A Model of Focusing in Political Choice*

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Abstract

This paper develops a theoretical model of voters' and politicians' behavior based on the notion that voters focus disproportionately on, and hence overweight, certain *attributes* of policies. We assume that policies have two attributes—benefits and costs—and that voters focus more on the attribute in which their options differ more. First, we consider exogenous policies and show that voters' *focusing* polarizes the electorate. Second, we consider the endogenous supply of policies by office-motivated politicians who take voters' distorted focus into account. We show that focusing leads to inefficient policies, which cater excessively to a subset of voters: social groups that are larger, have more distorted focus, and are more sensitive to changes in a single attribute are more influential. Finally, we show that augmenting the classical models of voting and electoral competition with focusing can contribute to explain puzzling stylized facts as the inverse correlation between income inequality and redistribution or the *backlash effect* of extreme policies.

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1 Introduction

Many public policies have multiple *consequences* and involve a trade-off between their benefits and their costs, not only for society as a whole but also from the perspective of the single citizen. Increasing the level, or the degree of implementation, of these policies leads to larger benefits as well as larger costs for all citizens. A prominent example is the size of government: higher revenues give governments the ability to provide more public goods (infrastructure, mandatory spending programs, etc.) but require higher taxation. Another example, which has been at the center of public debate recently, is the degree of government surveillance: increasing monitoring leads to larger benefits—namely, a lower chance of terrorist attacks—but also to larger costs—namely, less privacy and more limitations to personal freedom. Many other policies share this feature.[1]

In all these policy domains, how citizens weight policies' different consequences is crucial for the formation of their political preferences. Even when citizens have access to detailed information on policies' benefits and costs, evaluating these policies is a complex task, associated with low stakes and no direct feedback from experience, as an individual's political choice is unlikely to be pivotal. This might lead citizens to consistently misperceive the overall value of the available alternatives. In particular, a large body of experimental research in the social sciences has documented that preferences over options with multiple consequences, or *attributes*, are influenced by the environment.[2] Building on this evidence, economists have recently developed models where the choice set can distort the relative weights a decision-maker attaches to the attributes of an alternative (Bordalo, Gennaioli and Shleifer, 2012, 2013a,b, 2015a,b; Kőszegi and Szeidl, 2013; Bushong, Rabin and Schwartzstein, 2015) and the predictions of these models have been shown to be consistent with behavior in controlled laboratory experiments (Avoyan and Schotter, 2016; Dertwinkel-Kalt, Gerhardt, Riener, Schwerter and Strang, 2016; Mormann and Frydman, 2016; Dertwinkel-Kalt, Köhler, Lange and Wenzel, 2017). At the same time, the theoretical implications of this *selective focus* for political behavior are largely unexplored and unclear. In fact, most theories of voting are based on the classic model of choice where the subjective value each option gives to a decision-maker

[1]Other examples include the degree of industry regulation, as more intervention means higher consumer protection and lower risk of systemic crises but also less competition and product innovation; immigration policy, as more openness means a larger working age population and more sustainable social security programs but also higher heterogeneity of preferences and social turmoil; and the degree of environmental regulation, as stricter regulation means higher quality of life and lower chance of environmental catastrophes but also higher costs of production and private investments.

[2]In particular, manipulating the set of available alternatives affects choice over consumer products which differ in quality and price (Huber, Payne and Puto, 1982; Simonson, 1989; Simonson and Tversky, 1992; Heath and Chatterjee, 1995); choice over lotteries which vary in prizes and probabilities across alternatives (Allais, 1953; Slovic and Lichtenstein, 1971; Herne, 1999); and choice over monetary allocations which differ in efficiency and fairness (Roth, Murnighan and Schoumaker, 1988; Galeotti, Montero and Poulsen, 2015).

is independent of the other available options.

In this paper, we develop a model of voters' and politicians' behavior based on the idea that voters perceive policies' benefits and costs differently depending on the choice environment. We assume that a voters' attention is captured by the attribute in which the available policies differ more and that, in turn, this attribute is overweighed in the decision making process. This assumption is based on the notion that our limited cognitive resources are unconsciously attracted by a subset of the available sensory data (Taylor and Thompson, 1982) and, in particular, that "our mind has a useful capability to focus on whatever is odd, different or unusual" (Kahneman, 2011). In our basic framework, a continuum of voters in different social groups chooses the location of a unidimensional policy (e.g., the size of government or the degree of government surveillance). Each policy has two *attributes*: it gives to all voters benefits and costs. The benefits and costs yielded by a policy are increasing in its level or degree of implementation: albeit citizens in different social groups enjoy different benefits and suffer different costs from a given policy level, larger policies give to all voters larger benefits and larger costs than smaller policies. For voters in a given group, the *consumption utility* from a policy equals the difference between its benefits and its costs. However, when evaluating policies, voters use *focus-weighted utility* instead of consumption utility. As discussed above, we assume that voters focus more on the attribute in which options differ more, that is, on the attribute which delivers the greater range of consumption utility.

We present four sets of results. First, we analyze the consequences of focusing for voters' preferences over an exogenous pair of policies. We show that voters focus on the relative advantage—that is, the larger benefits or the smaller costs—of the policy which gives them the higher consumption utility. To understand why, consider a citizen who receives higher consumption utility from the larger policy in the choice set. For this citizen, the larger benefits from the larger policy more than compensate its larger costs. This happens if and only if the range of benefits in the citizen's choice set is larger than the range of costs. Since voters' attention is attracted by the attribute with larger variance, this leads the citizen to focus on benefits and, thus, to overweight benefits and underweight costs in his focus-weighted utility. As a consequence, focusing does not affect what policy a voter prefers but it strengthens the intensity of preferences between this policy and the alternative—that is, it *polarizes* the electorate.

Second, we consider the effect of focus on the *endogenous* formation of voters' choice set by introducing *focusing voters* into a model of electoral competition between two office-motivated parties. In the unique equilibrium of this game, the two parties offer the same policy and, thus, voters have undistorted focus. Nonetheless, any deviation from the equilibrium policies triggers voters' selective focus—on different attributes for different voters—and, thus, focusing affects the politicians' electoral calculus. We show that equilibrium policies are generically different than the ones emerging with rational voters and do not maximize utilitarian welfare; and that politicians are more likely to inefficiently cater to larger groups, to groups with more distorted focus, and to groups that are more sensitive to changes in the attribute they (marginally) focus on. This last determinant of political influence, which only emerges with selective focus, can dominate size and make minority groups more important in the electoral calculus. An empirical implication of this result is that, when offering policies which yield homogeneous benefits and heterogenous costs (e.g., environmental protection or humanitarian relief to refugees, which features dispersed benefits and concentrated costs), politicians might be overly responsive to a minority which prefers relatively small policies and is prone to focus on costs. On the other hand, an electoral campaign centered around a policy delivering heterogeneous benefits and homogenous costs (e.g., public infrastructure or industry-specific subsidies, which feature concentrated benefits and dispersed costs), is more likely to woo a minority which prefers relatively large policies and is prone to focus on benefits. Our model highlights that policy capture from special interests can be a consequence of the psychology of attention without relying on the coordination and costly collective action necessary for lobbying. When attention and, in turn, preferences are influenced by the choice environment, a small group which neglects one side of the trade-off but is really sensitive on the other can be overly influential in obtaining what it desires.

Third, we explore the relevance of voters' distorted attention in one important application, fiscal policy. In particular, we consider a stylized Meltzer and Richard (1981) model where parties offer a public good funded by a proportional tax rate and show that the model helps explain facts that are puzzling from the perspective of existing political economy theories—the negative correlation between income inequality and both the support for redistribution (Ashok, Kuziemko and Washington, 2015) and the top marginal tax rates (Piketty, Saez and Stantcheva, 2014). Following a marginal deviation from the convergent equilibrium policies, poor voters—who prefer more redistribution—focus on the public good's benefits, while rich voters—who prefer less redistribution—focus on the public good's costs. If a shock to income inequality mainly affects how revenues are raised, selective focus amplifies rich voters' sensitivity to policies more than poor voters': the former group focuses on costs and overweighs its higher tax bill; on the other hand, the latter group focuses on benefits and neglects the increased bang-for-the-buck of redistributive measures. This makes poor voters lukewarm towards more redistribution and rich voters very responsive to the promise of tax cuts. Thus, rich voters become more influential in the politicians' calculus even when they constitute a minority of the population and they do not engage in lobbying to gain the favors of political elites.

Finally, we consider more general choice sets, with a finite number of policies. We show that, when the choice set includes more than two policies, focusing does not only affect the intensity of preferences but it can also affect its ranking. We discuss how the introduction of extreme policies in the voters' choice set or *consideration set*—for example, a status quo policy, a policy enacted in a neighboring country, or a policy introduced in the public debate by the media—can generate a *backlash effect* and change voters' preferences, leading them to perceive more favorably the policies at the other end of the spectrum. If we interpret the decision of UK citizens to leave the European Union (EU) as the addition of this extreme policy to the choice set of voters in other European countries, the backlash effect emerging from our model can explain why support for the EU has risen in EU member states in the wake of Brexit.

Our work is primarily related to a recent, yet rapidly growing, research program in *behavioral political economy*, which studies electoral competition or political agency models when voters employ decision heuristics or are prone to cognitive biases. This literature considers voters who are subject to negativity bias or loss aversion (Alesina and Passarelli, 2015; Lockwood and Rockey, 2015), correlation neglect (Levy and Razin, 2015), overconfidence (Ortoleva and Snowberg, 2015), time-inconsistency (Bisin, Lizzeri and Yariv, 2015), reluctance to explicitly consider trade-offs (Patty, 2007), self-serving bias in moral judgement (Passarelli and Tabellini, 2017), confirmation bias (Lockwood, 2017), attribution error (Glaeser and Ponzetto, 2017), partisan affect (Diermeier and Li, 2017b), or voters who use stochastic reinforcement or aspiration-based learning rather than strategic reasoning (Bendor, Diermeier, Siegel and Ting 2011; Andonie and Diermeier 2017; Diermeier and Li 2017a). More closely related to this paper, Callander and Wilson (2006, 2008) introduce a theory of Downsian competition with *context-dependent voting* where the propensity to turn out and vote for the preferred candidate is greater when the other candidate is more extreme, and apply it to the puzzle of why politicians are ambiguous in their campaigns.

