_{i-1}, c_i)) = \frac{c_{i-1}+c_i}{2}$ (voter pandering).

We first show that if an interval length $l_i \leq 2b_e$ then $i = 1$, i.e., voter pandering can only occur in the left-most interval. Suppose to the contrary that message $[c_{i-1}, c_i)$ leads to voter pandering with $i > 1$. What happens in the interval $[c_{i-2}, c_{i-1})$ immediately to the left that has length $l_{i-1} > 0$? If it also displays voter pandering then we must have

$$c_{i-1} + b_e - \frac{c_{i-2} + c_{i-1}}{2} = \frac{c_i + c_{i-1}}{2} - (c_{i-1} + b_e)$$

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[29]Notice that in the unique Nash equilibrium in cases 2 and 3, it is necessary that each platform is equally likely to win, otherwise one candidate will have a proftiable deviation. In case 1, if we do not assume uniform tie breaking, there is some indeterminacy in equilibrium win probabilities, just as in the classical median voter theorem, but this has no bearing on elected platforms and on welfare.

using the indifference of type c_{i-1}. This yields $l_i - l_{i-1} = 4b_e$ which is impossible since $l_i \leq 2b_e$. If instead that the interval $[c_{i-2}, c_{i-1})$ displays partial pandering, then indifference for type c_{i-1} implies

$$c_{i-1} + b_e - (c_{i-1} - b_e) = \frac{c_i + c_{i-1}}{2} - (c_{i-1} + b_e)$$

This yields $l_i = 4b_e$ which is impossible since $l_i \leq 2b_e$. So the interval $[c_{i-2}, c_{i-1})$ immediately to the left must involve expert pandering. Indifference for type c_{i-1} then implies

$$c_{i-1} + b_e - \left(\frac{c_{i-1} + c_{i-2}}{2} + b_e \right) = \frac{c_i + c_{i-1}}{2} - (c_{i-1} + b_e),$$

which yields $l_i = l_{i-1} + 2b_e$ which is also impossible since $l_i \leq 2b_e$ and $l_{i-1} > 0$. We conclude that if $l_i \leq 2b_e$ then $i = 1$.

We show next that if expert pandering occurs in some interval $[c_{i-1}, c_i)$ with $i < N$, then $l_{i+1} = l_i$, i.e., if expert pandering occurs in i-th interval with $i < N$, then every interval to the right must be of the same length as the i-th interval and also display expert pandering. To see this, consider two successive intervals $[c_{i-1}, c_i)$ and $[c_i, c_{i+1})$ and suppose the interval $[c_{i-1}, c_i)$ displays expert pandering with $i < N$. We must then have $l_i \geq 4b_e$. Let $x \in [c_i, c_{i+1})$ be the policy for the interval $[c_i, c_{i+1})$. Indifference of type c_i implies $x > c_i + b_e$ and

$$(c_i + b_e) - \left(\frac{c_{i-1} + c_i}{2} + b_e \right) = x - (c_i + b_e).$$

From the previous step $l_{i+1} > 2b_e$ since voter pandering can occur only in the left-most interval. If $2b_e < l_{i+1} < 4b_e$, then $x = c_{i+1} - b_e$ and the indifference condition above yields $l_{i+1} = l_i/2 + 2b_e \geq 4b_e$, a contradiction. So it must be that that $l_{i+1} \geq 4b_e$ and the policy $x = \frac{c_i + c_{i+1}}{2} + b_e$ displays expert pandering. The indifference condition above yields $l_i = l_{i+1} \geq 4b_e$ and all such intervals must have the same length.

Next, consider an interval $[c_{i-1}, c_i)$ with $2b_e < l_i < 4b_e$ that leads to partial pandering. We show now that if $i < N$, then we must have $l_{i+1} = 4b_e$. To see this, recall from above that since $[c_i, c_{i+1})$ is not the left-most interval, $l_{i+1} > 2b_e$. If $l_{i+1} > 4b_e$, then using the indifference of type c_i

$$c_i + b_e - (c_i - b_e) = \frac{c_{i+1} + c_i}{2} + b_e - (c_i + b_e),$$

we see $l_{i+1} = 4b_e$, a contradiction. But if $l_{i+1} \leq 4b_e$, then using the indifference of type c_i

$$c_i + b_e - (c_i - b_e) = c_{i+1} - b_e - (c_i + b_e),$$

we see $l_{i+1} = 4b_e$ and this interval displays expert pandering.

In sum, the necessary properties of an equilibrium are as follows: only the left-most interval can display voter pandering, if an interval displays partial pandering then every interval to its right displays expert pandering, and if an interval displays expert pandering so must every interval to its right that must also all be of the same length.

Fix the state space $[0,1]$ and let R be the remainder when $4b_e$ divides 1. Consider the equilibrium the highest ex-ante expected payoffs to the expert and the median voter. Call this the most informative equilibrium (for brevity). We show now that this equilibrium is given by a unique N^*-element interval partition of the state space that has the following properties:

1. Policy advice is uninformative (i.e., $N^* = 1$) if and only if $1/3 \leq b_e$;

2. If $1/4 \leq b_e < 1/3$, then $N^* = 2$ with voter pandering in the left interval and partial pandering in the right interval with the cutoff type $c_1 = \frac{2}{3} - 2b_e$;

3. If $b_e < 1/4$, then there are three cases to consider

   (a) if $R > 3b_e$, then $N^* = \lfloor \frac{1}{4b_e} \rfloor + 2$, the left-most interval yields voter pandering, followed by partial pandering, followed by expert pandering with the cutoffs given by $c_1 = \frac{2}{3}R - 2b_e$ and $c_i = R + 4b_e(i-2)$ for $i \geq 2$.

   (b) if $2b_e \leq R \leq 3b_e$, then $N^* = \lfloor \frac{1}{4b_e} \rfloor + 1$, the left-most interval yields partial pandering while all other intervals yield expert pandering with the cutoffs given by $c_1 = R$ and $c_i = R + 4b_e(i-1)$ for $i \geq 2$;

   (c) if $R < 2b_e$, then $N^* = \lfloor \frac{1}{4b_e} \rfloor + 1$, the left-most interval yields voter pandering, followed by partial pandering, followed by expert pandering with the cutoffs given by $c_1 = \frac{2}{3}(R + 4b_e) - 2b_e$ and $c_i = R + 4b_e(i-1)$ for $i \geq 2$.

Part (1): Assume on the contrary that $b_e \geq \frac{1}{3}$ and there exists an informative equilibrium. Then the only candidate is of the form $\{[0,c), [c,1]\}$ such that the interval $[0,c)$ leads to a voter pandering policy $x^* = \frac{c}{2}$ while the interval $[c,1)$ yields a partial pandering policy $x^* = 1 - b_e$. The expert of type $c > 0$ is indifferent so that $c = 2/3 - 2b_e < 0$, a contradiction.

Part (2) follows immediately from the proof of Part (1) and the earlier characterization of the necessary properties of equilibria in this proof.

Part (3): Since $1 > 4b_e$ it follows that $R > 0$. When $R > 3b_e$, we create $\frac{1-R}{4b_e}$ intervals of size $4b_e$ from the right and apply Part (2) of the lemma on the 'remaining' left-most section $[0, R)$ to obtain the partition. When $2b_e \leq R \leq 3b_e$, we again create $\frac{1-R}{4b_e}$ intervals of size $4b_e$ from the right and this time apply Part (1) of the lemma on the 'remaining' left-most section $[0, R]$ to obtain the partition. When $R < 2b_e$, we create $\frac{1-R}{4b_e} - 1$ intervals of size $4b_e$ from the right and apply Part (2) of the lemma on the 'remaining' left-most section $[0, R + 4b_e)$ to obtain the partition

To complete the proof of the proposition, we now show that the expert and the median voter have identical preference rankings over the equilibrium set and that the most informative equilibrium described above yields the highest ex-ante payoff. To prove this we employ the following steps.

STEP 1: Let $\mathcal{P}_1 = \{[0, c_1), [c_1, c_2), [c_2, c_3), \ldots, [c_{N-1}, 1]\}$ be an equilibrium such that the length of the interval $l_i = 4b_e$ for all $i \geq 3$, $l_1 < 2b_e$ and $2b_e < l_2 < 4b_e$ with $l_1 + l_2 < 4b_e$. Consider the partition $\mathcal{P}_2 = \{[0, c_2), [c_2, c_3), \ldots, [c_{N-1}, 1]\}$.