This paper also contributes to the theoretical literature on focusing (or *salient-thinking*) in economic choice: Bordalo et al. (2012, 2013a,b, 2015a,b), Cunningham (2013), Kőszegi and Szeidl (2013), and Bushong et al. (2015) introduce models where the choice set distorts the relative weights a decision-maker attaches to the attributes of an alternative.[3] We share with these models the notion that the main determinant of these weights is the *range* of utilities across an attribute.[4] With respect to these models, we consider agents with heterogeneous preferences, the aggregation of these agents' conflicting preferences in a collective choice, and the endogenous formation of the choice set by political candidates.

[3] In earlier work, Rubinstein (1988) and Leland (1994) also propose models of context-dependent choice where the similarity of attributes affects the evaluation of an option. They focus on choice over lotteries and do not motivate their model with the cognitive psychology of attention.

[4] In Section 2, we discuss how our assumptions on the mapping from the choice set to the relative weights compare with the assumptions in these models.

Less closely related to this paper is the theoretical literature on poorly informed voters (Glaeser, Ponzetto and Shapiro, 2005; Gavazza and Lizzeri, 2009; Gul and Pesendorfer, 2009; Ponzetto, 2011; Glaeser and Ponzetto, 2014; Matějka and Tabellini, 2016; Ogden, 2016; Prato and Wolton, 2016). Contrary to our model, where voters have complete information on policies, these works consider voters who are uncertain about candidates' policies and receive or acquire information prior to casting their vote. The most closely related contributions are Prato and Wolton (2016) and Matějka and Tabellini (2016) who consider politicians' incentives when voters have limited cognitive resources (or attention) and allocate them endogenously to improve the available information on their policy options. The selective focus we study is inherently different from this *rational inattention*: while the former concerns *stimulus-driven* and *ex-post* allocation of attention, the latter concerns *goal-driven* and *ex-ante* allocation of attention. The (unconscious) bottom-up process we introduce and the (conscious) top-down process studied by the existing literature have both been shown to be important channels contributing simultaneously and independently to a decision-maker's overall allocation of attention in performing a task (Connor, Egeth and Yantis, 2004; Ciaramelli, Grady, Levine, Ween and Moscovitch, 2010; Pinto, van der Leij, Sligte, Lamme and Scholte, 2013).

The reminder of the paper proceeds as follows. Section 2 lays out the basic model with binary choice sets. In Section 3, we derive results for exogenous choice sets. In Section 4, we introduce a model of electoral competition and present results for endogenous choice sets. In Section 5, we apply our framework to a specific policy domain and show how focusing shapes electoral platforms for public good provision and income taxation. In Section 6, we generalize the model to choice sets with an arbitrary number of policies. Section 7 concludes.

2 Model

Consider a continuum of voters who belong to $n \geq 2$ social groups. The fraction of voters in group $i \in N = \{1, \ldots, n\}$ is $m_i > 0$, with $\sum_{i \in N} m_i = 1$. All voters from the same social group have the same policy preferences. In particular, each policy $p \in \mathbb{R}_+$ has two *attributes*: it provides voters in group i with benefits, $B_i(p)$, and with costs, $C_i(p)$. Therefore, a voter in group i derives *consumption utility* from policy p equal to:

$$V_i(p) = B_i(p) - C_i(p). \tag{1}$$

The same policy can yield different benefits and costs to voters in different social groups.

As we discussed in the Introduction, there are many examples of policies with multiple consequences for voters and involving a trade-off between benefits and costs.

We make the following assumptions on the benefit and cost functions:

Assumption 1. *(A1) For all $i \in N$ and all $p \in \mathbb{R}_+$, (a) benefits are increasing and concave in p: $B_i(p) \geq 0$, $B_i'(p) > 0$, $B_i''(p) \leq 0$; (b) costs are increasing and convex in p: $C_i(p) \geq 0$, $C_i'(p) > 0$, $C_i''(p) \geq 0$; (c) at least one inequality between $B_i''(p) \leq 0$ and $C_i''(p) \geq 0$ is strict.*

Assumption 2. *(A2) For all $i \in N$, V_i admits an interior maximum at p_i (group i's "consumption bliss point"): there exists $p_i > 0$ such that $B_i'(p_i) - C_i'(p_i) = 0$.*

Assumption 3. *(A3) For all $i \in N$ and all $p \in \mathbb{R}_+$, if $i < n$, $B_i'(p) \leq B_{i+1}'(p)$ and $C_i'(p) \geq C_{i+1}'(p)$, with at least one strict inequality.*

Assumptions A1 and A2 imply that $V_i(p)$ is strictly concave in p and single-peaked around p_i, group i's *consumption bliss point*. Since $B_i'(p_i) - C_i'(p_i) = 0$, Assumption A3 implies that social groups with a lower index have a lower consumption bliss point.[5] We maintain A1 and A2 throughout the paper, while we invoke A3 explicitly when needed.[6]

Our key assumption and main departure from the classical political economy models is that, when evaluating policies, voters use their *focus-weighted utility* rather than their consumption utility. Consider a *choice set* composed of two policies: $\mathcal{P} = \{p_A, p_B\}$.[7] Let $\Delta_i^B(\mathcal{P})$ be the range of benefits in $\mathcal{P}$ for voters in group i:

$$\Delta_i^B(\mathcal{P}) = |B_i(p_A) - B_i(p_B)|. \tag{2}$$

Let $\Delta_i^C(\mathcal{P})$ be the range of costs in $\mathcal{P}$ for voters in group i:

$$\Delta_i^C(\mathcal{P}) = |C_i(p_A) - C_i(p_B)|. \tag{3}$$

We assume that voters focus more on the attribute in which their available options differ more, that is, on the attribute which generates a greater range of consumption utility. This assumption is compatible with the psychology of human cognition and versions of it have already been explored in a number of economic contexts (Loomes and Sugden, 1982; Rubinstein, 1988; Bordalo et al., 2013b, 2015a; Kőszegi and Szeidl, 2013). The core tenet of this assumption is that focus is driven by the *salience* of an attribute. The psychology literature suggests that the detection of the salient features of the environment is a key mechanism driving the allocation of cognitive resources and that

[5] Formally, since $B_i'(p_i) - C_i'(p_i) = 0$, A3 implies $B_{i+1}'(p_i) - C_{i+1}'(p_i) > 0$ and, thus, $p_i < p_{i+1}$ $\forall i < n$.
[6] When we do not assume A3, we index social groups so that $p_i < p_{i+1}$ for all $i < n$.
[7] In Section 6, we consider a finite choice set, $\mathcal{P} = \{p_A, p_B, \ldots\}$, with $|\mathcal{P}| \geq 2$.

salience typically stems from contrast (Nothdurft, 2005; Baumeister and Vohs, 2007).[8] Using this language, we assume that larger differences are more salient and, thus, that voters focus on the attribute with a larger range on the utility space.

Formally, we assume that voters in group i *focus on benefits* if $\Delta_i^B(\mathcal{P}) > \Delta_i^C(\mathcal{P})$, *focus on costs* if $\Delta_i^B(\mathcal{P}) < \Delta_i^C(\mathcal{P})$ and have *undistorted focus* if $\Delta_i^B(\mathcal{P}) = \Delta_i^C(\mathcal{P})$.

Assumption 4. *(A4) For a voter in group i, the focus-weighted utility from $p \in \mathcal{P}$ is:*

$$\widetilde{V}_i(p|\mathcal{P}) = \begin{cases} \frac{2}{1+\delta_i} B_i(p) - \frac{2\delta_i}{1+\delta_i} C_i(p) & \text{if } \Delta_i^B(\mathcal{P}) > \Delta_i^C(\mathcal{P}) \\ \frac{2\delta_i}{1+\delta_i} B_i(p) - \frac{2}{1+\delta_i} C_i(p) & \text{if } \Delta_i^B(\mathcal{P}) < \Delta_i^C(\mathcal{P}) \\ B_i(p) - C_i(p) & \text{if } \Delta_i^B(\mathcal{P}) = \Delta_i^C(\mathcal{P}) \end{cases}$$

where $\delta_i \in (0, 1]$ decreases in the severity of focusing.

When voters in group i focus on benefits (costs), the relative weight they place on benefits (costs) is larger than the weight used by rational voters—$\frac{2}{1+\delta_i} \in [1, 2)$; and the weight they place on costs (benefits) is smaller than the weight used by rational voters—$\frac{2\delta_i}{1+\delta_i} \in (0, 1]$. The weights on benefits and costs change discontinuously when the object of focus changes but remain constant when focus remains on a given attribute.[9] The weighting distortion is allowed to be heterogeneous across social groups. As δ_i goes to 1, focusing voters in group i converge to rational voters. As δ_i goes to 0, focusing voters in group i consider only the attribute that attracts their attention and completely neglect the other. Voters in group i focus on the same attribute for both policies in a given choice set.[10] Finally, the normalization of the utility weights ensures that the sum of the weights on benefits and costs is independent of δ_i and of the attribute voters focus on. In other words, the normalization ensures that the model is not biased towards focus on any single attribute by construction.

[8] Similarly to what we do, Bordalo et al. (2012, 2013a,b, 2015a,b) assume that the salience of different attributes and, thus, the decision-maker's focus is driven by contrast, what they call *ordering*. In addition, they assume that contrast is perceived with *diminishing sensitivity*. We study the consequences of adding diminishing sensitivity to our model in Appendix A3 and show that this implies focus on costs for any choice set.

[9] Bordalo et al. (2013b, 2015a) consider similar focus weights, while Kőszegi and Szeidl (2013) use weights that change continuously with the range of an attribute. We use discontinuous weights for mathematical tractability: with continuous weights, the focus-weighted utility is not necessarily concave, even under assumption A1, and its derivative with respect to p includes an additional term arising from the marginal change in the weights. Nevertheless, most of the results we present below continue to hold if we assume continuous weights.

[10] Kőszegi and Szeidl (2013) make a similar assumption. In Bordalo et al. (2012, 2013a,b, 2015a,b), in principle, the salient attribute of different options can be different. However, with binary choice sets and *homogeneity of degree zero*, as assumed in Bordalo et al. (2013b, 2015a), the same attribute is salient for both options.