Claim 2 *The partition $\mathcal{P}_2$ is also an equilibrium but the median voter and the expert strictly prefer $\mathcal{P}_1$ to $\mathcal{P}_2$.*

Notice that under the assumed conditions, the policy $x^*([0, c_2))$ for $\mathcal{P}_2$ is equal to the policy $x^*([c_1, c_2))$ under $\mathcal{P}_1$. It follows that $\mathcal{P}_2$ is also an equilibrium partition. It is necessary and sufficient to compare the welfare of the agents concerned over the state sub-interval $[0, c_2)$.

Note that by construction, $x^*([0, c_1))$ is the median voter's best policy conditional on the event $[0, c_1)$. Hence, conditional on the event $[0, c_1)$, the median voter's expected payoff from $x^*([0, c_1))$ is strictly higher than from $x^*([0, c_2)) = x^*([c_1, c_2))$. Also, conditional on the event $[c_1, c_2)$, the expected payoff of the median voter from $x^*(([c_1, c_2))$ equals that from $x^*([0, c_2))$ since $x^*([0, c_2)) = x^*([c_1, c_2))$. Given $[0, c_1)$ is a strictly positive probability event, it follows that the median voter strictly prefers $\mathcal{P}_1$ to $\mathcal{P}_2$.

Now consider the expert. Since $\mathcal{P}_1$ and $\mathcal{P}_2$ are equilibrium partitions, the expert strictly prefers $x^*([c_{i-1}, c_i))$ to $x^*([c_{j-1}, c_j))$ for all $y \in [c_{i-1}, c_i)$, $i \neq j, i, j = 1, 2$. Again, since $x^*([0, c_2)) = x^*([c_1, c_2))$, it follows that conditional on the event $[0, c_1)$, the expected payoff of the expert from $x^*([0, c_1))$ is strictly greater than that from $x^*([0, c_2))$. Finally, conditional on the event $[c_1, c_2)$, the expected payoff of the expert is equal as $x^*([0, c_2)) = x^*([c_1, c_2))$. Thus the expert also strictly prefers $\mathcal{P}_1$ to $\mathcal{P}_2$. $\square$

STEP 2: Let $\mathcal{P}_3 = \{[0, c_1), [c_1, c_2), [c_2, c_3), \ldots, [c_{N-1}, 1]\}$ and $\mathcal{P}_4 = \{[0, c'_1), [c'_1, c'_2), [c'_2, c'_3), \ldots, [c'_{M-1}, 1]\}$

be two equilibrium partitions such that l_i and l'_j are each greater or equal to $4b_e$, where l_i and l'_j are the interval lengths for $\mathcal{P}_3$ and $\mathcal{P}_4$ respectively.

Claim 3 *The median voter and the expert strictly prefer $\mathcal{P}_3$ to $\mathcal{P}_4$ iff $N > M$.*

The expected utility of any agent with arbitrary bias $\beta \geq 0$ from partitions $\mathcal{P}_3$ and $\mathcal{P}_4$ are given by

$$W(\mathcal{P}_3; \beta) = -\frac{1}{12N^2} - \frac{1}{N} \sum_{i=1}^{N} (E[y|[c_{i-1}, c_i)] + \beta - x^*([c_{i-1}, c_i)))^2,$$

and

$$W(\mathcal{P}_4; \beta) = -\frac{1}{12M^2} - \frac{1}{M} \sum_{i=1}^{M} (E[y|[c'_{i-1}, c'_i)] + \beta - x^*([c'_{i-1}, c'_i)))^2.$$

Also, $x^*([c_{i-1}, c_i)) = E[y|[c_{i-1}, c_i)] + b_e$ and $x^*([c'_{i-1}, c'_i)) = E[y|[c'_{i-1}, c'_i)] + b_e$. Hence,

$$W(\mathcal{P}_3; b_e) = -\frac{1}{12N^2}, W(\mathcal{P}_4; b_e) = -\frac{1}{12M^2}$$

and the result follows for the expert. Further,

$$W(\mathcal{P}_3; 0) = -\frac{1}{12N^2} - b_e, W(\mathcal{P}_4; 0) = -\frac{1}{12M^2} - b_e,$$

and the result follows for the median voter as well.

This concludes the proof of the proposition. ∎

Proof of Proposition 4: We show here that (a) is equivalent to (d). The proofs of the other claims follow from the discussion in the text.