3 Consequences of Focus on Voters' Preferences

Consider an exogenous choice set given by $\mathcal{P} = \{p_A, p_B\}$. When $p_A = p_B$, all voters have undistorted focus. Consider $p_A \neq p_B$ and, without loss of generality, $p_A > p_B$. By Assumption A1, p_A gives all voters larger benefits and larger costs than p_B. In this sense, p_A's *relative advantage* lies in its larger benefits, while p_B's relative advantage lies in its lower costs. Proposition 1 shows that voters focus on the relative advantage of the policy which delivers the higher consumption utility.[11]

Proposition 1. *Assume $\mathcal{P} = \{p_A, p_B\}$ and $p_A \geq p_B$. Voters in group $i \in N$, (a) focus on benefits if and only if $V_i(p_A) > V_i(p_B)$; (b) focus on costs if and only if $V_i(p_A) < V_i(p_B)$; (c) have undistorted focus if and only if $V_i(p_A) = V_i(p_B)$.*

Consider a social group $i \in N$ that receives higher consumption utility from p_A, the larger policy in the choice set. For voters in this social group, the larger benefits from p_A more than compensate its larger costs. This happens if and only if the range of benefits—which measures the advantage of p_A in the consumption utility space—is larger than the range of costs—which measures the disadvantage of p_A in the same space. Given our assumption on the determinants of voters' attention, this leads voters in group i to focus on benefits.

Proposition 2 shows that focusing voters maintain the same ranking between the two policies in their choice set for any degree of focusing but that their intensity of preferences—that is, how much each voter cares about his preferred policy and, thus, the conflict of preferences between members of any two disagreeing groups—grows in the degree of focusing (that is, decreases in δ_i).

Proposition 2. *Assume $\mathcal{P} = \{p_A, p_B\}$. For all social groups $i \in N$, (a) focusing does not change the ranking of policies in voters' preferences, that is, the signs of $V_i(p_A) - V_i(p_B)$ and $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P})$ coincide; (b) focusing increases the intensity of preferences between policies, that is, the signs of $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P})$ and $-\frac{\partial}{\partial \delta_i}\left[\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P})\right]$ coincide.*

To understand the intuition behind Proposition 2, consider a group $i \in N$ that receives higher consumption utility from p_A, the larger policy. By Proposition 1, these voters overweight the relative advantage of p_A with respect to p_B and underweight its relative disadvantage. As a consequence, the difference in perceived, or focus-weighted, utility between the two options is larger than the difference in consumption utility, that is, $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) > V_i(p_A) - V_i(p_B)$.

The first part of Proposition 2 implies that distorted focus does not affect social choice when society votes over binary agendas and no abstention is allowed. However,

[11] We present all proofs in Appendix A1.

as we hope to show in the rest of this paper, this does not mean that focusing is not important in politics or collective decision making. In particular, as Proposition 2(b) suggest, focusing matters whenever the intensity of preferences affects the likelihood of casting a vote (for example, with costly voting) or the likelihood of voting for a particular candidate (for example, with stochastic choice, or whenever other considerations enter the voters' decision).[12] Moreover, selective focus can affect not only the intensity of preferences but also the ranking over options when the choice set is larger and includes more than two policies. We explore these last two possibilities in Sections 4, where we introduce a model of electoral competition with citizens who vote probabilistically, and in Section 6, where we show results for a finite choice set, possibly including more than two (exogenous or endogenous) options.

Proposition 3, which uses the order-restricted preferences implied by A3,[13] says that focusing separates the electorate into two contiguous subsets of social groups, or *factions*: a faction composed of voters with relatively high consumption bliss points—who focus on benefits—and a faction composed of voters with relatively low consumption bliss points—who focus on costs.

Proposition 3. *Assume A3 and $\mathcal{P} = \{p_A, p_B\}$. For any $i \in N$, (a) if voters in group i focus on benefits, then voters in groups $j > i$ focus on benefits; (b) if voters in group i focus on costs, then voters in group $j < i$ focus on costs; (c) if voters in group i have undistorted focus and $p_A \neq p_B$, then voters in group $j < i$ focus on costs and voters in group $j > i$ focus on benefits.*

Proposition 3 implies that focusing polarizes the electorate. Denote by p_i^c the *cost-focus bliss point* of voters in group i—that is, the unique maximizer of $\widetilde{V}_i$ when voters in group i focus on costs; and by p_i^b the *benefit-focus bliss point*—that is, the unique maximizer of $\widetilde{V}_i$ when voters in group i focus on benefits.[14] When $\delta_i \in (0, 1)$, we have $p_i^c < p_i < p_i^b$, where p_i^b increases and p_i^c decreases with the degree of focusing. As shown in Proposition 3, a subset of contiguous social groups focus on benefits while a subset of contiguous social groups focus on costs. Focusing pushes the perceived bliss points of the members of these two factions in opposite directions, exacerbating their disagreement: the perceived ideal policies of voters in the faction focusing on costs, or their cost-focus bliss points, are smaller than their consumption bliss points; the perceived ideal policies of voters in the faction focusing on benefits, or their benefit-focus bliss points, are larger

[12] For the same reason, focusing will also affect any other form of costly collective action (campaign contribution; declaration of support; volunteering or canvassing; active political participation).

[13] Order-restricted preferences satisfy the following: if $p > p'$ and $i < i'$ or if $p < p'$ and $i > i'$, then $V_i(p) > V_i(p') \Rightarrow V_{i'}(p) > V_{i'}(p')$ (Persson and Tabellini, 2000, Definition 3). When $p > p'$, we have $V_i(p) - V_i(p') = \int_{p'}^{p} [B_i'(x) - C_i'(x)]\, dx$ non-decreasing in i by Assumption A3. Similarly for $p < p'$. Because consumption utility is order-restricted, focus-weighted utility is as well, by Proposition 2.

[14] If p_i^b does not exist, set $p_i^b = \infty$.

than their consumption bliss points.

Corollary 1. *Focusing polarizes the electorate: the distance between the benefit-focus bliss points of the subset of contiguous groups (or faction) focusing on benefits and the cost-focus bliss points of the subset of contiguous groups (or faction) focusing on costs is increasing in the degree of focusing.*

Example 1. *Consider a society composed of two social groups, $i \in \{1, 2\}$, with $B_1(p) = \sqrt{p}$, $C_1(p) = \frac{p^2}{4}$, $B_2(p) = 4\sqrt{2p}$, and $C_2(p) = \frac{p^2}{2}$. Consider choice set $\mathcal{P} = \left\{\frac{5}{4}, \frac{7}{4}\right\}$. Voters in group 1 get higher consumption utility from $\frac{5}{4}$, $V_1\left(\frac{5}{4}\right) = 0.73 > V_1\left(\frac{7}{4}\right) = 0.56$, and they focus on costs since $\Delta_1^C(\mathcal{P}) = 0.38 > \Delta_1^B(\mathcal{P}) = 0.20$. Voters in group 2 get higher consumption utility from $\frac{7}{4}$, $V_2\left(\frac{7}{4}\right) = 5.95 > V_2\left(\frac{5}{4}\right) = 5.54$, and they focus on benefits, since $\Delta_2^B(\mathcal{P}) = 1.16 > \Delta_2^C(\mathcal{P}) = 0.75$. Rational voters evaluate policies using these consumption utilities. Focusing voters evaluate policies using focus-weighted utilities. Consider $\delta = 0.5$. Focusing voters prefer the same policy as rational voters: $\widetilde{V}_1\left(\frac{5}{4}|\mathcal{P}\right) = 0.22 > \widetilde{V}_1\left(\frac{7}{4}|\mathcal{P}\right) = -0.14$ and $\widetilde{V}_2\left(\frac{7}{4}|\mathcal{P}\right) = 8.96 > \widetilde{V}_2\left(\frac{5}{4}|\mathcal{P}\right) = 7.91$. At the same time, they perceive a larger utility differential between the two policies than rational voters: $\widetilde{V}_1\left(\frac{5}{4}|\mathcal{P}\right) - \widetilde{V}_1\left(\frac{7}{4}|\mathcal{P}\right) = 0.36 > V_1\left(\frac{5}{4}\right) - V_1\left(\frac{7}{4}\right) = 0.17$ and $\widetilde{V}_2\left(\frac{7}{4}|\mathcal{P}\right) - \widetilde{V}_2\left(\frac{5}{4}|\mathcal{P}\right) = 1.05 > V_1\left(\frac{7}{4}\right) - V_1\left(\frac{5}{4}\right) = 0.41$. In this sense, focusing polarizes society. Another way of seeing this is that the perceived bliss points are further apart than the consumption bliss points—$p_2^b = 3.17 > p_2 = 2 > p_1 = 1 > p_1^c = 0.63$.*

We have shown that focusing increases the intensity of preferences and creates factions that focus on different attributes. A natural question is whether this heightened intensity displays any pattern across social groups within a faction, that is, whether focusing distorts the perceived utility of some social groups more than others. From Proposition 2, we know that $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P})$ and $-\frac{\partial}{\partial \delta_i}\left[\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P})\right]$ have the same sign. The latter term measures the extent to which focusing intensifies preferences. Assuming the same degree of focusing across groups, that is, homogenous δ_i's, this term is proportional to $\int B_i'(x) + C_i'(x)dx$, integrated over $[\min\{p_A, p_B\}, \max\{p_A, p_B\}]$. For example, consider a policy delivering homogeneous benefits and heterogenous costs (e.g., environmental protection or humanitarian relief to refugees, which features dispersed benefits and concentrated costs). In this case, since B_i' is homogeneous and C_i' decreases in i, focusing intensifies more the preferences of social groups with relatively smaller consumption bliss points. Consider instead a policy delivering heterogeneous benefits and homogenous costs (e.g., public infrastructure or industry-specific subsidies, which feature concentrated benefits and dispersed costs). In this case, since B_i' increases in i and C_i' is homogeneous, focusing intensifies more the preferences of social groups with relatively larger consumption bliss points.

4 Electoral Competition with Focusing Voters

4.1 Modeling Electoral Competition

In the previous section, we considered the effect of focus on voters' preferences over an *exogenous* choice set. In this section, we consider the effect of voters' focus on the *endogenous* supply of policies by political parties or candidates.

In particular, we introduce focusing voters into a classical model of electoral competition, the probabilistic voting model à la Lindbeck and Weibull (1987). Two identical parties, $j \in \{A, B\}$, simultaneously announce a binding policy, $p_j \in \mathbb{R}_+$.[15] Voters observe parties' policies, evaluate them with their focus-weighted utility (rather than their consumption utility) and vote as if they are pivotal (or derive expressive utility from voting). The indirect utility voter v in group i receives when voting for each party is:

$$\begin{aligned} u_{v,i}(A) &= \widetilde{V}_i(p_A|\mathcal{P}) \\ u_{v,i}(B) &= \widetilde{V}_i(p_B|\mathcal{P}) + \epsilon_v \end{aligned} \tag{4}$$

where $\mathcal{P} = \{p_A, p_B\}$ is voters' endogenous choice set and $\epsilon_v \sim U[-\frac{1}{2\phi}, \frac{1}{2\phi}]$ is an individual-level shock to the relative popularity of party B, which is realized after policies are announced but before the election. Given these assumptions, voter v in group i votes for A if and only if $\widetilde{V}_i(p_A|\mathcal{P}) > \widetilde{V}_i(p_B|\mathcal{P}) + \epsilon_v$.

Parties are purely office-motivated and maximize their vote shares.[16] From the parties' perspective, the expected share of voters in group i who vote for A is:[17]

$$\tfrac{1}{2} + \phi \left[\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) \right]. \tag{5}$$

The two parties objective functions are:

$$\begin{aligned} \pi_A(p_A|\mathcal{P}) &= \tfrac{1}{2} + \phi \sum_{i \in N} m_i \left[\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) \right] \\ \pi_B(p_B|\mathcal{P}) &= 1 - \pi_A(p_A|\mathcal{P}). \end{aligned} \tag{6}$$

4.2 Benchmark: Endogenous Policies with Rational Voters

In this electoral game, parties simultaneously announce their policies. For all $j \in \{A, B\}$, a pure strategy of party j is a policy in $\mathbb{R}_+$. The solution concept we adopt is Nash equilibrium. As a benchmark, we first consider fully rational voters, that is, $\delta_i = 1$ for

[15] Analogously, parties can announce feasible pairs $(B_i(p_j), C_i(p_j))$ to each group $i \in N$.

[16] All results we present below are robust to parties maximizing the probability of winning.

[17] As commonly assumed in probabilistic voting models, we assume that ϕ is small enough to guarantee that vote shares are always interior.

all $i \in N$. In this case, $\widetilde{V}_i(p_A|\mathcal{P}) = B_i(p_A) - C_i(p_A)$ only depends on p_A, not on the entire choice set $\mathcal{P}$. Similarly, $\widetilde{V}_i(p_B|\mathcal{P}) = B_i(p_B) - C_i(p_B)$ only depends on p_B.

Proposition 4. *Assume $\delta_i = 1$ for all $i \in N$. A Nash equilibrium in pure strategies exists and is unique. The equilibrium policies are (p_r^*, p_r^*), where p_r^* is the unique solution to:*

$$\sum_{i \in N} m_i \left[B_i'(p) - C_i'(p)\right] = 0. \tag{$\mathcal{O}_r$}$$

Moreover, $p_r^* \in (p_1, p_n)$.

Proposition 4 shows that, when voters do not suffer from distorted focus, equilibrium policies maximize a *social consumption utility function* where the weight on each social group is determined by its population share, m_i. This means that electoral competition leads to policies that are optimal in an utilitarian sense, that is, policies that maximize the sum of voters' utilities.[18]

4.3 Endogenous Policies with Focusing Voters

We now introduce focusing voters. In order to convey a sharper intuition, we consider a society composed of two groups, where $p_1 < p_2$. We characterize the equilibrium for an arbitrary number of social groups in Appendix A2. In the rational benchmark, the equilibrium platforms are (p_r^*, p_r^*), where $p_r^* \in (p_1, p_2)$ is the unique solution to $m_1 V_1'(p) + m_2 V_2'(p) = 0$: a marginal deviation by either party results in a gain of votes from one group which is exactly offset by a loss of votes from the other group.

Focusing changes the parties' calculus. Consider a marginal deviation from (p_r^*, p_r^*) to (p, p_r^*). The expected vote share of the party deviating to p is proportional to $\widetilde{V}_i(p|\{p, p_r^*\}) - \widetilde{V}_i(p_r^*|\{p, p_r^*\})$. A first, important, implication of our assumptions is that a deviation by a single party changes voters' evaluation of the policies offered by both parties. Formally, a deviation to p changes both terms in $\widetilde{V}_i(p|\{p, p_r^*\}) - \widetilde{V}_i(p_r^*|\{p, p_r^*\})$.

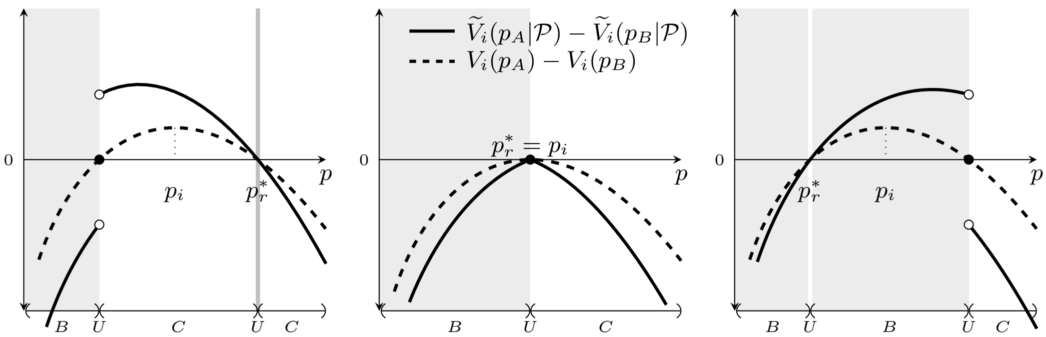
Consider first voters in group 1, that is, voters with a lower consumption bliss point. Figure 1a shows that a marginal deviation from $p_r^* > p_1$ to p implies that voters in group 1, who are now choosing from the set $\{p, p_r^*\}$, prefer the lower policy and, thus, focus on costs. As Lemma A1 shows formally, this means that the derivative of $\widetilde{V}_1(p|\{p, p_r^*\}) - \widetilde{V}_1(p_r^*|\{p, p_r^*\})$ with respect to p evaluated at p_r^* equals:

$$\tfrac{2\delta_1}{1+\delta_1} B_1'(p_r^*) - \tfrac{2}{1+\delta_1} C_1'(p_r^*). \tag{7}$$

[18] Note that this is not a feature of any electoral competition with office-motivated politicians and probabilistic voting: suboptimal equilibrium policies arise if the precision of the popularity shock, ϕ, is heterogeneous across social groups. We deliberately shut down this source of inefficiency to avoid a confounding factor and to highlight the inefficiencies that are solely due to focusing.

Figure 1: $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P})$ given $\mathcal{P} = \{p, p_r^*\}$
$B_i(p) = 2\sqrt{p}$, $C_i(p) = \frac{p^2}{2}$, $\delta_i = \frac{2}{3}$

(a) $p_r^* > p_i$ (b) $p_r^* = p_i$ (c) $p_r^* < p_i$



At the margin, voters in group 1 overweight costs and underweight benefits relative to their rational counterparts. This gives parties an incentive to run on *lower* platforms.

At the same time, this incentive is counter-balanced by a push to run on *larger* platforms, which results from the focus of voters in group 2. As Figure 1c shows, a marginal deviation from $p_r^* < p_2$ to p implies that voters in group 2, who are now choosing from the set $\{p, p_r^*\}$, prefer the larger policy and, thus, focus on benefits. This implies that the derivative of $\widetilde{V}_2(p|\{p, p_r^*\}) - \widetilde{V}_2(p_r^*|\{p, p_r^*\})$ with respect to p evaluated at p_r^* equals:

$$\tfrac{2}{1+\delta_2} B_2'(p_r^*) - \tfrac{2\delta_2}{1+\delta_2} C_2'(p_r^*). \tag{8}$$

At the margin, voters in group 2 overweight benefits and underweight costs, creating an incentive for parties to propose larger policies. The equilibrium platforms balance these two incentives, as characterized in equation ($\mathcal{O}_{f,2}$) in Proposition 5.[19]

Proposition 5. *Consider $n = 2$ with $p_1 < p_2$. A Nash equilibrium in pure strategies exists and is unique. Let:*

$$\mathcal{O}_{f,2}(p) = \tfrac{2m_1}{1+\delta_1}\left[\delta_1 B_1'(p) - C_1'(p)\right] + \tfrac{2m_2}{1+\delta_2}\left[B_2'(p) - \delta_2 C_2'(p)\right]. \tag{$\mathcal{O}_{f,2}$}$$

The equilibrium platforms of the two parties are (p_f^*, p_f^*), where:
(a) if $\mathcal{O}_{f,2}(p_1) > 0 > \mathcal{O}_{f,2}(p_2)$, $p_f^* \in (p_1, p_2)$ is the unique solution to $\mathcal{O}_{f,2}(p) = 0$;
(b) if $\mathcal{O}_{f,2}(p_1) \leq 0$, $p_f^* = p_1$;
(c) if $\mathcal{O}_{f,2}(p_2) \geq 0$, $p_f^* = p_2$.

Proposition 5 implies that groups that are larger and have more distorted focus are more influential in the electoral calculus. Larger groups, that is, groups with larger

[19] Proposition 5 follows from the more general existence and uniqueness result we prove in Appendix A2.

m_i, are a larger basin of votes and, hence, have larger impact on the equilibrium policy. Groups with more distorted focus, that is, groups with lower δ_i, have a stronger intensity of preferences between platforms, as noted in Proposition 2 and illustrated in Example 1, and, thus, are more sensitive to electoral announcements. These comparative statics are summarized in Corollary 2.