If the expert's bias $b_e > 1/24$, we can show by direct calculation that the voter is better off in the most informative equilibrium of our model compared to the most informative equilibrium of CS as long as $b_e < 5/18$. Accordingly, we focus attention on the case where $b_e \leq 1/24$ in what follows.

Recall that the loss to the median voter from a N element CS equilibrium is

$$L_{CS}(N) = \frac{1}{12} \sum_{i=1}^{N} l_i^3, \tag{4}$$

where

$$l_i = l_1 + 4b_e(i-1), i \geq 2 \tag{5}$$

and $\sum_{i=1}^{N} l_i = 1$. Since $l_1 \geq 0$, using (5) in (4) we obtain

$$L_{CS}(N) \geq \frac{1}{12}\left(64 b_e^3 \left(\frac{N(N-1)}{2}\right)^2\right).$$

Let L^* be the loss to the median voter from the most informative equilibrium of our model. Let $L_*(M)$ be the loss from from the most informative "equal length equilibrium". In such an equilibrium with M intervals, $M = \lfloor\frac{1}{4b_e}\rfloor$ with each interval of equal length $1/M$ and of size at least $4b_e$. Such an equilibrium exists for $b_e \leq 1/4$ and, by Proposition 3, platforms display complete expert pandering in each interval. By Proposition 3,we have

$$L^* < L_*(M) = \frac{1}{12}\sum_{i=1}^{M}\frac{1}{M^3} + b_e^2 = \frac{1}{12}\frac{1}{M^2} + b_e^2$$

Therefore, to show $L_{CS}(N) > L^*$ for all $b_e \leq 1/24$, it suffices to show

$$64 b_e^3 \left(\frac{N(N-1)}{2}\right)^2 \geq \frac{1}{M^2} + 12 b_e^2. \tag{6}$$

Note that since $b_e \leq 1/24$, we have $N \geq 4$ and $M \geq 6$.

Let $b^*(N) = \frac{1}{2N(N-1)}$ the cutoff at which the N element CS equilibrium is born, i.e., at $b_e = b^*(N)$, $l_1 = 0$ so that $l_2 = 4b_e$, $l_3 = 8b_e$, and so on and all CS intervals have lengths that are multiples of $4b_e$. It follows that at this value of b_e we must have $M = \frac{N(N-1)}{2} = 1/4b_e$ in the most informative equal length equilibrium with M elements with each interval of length exactly $4b_e$. In this case (6) becomes

$$64 b_e^3 \left(\frac{1}{4b_e}\right)^2 > 16 b_e^2 + 12 b_e^2$$

or $b_e < 1/7$ which holds since $1/7 > 1/24 \geq b_e$. We conclude that (6) holds at $b_e = b^*(N)$ for all $N \geq 4$. It remains to establish (6) for $b_e \in (b^*(N+1), b^*(N))$ for all $N \geq 4$.

We proceed as follows. Starting from $b^*(N)$, as we lower b_e slightly, N and M remain fixed in (6). But when we lower b_e all the way to $b^*(N+1)$, we get a new $N+1$ element CS equilibrium and a corresponding $M' = \frac{N(N+1)}{2} = M + N$ element most informative equal-length equilibrium. As shown above, $L_{CS}(N+1) > L_*(M')$.

In between $b^*(N+1)$ and $b^*(N)$, there are $N-1$ further cutoff values of b_e at each of which the the number of intervals of the most informative equal-sized equilibrium grow by 1. Let $b'(M+k)$ be these cutoff values of b_e, with $k = 0, ..., N$, and

$$b^*(N) = b'(M) > ... > b'(M+k) > ... > b'(M+N) = b^*(N+1).$$

Notice that the r.h.s. of (6), if one uses the $M+k$ element most informative equal length equilibrium, is less than what obtains if one uses the M element equal length equilibrium.

We now introduce further slack into our analysis by comparing the loss from the N element CS equilibrium with the M element equal length equilibrium, which is not necessarily the most informative equal length equilibrium when $b_e \in (b^*(N+1), b^*(N))$. For such b_e, N and M are fixed, $M = \frac{N(N-1)}{2}$ and so (6) becomes

$$64b_e^3 M^2 > 1/M^2 + 12b_e^2 \tag{7}$$

The difference between the l.h.s. and r.h.s. of (7) is monotone increasing in b_e if and only if $b_e > 1/8M^2$. But this is readily verified to be true using $b_e \geq b^*(N+1) = \frac{1}{2N(N+1)}$, $M = \frac{N(N-1)}{2}$ and $N \geq 4$.∎