Corollary 2. *Consider the unique equilibrium policy of the electoral competition game with focusing voters and two groups, p_f^*. If $p_f^* \in (p_1, p_2)$, p_f^* approaches p_i when m_i increases or δ_i decreases for any $i \in \{1, 2\}$.*

Proposition 5 also shows that the equilibrium policy can coincide with the consumption bliss point of one of the two groups, something that cannot happen with rational voters. The intuition behind this result lies in the polarization of preferences induced by focusing (see Proposition 3 and Corollary 1). As discussed above, a marginal deviation from a pair of identical policies makes voters in group 1 focus on costs and voters in group 2 focus on benefits. Therefore, the electoral calculus of parties facing two groups of focusing voters is similar to the electoral calculus of parties facing two groups of rational but more strongly opposed voters, one with ideal policy $p_1^c < p_1$ and one with ideal policy $p_2^b > p_2$. For this reason, focusing might lead to extreme policies. When the equilibrium policy coincides with the consumption bliss point of one of the groups, it is *locally unresponsive* to the model parameters, that is, it remains constant in some regions of the parameter space.[20] This is another feature of equilibrium policies with focusing voters which is not shared with the case of rational voters.

Corollary 3. *Electoral competition with focusing voters might lead to extreme policies. The equilibrium policy might coincide with the consumption bliss point of a group of voters and, thus, be locally unresponsive to parameter changes.*

Finally, it is interesting to compare the equilibrium policy, p_f^*, to the utilitarian efficient policy, p_r^*, that emerges from competition with rational voters. In general, we can have both $p_f^* > p_r^*$ and $p_f^* < p_r^*$. Corollary 4 characterizes the direction of the inefficiency generated by focusing for two social groups and an homogeneous degree of focusing.[21]

Corollary 4. *Assume $n = 2$ and $\delta_1 = \delta_2$. The equilibrium policy with focusing voters is generically inefficient and can entail both underprovision and overprovision. We have:*

(a) $p_f^* = p_r^*$ *if and only if* $m_2 B_2'(p_r^*) = m_1 C_1'(p_r^*)$;

[20] This is due to a kink in the focus-weighted utility of this social group, as shown in Figure 1b.

[21] We omit the formal argument, which subtracts ($\mathcal{O}_r$) evaluated at p_r^* from ($\mathcal{O}_{f,2}$) and uses the fact that $\mathcal{O}_{f,2}(p)$ is strictly decreasing in p by Assumption A1.

(b) *$p_f^* > p_r$ if and only if $m_2 B_2'(p_r^*) > m_1 C_1'(p_r^*)$;*

(c) *with homogeneous benefits, that is, $B_1(p) = B_2(p)$ for all $p \in \mathbb{R}_+$, $p_f^* > p_r^*$ if and only if $m_2 B_1'(p_r^*) > m_1 C_1'(p_r^*)$, that is, if and only if $\frac{m_2}{m_1} > \frac{C_1'(p_r^*)}{B_1'(p_r^*)} > 1$;*

(d) *with homogeneous costs, that is, $C_1(p) = C_2(p)$ for all $p \in \mathbb{R}_+$, $p_r^* > p_f^*$ if and only if $m_1 C_2'(p_r^*) > m_2 B_2'(p_r^*)$, that is, if and only if $\frac{m_1}{m_2} > \frac{B_2'(p_r^*)}{C_2'(p_r^*)} > 1$.*

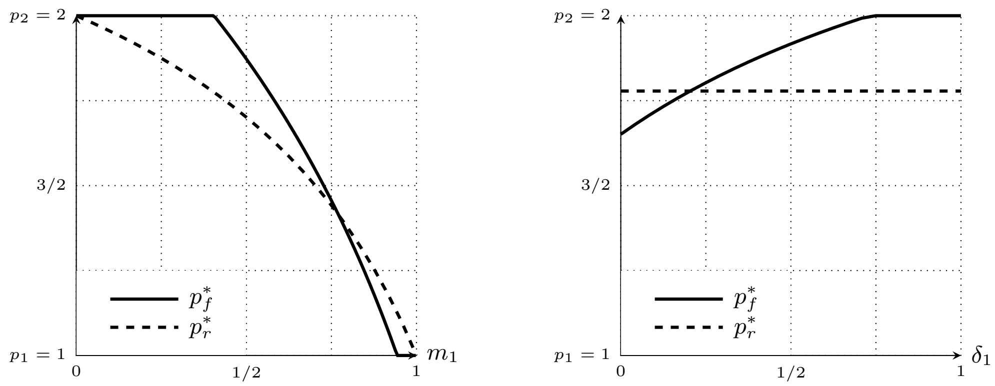
Corollary 4 implies that equilibrium policies are generically inefficient. Two factors determine what social group politicians inefficiently cater to: the groups' sizes and the groups' sensitivity to changes on the attribute they focus on. This latter factor, which only emerges with distorted focus, can dominate size and make minority groups more important in the electoral calculus. Our model highlights that policy capture from special interests can be a consequence of the psychology of attention without relying on the coordination and costly collective action necessary for lobbying. When attention and, in turn, preferences are influenced by the choice environment, a small group which neglects one side of the trade-off but is really sensitive on the other can be overly influential in obtaining what it desires. Consider a policy delivering homogeneous benefits and heterogenous costs (e.g., environmental protection or humanitarian relief to refugees, which features dispersed benefits and concentrated costs). In this case, policy might be captured by a minority which prefers relatively small policies and is prone to focus on costs. The third statement of Corollary 4 implies that the equilibrium policy is inefficiently large if and only if the social group which prefers relatively larger policies is a sufficiently large majority of the population; when the two social groups have similar sizes, the equilibrium policy is inefficiently small. Consider instead a policy delivering heterogeneous benefits and homogenous costs (e.g., public infrastructure or industry-specific subsidies, which feature concentrated benefits and dispersed costs). In this case, policy might be captured by a minority which prefers relatively large policies and is prone to focus on benefits. The fourth statement of Corollary 4 implies that the equilibrium policy is inefficiently small if and only if the social group which prefers relatively small policies is a sufficiently large majority of the population; when the two social groups have similar sizes, the equilibrium policy is inefficiently large.

Figure 2 shows an example of the equilibrium policy for specific functional forms of the benefits and costs functions. The two panels illustrate the comparative statics with respect to m_1 and δ_1 (Corollary 2). In both panels, for some parameter values, the equilibrium policy coincides with p_1 or p_2, and, in this cases, it is unresponsive to the model parameters (Corollary 3). In both panels, p_f^* can be both larger or smaller than the efficient policy, p_r^* (Corollary 4).

Figure 2: Equilibrium with focusing voters

$$B_1(p) = \sqrt{p},\ C_1(p) = \frac{p^2}{4},\ p_1 = 1,\ B_2(p) = 4\sqrt{2p},\ C_2(p) = \frac{p^2}{2},\ p_2 = 2$$

(a) Effect of m_1, $\delta_1 = \delta_2 = \frac{3}{4}$, $m_2 = 1 - m_1$ (b) Effect of δ_1, $\delta_2 = \frac{3}{4}$, $m_1 = \frac{2}{5} = 1 - m_2$



Example 2. *[Underprovision with Homogeneous Benefits and Heterogeneous Costs] Consider a society composed of two social groups, $i \in \{1, 2\}$, of same size, $m_1 = m_2 = \frac{1}{2}$, and degree of focusing, $\delta_1 = \delta_2 = \delta \in (0, 1]$. Policy $p \in \mathbb{R}_+$ delivers homogeneous benefits and heterogenous costs: $B_1(p) = B_2(p) = \sqrt{p}$, $C_1(p) = \frac{p^2}{4}$, and $C_2(p) = \frac{p^2}{16}$. The consumption bliss points are $p_1 = 1$, $p_2 = 2.52$. The efficient policy is $p_r^* = 1.37 \in (p_1, p_2)$. The equilibrium policy with focusing voters is $p_f^* = \left(\frac{4+4\delta}{4+\delta}\right)^{\frac{2}{3}}$, strictly increasing in δ. This policy is inefficiently small for any $\delta \in (0, 1)$, approaches p_1 as δ goes to 0, and approaches p_r^* as δ goes to 1.*

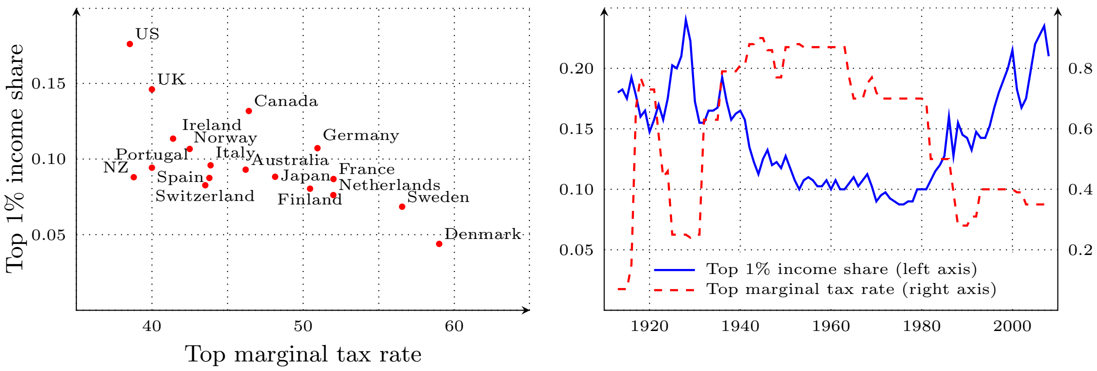
Example 3. *[Overprovision with Heterogeneous Benefits and Homogeneous Costs] Consider a society composed of two social groups, $i \in \{1, 2\}$, of same size, $m_1 = m_2 = \frac{1}{2}$, and degree of focusing, $\delta_1 = \delta_2 = \delta \in (0, 1]$. Policy $p \in \mathbb{R}_+$ delivers heterogeneous benefits and homogeneous costs: $B_1(p) = \sqrt{p}$, $B_2(p) = 4\sqrt{2p}$, and $C_1(p) = C_2(p) = \frac{p^2}{4}$. The consumption bliss points are $p_1 = 1$, $p_2 = 3.17$. The efficient policy is $p_r^* = 2.23 \in (p_1, p_2)$. The equilibrium policy with focusing voters is $p_f^* = \left(\frac{4\sqrt{2}+\delta}{1+\delta}\right)^{\frac{2}{3}}$, strictly decreasing in δ. This policy is inefficiently large for any $\delta \in (0, 1)$, approaches p_2 as δ goes to 0, and approaches p_r^* as δ goes to 1.*

5 Application: Fiscal Policy

In the last 30 years, the U.S. (as well as other developed economies) have experienced a rapid and sustained increase in the degree of income inequality (see Figure 3b). Contrary to the predictions of the standard political economy models, this trend has not been accompanied by an increased demand for redistribution (see Figure 4) or by more

Figure 3: Top 1% income share and top marginal tax rate

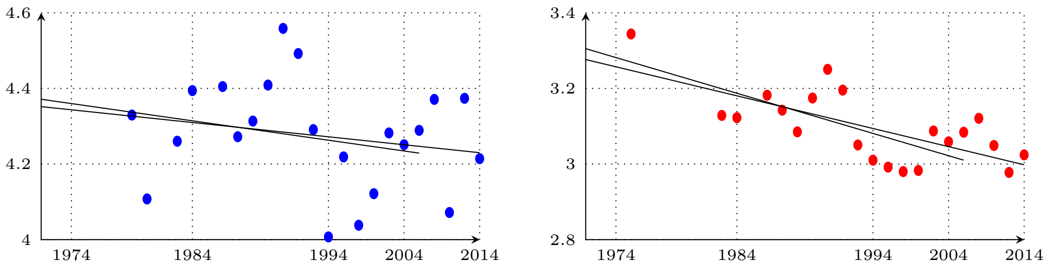
(a) International (2005-2009 or most recent) (b) US



Note: Data courtesy of Piketty et al. (2014) (see their paper for original sources). Income excludes government transfers and is before individual taxes.

Figure 4: Preferences for redistribution in General Social Survey (GSS)

(a) Government should reduce income differences (1-7) (b) Government should improve the standard of living of poor Americans (1-5)



Note: GSS obtained from `http://gss.norc.org/`. Variables rescaled so that larger values correspond to stronger support for redistribution. Shorter trend ends in 2006. Left panel: Average of *eqwlth* variable. Both trends insignificant. Right panel: average of *helppoor* variable. Both trends significant at 1%. See Ashok et al. (2015) for a thorough analysis of the data.

redistributive policies (see Figure 3b). To the contrary, the data points to an inverse correlation between these time series.

What is the impact of voters' distorted focus on voters' preferences and parties' political offer regarding taxation and public goods provision? Can selective attention help us explain the puzzling empirical patterns from Figures 3 and 4?

In order to answer these questions, we introduce a basic model of fiscal policy à la Meltzer and Richard (1981) (see also Weingast, Shepsle and Johnsen, 1981). A public good, $p \in \mathbb{R}_+$, is financed by a proportional income tax, $\tau \geq 0$. Society is composed of two groups of voters, R for Rich and P for Poor, with different income: $y_R > y_P \geq 0$. The measure of voters in group $i \in \{R, P\}$ is $m_i \in (0, 1)$. The average income in society is $\overline{y} = m_R y_R + m_P y_P$. Given public good p and tax τ, the consumption utility of voters in group i is:

$$u_i(p, \tau) = (1 - \tau)y_i + B(p). \tag{9}$$

where $B(p)$ is the function mapping the level of public good provision into its benefits and satisfies A1. The government budget is balanced—that is, $p = \tau\overline{y}$—and, thus, the indirect consumption utility of voters in group i from public good level p is:

$$V_i(p) = y_i + B(p) - \frac{y_i}{\overline{y}}p. \tag{10}$$

With respect to the general model we introduced above, the policy p gives homogeneous benefits to both groups, $B_R(p) = B_P(p) = B(p)$, while its costs are heterogeneous and proportional to a group's relative income, $C_i(p) = \frac{y_i}{\overline{y}}p$ for both $i \in \{R, P\}$. The latter implies that a group's consumption bliss point depends negatively on its relative income:

$$p_i = B'^{-1}\left(\frac{y_i}{\overline{y}}\right)$$

so that p_i decreases in a group's own income and increases in the other group's income.

As a benchmark, we first consider electoral competition between two office-motivated parties facing rational voters.

Proposition 6. *Assume $\delta_R = \delta_P = 1$. A Nash equilibrium in pure strategies exists and is unique. The equilibrium policies are (p_r^*, p_r^*), where p_r^* is the unique solution to:*

$$B'(p) = \frac{m_R y_R + m_P y_P}{\overline{y}} = 1.$$

The equilibrium policy with rational voters balances the weighted average of marginal benefits against the weighted average of marginal costs (where the weights are given by the population shares) and, hence, is efficient. Moreover, since the average marginal costs are invariant to the income distribution as well as to population shares, these two variables have no impact on the equilibrium level of public good provision.[22]

The comparative statics, however, are different if we introduce focusing voters.

Proposition 7. *Assume $\delta_i < 1$ for some $i \in \{R, P\}$. A Nash equilibrium in pure strategies exists and is unique. The equilibrium policies are (p_f^*, p_f^*), where, if $p_f^* \in$*

[22] Note that the stylized facts from Figures 3 and 4 are also inconsistent with another workhorse model of electoral competition, the median voter model (Downs, 1957). The median voter model obtains as a special case of the probabilistic voting model when $\epsilon_v = 0$ for all voters. In this case, the equilibrium policy is the consumption bliss point of the median voters who, with two social groups, belongs to the larger group. If we assume that P voters are the majority and R voters are an elite, that is, $m_R < 1/2$, the equilibrium policy coincides with p_P, which is increasing with income inequality, that is, with larger y_R or smaller y_P. In short, in the median voter model, larger income inequality leads to larger redistribution.

(p_R, p_P), then p_f^* is the unique solution to:

$$\tfrac{2m_R}{1+\delta_R}\left[\delta_R B'(p) - \tfrac{y_R}{\bar{y}}\right] + \tfrac{2m_P}{1+\delta_P}\left[B'(p) - \delta_P \tfrac{y_P}{\bar{y}}\right] = 0.$$

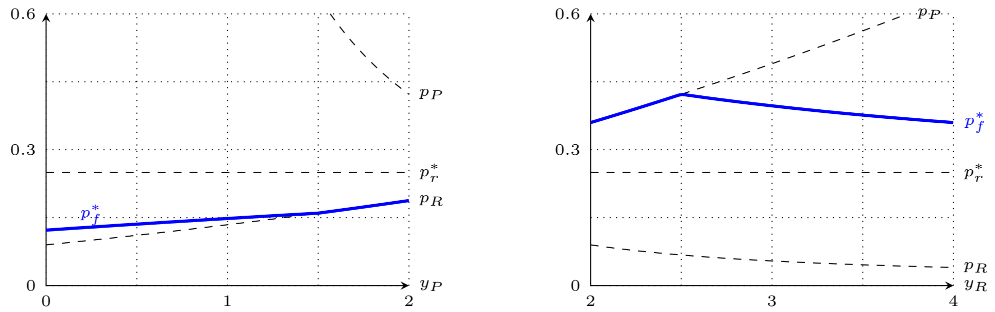
Moreover, (a) when $\delta_R = \delta_P$, then $p_f^* \leq p_r^*$ if and only if $m_P B_P'(p_r^*) \leq m_R C_R'(p_r^*)$ or, equivalently, if and only if $\frac{m_P}{m_R} \leq \frac{y_R}{\bar{y}}$; (b) when $p_f^* \in (p_R, p_P)$, then p_f^* decreases with income inequality, that is, with higher y_R or lower y_P.

The equilibrium characterization and its uniqueness are a direct consequence of Proposition 5, adapted to the application at hand. At the margin, voters in group R—who prefer less redistribution than p_f^*—focus on costs; and voters in group P—who prefer more redistribution than p_f^*—focus on benefits. In their quest for electoral support, parties generically prefer to offer a policy different than the efficient level of redistribution. Proposition 5 shows that both overprovision and underprovision are possible but that, when the two social groups have similar sizes, the equilibrium policy concedes to the preferences of group R. This is because, at the efficient level of provision, voters in group R are more sensitive to a marginal change in policy than voters in group P. To see this, consider the limit case, where R voters only care about costs and P voters only care about benefits: $C_R'(p_r^*) = \frac{y_R}{\bar{y}} > B_P'(p_r^*) = 1$. As a consequence, politicians might cater excessively to the interests of rich voters, even when they constitute a minority. In fact, the equilibrium policy entails overprovision only if poor voters are a sufficiently large majority. Interestingly, the relative size needed for the poor to be more influential increases in the degree of income inequality.