Proof of Proposition 5. Suppose the two parties have committed to candidates with ideologies b_L and b_R. Fix the first stage message m_a and the second stage message m_e. The median voter (and hence a majority) will strictly prefer to elect the candidate who is ideologically closest to the median voter since such a candidate will choose policies that are closest to what the median voter likes given all available information. So such a candidate will win the election for sure, regardless of the information revealed by the expert. It follows that is in the incentive of each office-seeking party to choose a candidate that is identical in his ideology to the median voter. ∎

Proof of Proposition 6: We suppose that the expert's role is played by a voter with ideology b_s (the surrogate) and consider the payoff to the expert with ideology b_e from choosing such a surrogate. We provide a proof only for the claim that the optimal surrogate will have ideology $b_s > 0$ under indirect democracy, since it is well known that under direct democracy (the CS model) the optimal surrogate has bias $b_s = 0$.

Suppose the expert (with bias $b_e > 0$) commits to disclose her information to a surrogate with bias $b_s > 0$ before the game of electoral competition starts. Subsequently, the surrogate takes the role of the expert in the game summarized in Figure **??**. The loss to the expert from a N-interval equilibrium with the surrogate b_s is

$$L(b_s; b_e) = \sum_{i=1}^{N} l_i \int_{l_i} (y + b_e - \widehat{y}_i)^2 \frac{dy}{l_i}$$

where l_i = length of ith interval and $\widehat{y}_i$ = "action" in the ith interval. Let $\overline{y}_i$ = expected value of y given it is in i-th interval and let $\delta_i = \widehat{y}_i - \overline{y}_i$ be the "distortion" in the action from what the voter

would like. We can write

$$
\begin{aligned}
L(b_s; b_e) &= \sum_{i=1}^{N} l_i \int_{l_i} (y - \overline{y}_i + b_e - \delta_i)^2 \frac{dy}{l_i} \\
&= \sum_{i=1}^{N} l_i \int_{l_i} (y - \overline{y}_i)^2 \frac{dy}{l_i} + \sum_{i=1}^{N} l_i \int_{l_i} (b_e - \delta_i)^2 \frac{dy}{l_i} \\
&= \frac{1}{12} \sum_{i=1}^{N} l_i^3 - \sum_{i=1}^{N} l_i (2b_e - \delta_i) \delta_i + b_e^2
\end{aligned}
$$

The expected loss to the expert from choosing a voter aligned surrogate, i.e., $b_s = 0$, is b_e^2. So the difference in the loss between full disclosure to the voter and choosing a surrogate with bias $b_s > 0$ is

$$
\Delta = b_e^2 - L(b_s; b_e) = \sum_{i=1}^{N} l_i (2b_e - \delta_i) \delta_i - \frac{1}{12} \sum_{i=1}^{N} l_i^3.
$$

To show that $b_s = 0$ is not optimal it suffices to find some b_s and associated N for which $\Delta > 0$. We pick a N partition equilibrium where a $N+1$ equilibrium is "just born" for some $N > 1$. In this equilibrium, the left most interval is of length $3b_s$ (with partial pandering) and every other interval is of length $4b_s$ (with surrogate pandering). For such an equilibrium, we must have $l_1 = 3b_s$ and $l_i = 4b_s$ for $i \geq 2$, with $\sum_i l_i = 1$. Further, $\delta_1 = \frac{b_s}{2}$ and $\delta_i = b_s$ for $i \geq 2$. Using these, we obtain

$$
\Delta = \sum_{i=1}^{N} l_i (2b_e - \delta_i) \delta_i - \frac{1}{12} \sum_{i=1}^{N} l_i^3 = b_s^2 \left[3b_e + 4b_s + 8(N-1)b_e - \frac{7}{3} \right].
$$

As long as $b_s \neq 0$, $\Delta > 0$ iff the term in braces above is strictly positive. Furthermore, for fixed b_e, as b_s becomes small, N grows and so $8(N-1)b_e$ becomes arbitrarily large and so the term inside braces must be positive for b_s small enough. This completes the proof. ∎

Proof of Proposition 7. We need to show that the following profile of strategies is an equilibrium. The expert (captured party) chooses a platform $x_e^* = y + b_e$ as a function of y while the uninformed office-seeking party chooses a platform $x_u^* = 1 - b_e$. Notice that $x_e^* \in [b_e, 1 + b_e]$. Let x_e denote a generic platform choice by the expert's party and x_u a generic platform choice by the uninformed party.