Moreover, Proposition 5 shows that, when it lies between the groups' bliss points, the equilibrium level of public good is *decreasing* with income inequality. To understand the intuition behind this result, consider the condition that defines p_f^* in Proposition 7: in this expression, income inequality only affects marginal costs. As an example, consider an increase in y_R. With rational voters, an increase in y_R by dy_R increases the marginal costs of R voters by $\frac{y_P m_P}{\bar{y}^2} dy_R$ and decreases the marginal costs of P voters by $\frac{y_P m_R}{\bar{y}^2} dy_R$. In the politicians' calculus, the former increase and the latter decrease are weighted, respectively, by m_R and m_P. Thus, the two effects perfectly offset each other, making p_r^* invariant to the income distribution. With focusing voters, a higher y_R still increases the marginal costs of R voters and decreases the marginal costs of P voters. However, since P voters focus on benefits and neglect costs, they underweight the decrease in their marginal costs induced by an upward shock to income inequality. Conversely, since R voters focus on costs and neglect benefits, they overweight the increase in their marginal costs due to the same shock. An increase in y_R (or, analogously, a decrease in y_P), thus, leads to an increase in the average perceived marginal costs (without affecting the perceived marginal benefits) and to a decrease in the demand for redistribution. Figure

Figure 5: Equilibrium p_f^* in Meltzer and Richard (1981) model
$B(p) = \sqrt{p}$, $\delta_P = \delta_R = \frac{1}{2}$

(a) $y_R = 3$, $m_P = \frac{2}{5}$ (b) $y_P = 1$, $m_P = \frac{4}{5}$



5 shows how the equilibrium level of public good provision (or redistribution) changes with income inequality in the Meltzer and Richard (1981) model with focusing voters.[23]

In sum, when income inequality only affects the relative costs of public good provision, an increase in income inequality amplifies R voters' marginal sensitivity to policies more than P voters' and, in turn, R voters become more influential regardless of their relative size. Voters' focusing can, thus, explain why increased income inequality is associated with constant or decreasing demand for redistribution and, hence, with constant or decreasing implemented levels of redistribution.[24]

A natural question is whether this prediction is limited to the simple version of the Meltzer and Richard (1981) model we present in this section or, rather, more general. We argue that similar comparative statics obtain in a richer version of the model. To see this, consider a more general model where income inequality potentially affects not only the two groups' marginal costs from public good provision but also their marginal benefits. Assume voters in group $i \in \{R, P\}$ receive benefits $B_i(p)$ and suffer costs $C_i(p) = \frac{y_i}{\bar{y}} p$ from public good level p. The equilibrium level of public good, p_f^*, is implicitly defined by ($\mathcal{O}_{f,2}$), adapted to this setup:

$$\tfrac{2m_R}{1+\delta_R}\left[\delta_R B_R'(p_f^*) - \frac{y_R}{\bar{y}}\right] + \tfrac{2m_P}{1+\delta_P}\left[B_P'(p_f^*) - \delta_P \frac{y_P}{\bar{y}}\right] = 0. \tag{11}$$

[23]Proposition 7 shows that p_f^* is decreasing in income inequality when $p_f^* \in (p_R, p_P)$. When $p_f^* \in \{p_R, p_R\}$, the effect of income inequality on p_f^* is given by its impact on the consumption bliss points of the two groups. In this case, p_f^* can both decrease, as in Figure 5a, and increase, as in Figure 5b, with income inequality.

[24]The main alternative explanations for the observed correlations (or lack thereof) between income inequality and redistribution are stronger political participation or lobbying by the wealthy, the prospect of upward mobility, and other-regarding preferences. Most of these explanations attenuate the positive relationship between redistribution and income inequality predicted by Meltzer and Richard (1981), rather than reversing it. See Borck (2007) for a survey of the theory on voting for redistribution and Alesina and Giuliano (2011) and Ashok et al. (2015) for a survey of the determinants of preferences for redistribution.

For $i \in \{P, R\}$, denote the derivative of B_i' with respect to y_R by $B_i'^{\Delta}$. Using the implicit function theorem, we obtain that higher y_R (keeping y_P constant, that is, higher income inequality) decreases p_f^* if the following condition holds:

$$\tfrac{2m_R}{1+\delta_R}\left[\delta_R B_R'^{\Delta}(p_f^*) - \frac{m_P y_P}{\overline{y}^2}\right] + \tfrac{2m_P}{1+\delta_P}\left[B_P'^{\Delta}(p_f^*) + \delta_P \frac{m_R y_P}{\overline{y}^2}\right] < 0. \tag{12}$$

To understand this condition, consider first the simple version of the Meltzer and Richard (1981) model discussed above, where y_R has no effect on benefits—that is, $B_R'^{\Delta}(p_f^*) = B_P'^{\Delta}(p_f^*) = 0$—and condition (12) is satisfied if $-\frac{1}{1+\delta_R} + \frac{\delta_P}{1+\delta_P} < 0$. This holds as long as $\delta_P \delta_R < 1$—that is, as long as at least one group has distorted focus. Consider now a more general model where $B_R'^{\Delta}(p_f^*), B_P'^{\Delta}(p_f^*) \neq 0$. When higher income inequality reduces the marginal benefit from public good provision for both social groups—that is, $B_R'^{\Delta}(p_f^*), B_P'^{\Delta}(p_f^*) < 0$—our result is reinforced. We, thus, focus on the case where the inverse relationship between income inequality and redistribution is least likely to hold, that is, on the case where $B_R'^{\Delta}(p_f^*), B_P'^{\Delta}(p_f^*) > 0$. For ease of exposition, consider a symmetric environment, where groups have the same size and degree of focusing. In this case, a set of sufficient conditions for higher income inequality to cause a lower equilibrium level of redistribution is that income inequality has a stronger impact on the marginal cost of rich voters than on the marginal benefit of poor voters—that is, $\frac{m_P y_P}{\overline{y}^2} > B_P'^{\Delta}(p_f^*)$—and that voters suffer from a high enough degree of focusing—that is, $\delta_P = \delta_R \approx 0$.

6 Larger Choice Sets and Decoy Effects

In this section, we extend the basic framework introduced in Section 2 to more than two policies. Denote by $\mathcal{P} = \{p_A, p_B, \ldots\}$ the voters' *choice set* and assume it is finite, $p \in \mathbb{R}_+$ for any $p \in \mathcal{P}$ and $|\mathcal{P}| \geq 2$. Let $\mathcal{P}_-$ and $\mathcal{P}_+$ be, respectively, the smallest and the largest policy in $\mathcal{P}$. Let $\Delta_i^B(\mathcal{P})$ be the range of benefits in $\mathcal{P}$ for voters in group i:

$$\Delta_i^B(\mathcal{P}) = \max_{p \in \mathcal{P}} B_i(p) - \min_{p \in \mathcal{P}} B_i(p) = B_i(\mathcal{P}_+) - B_i(\mathcal{P}_-). \tag{13}$$

Similarly, let $\Delta_i^C(\mathcal{P})$ be the range of costs in $\mathcal{P}$ for voters in group i:

$$\Delta_i^C(\mathcal{P}) = \max_{p \in \mathcal{P}} C_i(p) - \min_{p \in \mathcal{P}} C_i(p) = C_i(\mathcal{P}_+) - C_i(\mathcal{P}_-). \tag{14}$$

The second equality in the equations above follows by Assumption A1. The focus-weighted utility of voters in group i is still defined by Assumption A4. However, with this more general, larger, choice set, the range of benefits and costs is defined by (13) and (14) rather than by (2) and (3).

First, we consider how focusing affects voters' preferences with a more general choice set; and how adding a policy to voters' choice set changes their preferences over the original policies. Second, we consider what policies are endogenously offered in an electoral campaign by two office-motivated politicians, when we allow for other, exogenous policies, to belong to voters' choice set and, thus, potentially affect voters' focus.

Proposition 8 (analogous to Proposition 1) shows that the attribute voters focus on is determined by the comparison between the consumption utilities granted by the smallest and the largest policy in the choice set.

Proposition 8. *Assume $\mathcal{P} = \{\mathcal{P}_-, \ldots, \mathcal{P}_+\}$. The focus of any group is determined exclusively by the extreme policies, $\mathcal{P}_-$ and $\mathcal{P}_+$, with voters focusing on the relative advantage of the extreme policy with the higher consumption utility. Voters in group $i \in N$, (a) focus on benefits if and only if $V_i(\mathcal{P}_+) > V_i(\mathcal{P}_-)$; (b) focus on costs if and only if $V_i(\mathcal{P}_+) < V_i(\mathcal{P}_-)$; have undistorted focus if and only if $V_i(\mathcal{P}_+) = V_i(\mathcal{P}_-)$.*

6.1 The Decoy Effect on Voters' Preferences

Given a policy $p \in \mathbb{R}_+$, define $\tilde{p}^i$ as the policy other than p which gives voters in group i the same consumption utility as p.[25] Proposition 9 shows how expanding voters' choice set to include an additional policy affects their focus.

Proposition 9. *Consider two choice sets, $\mathcal{P}$ and $\mathcal{P}' = \mathcal{P} \cup \{p'\}$. For any $i \in N$, (a) if under $\mathcal{P}$ voters in group i focus on benefits, after adding p', they: focus on benefits if $p' < \tilde{\mathcal{P}}_-^i$; have undistorted focus if $p' = \tilde{\mathcal{P}}_-^i$; focus on costs if $p' > \tilde{\mathcal{P}}_-^i$; (b) if under $\mathcal{P}$ voters in group i focus on costs, after adding p', they: focus on benefits if $p' < \tilde{\mathcal{P}}_+^i$; have undistorted focus if $p' = \tilde{\mathcal{P}}_+^i$; focus on costs if $p' > \tilde{\mathcal{P}}_+^i$; (c) if under $\mathcal{P}$ voters in group i have undistorted focus and $\mathcal{P}_- \neq \mathcal{P}_+$, after adding p', they: focus on benefits if $p' < \mathcal{P}_-$; have undistorted focus if $p' \in [\mathcal{P}_-, \mathcal{P}_+]$; focus on costs if $p' > \mathcal{P}_+$.*

The effect of expanding the choice set on voters' focus depends on the original focus and on the location of the additional policy. When voters are focusing on benefits, adding a sufficiently large policy induces them to focus on costs. Conversely, if voters are focusing on costs, adding a sufficiently small policy induces them to focus on benefits. Notice that voters who are focusing on benefits can always be induced to focus on costs with a proper addition to their choice set. Formally, there always exists p' such that, if voters focus on benefits under $\mathcal{P}$, then the same voters focus on costs under $\mathcal{P} \cup \{p'\}$. However, since policies are bounded below at zero, it might be impossible to induce

[25] If $p' \in \mathbb{R}_+$ such that $V_i(p) = V_i(p')$ and $p' \neq p$ does not exist, set $\tilde{p}^i$ to an arbitrary negative constant.

voters who are currently focusing on costs to focus on benefits. This is the case when $\tilde{\mathcal{P}}_+^i \leq 0$, that is, when $\mathcal{P}_+$ is sufficiently large.

In Proposition 10 we address the question of how adding an exogenous policy p_C to the voters' choice set changes the evaluation of the policies in the original choice set. We say that expanding the choice set changes the focus of group i towards costs (benefits) when voters in group i focus on benefits (costs) under the original choice set but instead have undistorted focus or focus on costs (benefits) under the expanded choice set; or when voters in group i have undistorted focus under the original choice set but instead focus on costs (benefits) under the expanded choice set.