First consider the voter's sequential rationality in this candidate equilibrium. When $x_e \notin [b_e, 1 + b_e]$, the voter's beliefs are free. We choose beliefs that allow the voter elect the uninformed platform for sure in this case. Otherwise, the voter infers $y = x_e - b_e$ and elects the platform closest

to this inferred state, randomizing if indifferent in a manner to be specified below. Notice that if the two parties behave as specified, the voter elects $\min[x_e^*, x_u^*]$.

Consider now the expert party's rationality. If it behaves as specified, then for all $y < x_u^* - b_e$, we get $x_e = x_e^* = y + b_e < x_u^*$ and so the voter elects x_e^*. Since this is the ideal policy of the expert in these states, there is no profitable deviation for the expert in such cases. On the other hand, if $y + b_e \geq x_u^*$, and the expert chooses $x_e = x_e^* = y + b_e$, the voter's loss from electing the expert's platform is b_e while her loss from electing the uninformed platform is at most b_e. So the voter weakly prefers to elect the uninformed platform and we suppose that the voter elects the uninformed platform when indifferent. If the expert deviates to any other platform $x_e < x_u^*$, and in the interval $[b_e, 1 + b_e]$ in these states, then the voter infers $y = x_e - b_e < x_e < x_u^*$ and elects the expert's platform. But since $y + b_e > x_u^*$, this outcome is worse for the expert than letting x_u^* get elected. So such a deviation is unprofitable for the expert. On the other hand, if the expert deviates to some $x_e \notin [b_e, 1 + b_e]$, then voter beliefs are free and the voter elects x_u^* so such a deviation is not profitable for the expert either. We conclude that the expert's behavior is sequentially rational in all states y.

Next consider the uninformed office-seeking party's rationality. If it behaves as specified, it wins the election when $x_e^* = y + b_e \geq x_u^*$ which occurs with probability $2b_e$. By deviating to any other platform x_u, it can win only the voter's loss from electing x_u is at most b_e, the loss from electing x_e^*. This can occur when $y \in [x_u - b_e, x_u + b_e]$ which occurs with probability at most $2b_e$. So the uninformed party does not have a profitable deviation from its prescribed platform.∎

8 Appendix B. Other equilibria

The equilibrium characterized in Proposition 3 is the most informative equilibrium (and payoff dominant for both the expert and the voter) within the class of equilibria where (i) the expert's advocacy message is interval partitional and (ii) we select an influential equilibrium in the endorsement stage whenever one exists. Such a selection rule does not necessarily select the ex-ante payoff dominant equilibrium.

Are there other equilibria under indirect capture, that do not satisfy the restrictions above and that are better for the voter than the equilibria we analyze? For completeness, we present two examples in this section that show that such equilibria may exist. For both examples, we take
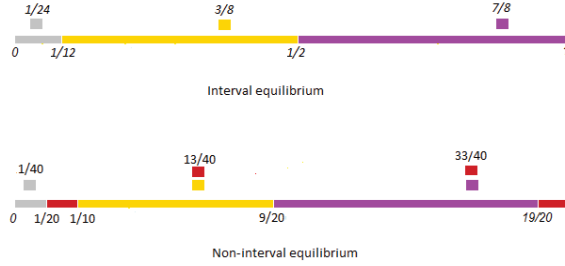
Figure 9: Non-interval equilibrium

$b_e = 1/8$.

Example 1 *(Non-interval advocacy)*

We construct an equilibrium where the expert's first stage advocacy message does not necessarily reveal an interval for y and the parties choose different platforms after such non-interval stage messages.[30] In the top panel of Figure 9, we present the most informative equilibrium for $b_e = 1/8$, using Proposition 3. This equilibrium has three intervals, with corresponding convergent platform choices, as depicted in the figure. The left-most interval displays voter pandering, followed by partial pandering in the middle, followed by expert pandering in the right-most interval.

In the bottom of Figure 9, we depict another equilibrium that we construct from the top equilibrium. In this equilibrium, policy advocacy does not necessarily take an interval partitional form. The expert sometimes sends a message that reveals that y lies in the union of two disjoint, equally probable intervals, $[1/20, 1/10]$ and $[19/20, 1]$ (depicted in red in Figure 9). The other possible advocacy messages each reveal an interval for y with subsequent platform choices in accordance with Proposition 3, as depicted in the figure.

For the non-interval message, $y \in [1/20, 1/10] \cup [19/20]$, there is platform divergence of a particular sort. One party chooses a platform exactly at $13/40$, the common platform choice after the interval message $y \in [1/10, 9/20]$. The other party chooses its platform at $33/40$, the common platform choice after the interval message $y \in [9/20, 19/20]$. Subsequently, the expert endorses the left platform $13/40$ if $y \in [1/20, 1/10]$ and the right platform $33/40$ when $y \in [19/20, 1]$. The

---

[30]If the parties choose the same platform for every possible message, then standard arguments show that advocacy must take an interval partitional form (see lemma 1 in CS, for instance). So for platform divergence to occur in our model, it is necessary that the expert's first message does not take the form of revealing an interval for y.
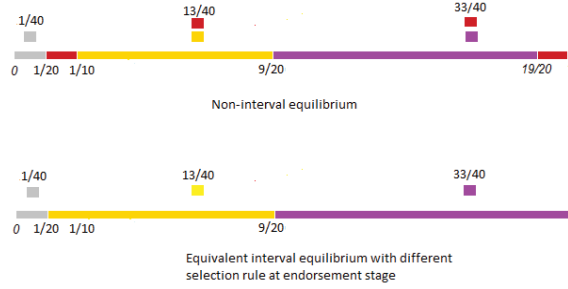
Figure 10: Selection at endorsement stage

endorsement is influential and the endorsed party wins the election with probability 1. When the parties choose their platforms, each party expects to receive an influential endorsement and win the election with probability 1/2, given the choice of the other party. It is straightforward to check the expert's advocacy strategy and subsequent platform choices by the two parties, as depicted in Figure 9 and described above, constitute an equilibrium. We omit the details.

The key feature that allows one to construct such an equilibrium is that the conditional expectation $E[y|y > x_{mid} - b_e, m_a]$ is not *strictly* increasing in x_{mid} when m_a reveals that y is in the union of two disjoint intervals. This creates a multiplicity in possible equilibrium platform choices following a non-interval advocacy message. This allows to choose platforms in precisely in a way the makes it incentive compatible for the expert to send a first stage non-interval message (and all her other messages).

Example 2 *(Selection at the endorsement stage)*

In this example, we create an interval partitional equilibrium using the non-interval equilibrium depicted in the bottom of Figure 9. We do this by altering the selection rule at the endorsement stage. Specifically, we select the babbling outcome at the endorsement stage, after certain platform choices, even though the expert can credibly send influential endorsements. Freedom in selecting between equilibria in the continuation game allows a wide range of possible outcomes.

In the top of Figure 10, we present the non-interval partitional equilibrium of Figure 9. In the bottom of Figure 10, we present an outcome equivalent interval partitional equilibrium, constructed by coalescing the two segments, $[1/20, 1/10]$ and $[19/20, 1]$, of the non-interval message with an adjacent interval message. In particular, we specify that at the advocacy stage the expert either reveals $y \in [0/1/20]$ or that $y \in [1/20, 9/20]$, or that $y \in [9/20, 1]$. For each such interval advocacy

message, we specify that both parties choose a common platform identical to what they would choose in the top panel of Figure 10, after an interval advocacy message from the expert, as depicted in the figure.

These platform choices are not consistent with Proposition 3. But we ensure that it is incentive compatible for the parties to choose the specified platforms by suitable selection at the endorsement stage. For instance, when the expert's first stage message reveals $y \in [9/20.1]$, Proposition 3 states that both parties should locate at 17/20, the expert's expected ideal point. However, in the bottom of Figure 10, we support the common platform choice at the lower 33/40 by selecting the babbling outcome at the endorsement stage if any party deviates rightwards. This eliminates the possibility of a profitable deviation that relies on credible endorsements forcing both parties to behave as specified.

It should not be surprising that communication games with multiples stages of communication may have a large multiplicity of equilibria. The two examples of this section show that the restriction to the class of equilibria that we focus on limits our freedom to support a wider range of possible outcomes. Since we do not necessarily select the ex-ante payoff dominant equilibrium for the voter, we understate the welfare benefits of indirect democracy under expert capture.

indirect democracy under expert capture.

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