Proposition 10. *Consider two choice sets, $\mathcal{P}$ and $\mathcal{P}'$, such that $p_A \in \mathcal{P}$, $p_B \in \mathcal{P}$, $p_A > p_B$ and $\mathcal{P}' = \mathcal{P} \cup \{p_C\}$. For any $i \in N$, if voters in group i have different focus under $\mathcal{P}$ and $\mathcal{P}'$ and $\delta_i < 1$, then, (a) if adding p_C changes focus towards costs, then $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) > \widetilde{V}_i(p_A|\mathcal{P}') - \widetilde{V}_i(p_B|\mathcal{P}')$; (b) if adding p_C changes focus towards benefits, then $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) < \widetilde{V}_i(p_A|\mathcal{P}') - \widetilde{V}_i(p_B|\mathcal{P}')$; (c) if voters have distorted focus both in $\mathcal{P}$ and $\mathcal{P}'$, then there exists $\overline{\delta}_i \in (0,1)$ such that for any $\delta_i < \overline{\delta}_i$, $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P})$ and $\widetilde{V}_i(p_A|\mathcal{P}') - \widetilde{V}_i(p_B|\mathcal{P}')$ have different (strict) signs; (d) $p_C \in \arg\min_{p \in \mathcal{P}'} \widetilde{V}_i(p|\mathcal{P}')$.*

Proposition 10 first shows that larger policies are hurt, in terms of their evaluation by voters in group i, when focus switches towards costs (part a) and gain when focus switches towards benefits (part b). In these cases, not only voters' intensity of preferences changes, but, according to part (c), for sufficiently strong focusing, also their ranking is affected. Finally, part (d) implies that policies that change the attribute voters in group i focus on are bound to lose if their fate is determined by voters in the same group. The intuition behind this result is simple. Suppose voters in group i focus on benefits under $\mathcal{P}$. By Proposition 9, a policy p' that changes the focus towards costs under $\mathcal{P}' = \mathcal{P} \cup \{p'\}$ has to be large. But large policies are not evaluated favorably when voters focus on costs.

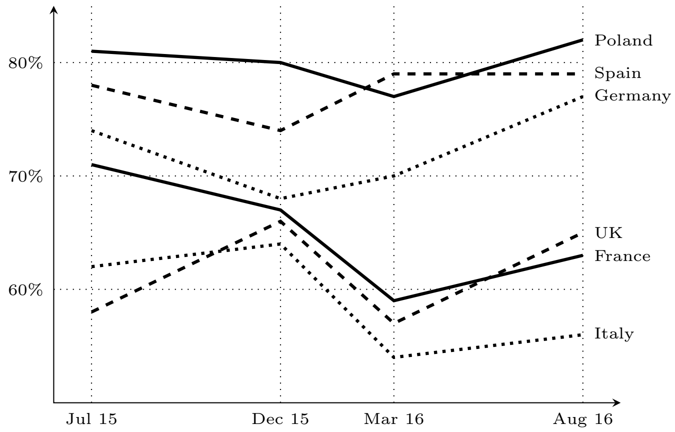
When the smaller, initial choice set considered in Proposition 10 is composed of only two policies, this proposition implies that the policy preferred under $\mathcal{P}$ is hurt by the change of focus. To see this, consider $\mathcal{P} = \{p_A, p_B\}$ with $p_A > p_B$ and suppose voters in group i are not indifferent between p_A and p_B. If $\widetilde{V}_i(p_A|\mathcal{P}) > \widetilde{V}_i(p_B|\mathcal{P})$, by Propositions 1 and 2, voters in group i focus on benefits. Therefore, any change of focus brought about by a third policy has to be towards costs. By Proposition 10(a), p_A, the policy preferred in $\mathcal{P}$, is hurt by the change of focus. If $\widetilde{V}_i(p_A|\mathcal{P}) < \widetilde{V}_i(p_B|\mathcal{P})$, a similar argument implies that voters in group i focus on costs and, thus, any change of focus has to be towards benefits, which, in turn, hurts p_B, the policy preferred in $\mathcal{P}$.

Corollary 5. *Consider $\mathcal{P} = \{p_A, p_B\}$, such that $\widetilde{V}_i(p_A|\mathcal{P}) > \widetilde{V}_i(p_B|\mathcal{P})$, and $\mathcal{P}' = \mathcal{P} \cup \{p_C\}$. For any $i \in N$, if voters in group i have different focus in $\mathcal{P}$ and $\mathcal{P}'$ and $\delta_i < 1$,* *then, (a)* $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) > \widetilde{V}_i(p_A|\mathcal{P}') - \widetilde{V}_i(p_B|\mathcal{P}')$*; (b) if voters have distorted focus in* $\mathcal{P}'$*, then there exists* $\overline{\delta}_i \in (0,1)$ *such that for any* $\delta_i < \overline{\delta}_i$, $\widetilde{V}_i(p_A|\mathcal{P}') < \widetilde{V}_i(p_B|\mathcal{P}')$.

Propositions 9 and 10 imply that focusing and its changes generate a *backlash effect*. Consider a choice set $\mathcal{P}$ composed of two policies p_B and $p_A > p_B$. Suppose voters in group i focus on benefits in $\mathcal{P}$, which, in light of the discussion leading to Corollary 5, is equivalent to assuming that voters in group i prefer p_A to p_B, $\widetilde{V}_i(p_A|\mathcal{P}) > \widetilde{V}_i(p_B|\mathcal{P})$. Now consider a third policy, p_C, is added to the voter's choice set. There are many potential channels through which an additional policy can enter the voter's choice set (or their *consideration set*): p_C can be the policy suggested by a media outlet, a think tank, or an international organization; a policy adopted in a neighboring country; or the status-quo policy, with p_A and p_B representing two alternative reforms. Suppose the addition of p_C changes the attribute voters in group i focus on and that they now focus on costs. Since voters used to focus on benefits, this implies, by Proposition 9, that p_C has to be sufficiently large. Given a sufficiently large degree of focusing, Proposition 10 implies that the addition of p_C leads to a reversal of preferences of voters in group i who, under $\mathcal{P}' = \mathcal{P} \cup \{p_C\}$, prefer p_B to p_A and p_A to p_C. In short, the addition of a large policy leads to a preference shift towards smaller policies. The mirror version of this effect is the addition of a small policy that leads to a preference shift towards larger policies.

Example 4. *As in Example 1, consider a society composed of two social groups,* $i \in \{1,2\}$*, with* $B_1(p) = \sqrt{p}$, $C_1(p) = \frac{p^2}{4}$, $B_2(p) = 4\sqrt{2p}$*, and* $C_2(p) = \frac{p^2}{2}$*. The groups' consumption bliss points are* $p_1 = 1$ *and* $p_2 = 2$*. Consider choice set* $\mathcal{P} = \left\{\frac{5}{4}, \frac{7}{4}\right\}$*. We have* $\underline{\mathcal{P}} = \frac{5}{4}$ *and* $\overline{\mathcal{P}} = \frac{7}{4}$*. Voters in group 1 focus on costs since* $\Delta_1^C(\mathcal{P}) = C_1(\overline{\mathcal{P}}) - C_1(\underline{\mathcal{P}}) = 0.38 > \Delta_1^B(\mathcal{P}) = B_1(\overline{\mathcal{P}}) - B_1(\underline{\mathcal{P}}) = 0.20$*. Voters in group 2 focus on benefits since* $\Delta_2^B(\mathcal{P}) = B_2(\overline{\mathcal{P}}) - B_2(\underline{\mathcal{P}}) = 1.16 > \Delta_2^C(\mathcal{P}) = C_2(\overline{\mathcal{P}}) - C_2(\underline{\mathcal{P}}) = 0.75$*. Consider the addition of a third policy to voters' choice set:* $\mathcal{P}' = \left\{\frac{5}{4}, \frac{7}{4}, \frac{12}{4}\right\}$*. We now have* $\mathcal{P}'_- = \frac{5}{4}$ *and* $\mathcal{P}'_+ = \frac{12}{4}$*. Voters in group 1 continue to focus on costs since* $\Delta_1^C(\mathcal{P}') = C_1(\mathcal{P}'_+) - C_1(\mathcal{P}'_-) = 1.86 > \Delta_1^B(\mathcal{P}') = B_1(\mathcal{P}'_+) - B_1(\mathcal{P}'_-) = 0.61$*. Voters in group 2 change focus and now focus on costs since* $\Delta_2^C(\mathcal{P}') = C_2(\mathcal{P}'_+) - C_2(\mathcal{P}'_-) = 3.72 > \Delta_2^B(\mathcal{P}') = B_2(\mathcal{P}'_+) - B_2(\mathcal{P}'_-) = 3.47$*. Voters in group 1, who maintain the same focus, do not change their evaluation of the two original policies,* $\frac{5}{4}$ *and* $\frac{7}{4}$*, and their perception of the utility differential between them. On the other hand, voters in group 2, who change focus after the addition of* $\frac{12}{4}$*, have a lower evaluation of* $\frac{7}{4}$*. Moreover, for* $\delta \in (0.65, 1]$*, voters in group 2 still prefer* $\frac{7}{4}$ *to* $\frac{5}{4}$ *but the perceived utility differential (and, thus, their intensity of preferences) is smaller. For* $\delta \in (0, 0.65)$*, voters in group 2 change their preference ranking and now prefer* $\frac{5}{4}$ *to* $\frac{7}{4}$*. With* $\delta = 0.75$*, we have* $\widetilde{V}_2\left(\frac{7}{4}|\mathcal{P}\right) - \widetilde{V}_2\left(\frac{5}{4}|\mathcal{P}\right) = 0.68 > \widetilde{V}_2\left(\frac{7}{4}|\mathcal{P}'\right) - \widetilde{V}_2\left(\frac{5}{4}|\mathcal{P}'\right) = 0.14 > 0$*. With* $\delta = 0.25$*, we have*

Figure 6: Support for EU Integration in EU Member States



Note: Data from Bertelsmann Stiftung eupinions survey (see de Vries and Hoffmann, 2017, for details).

$\widetilde{V}_2\left(\frac{7}{4}|\mathcal{P}\right) - \widetilde{V}_2\left(\frac{5}{4}|\mathcal{P}\right) = 1.55 > 0 > \widetilde{V}_2\left(\frac{7}{4}|\mathcal{P}'\right) - \widetilde{V}_2\left(\frac{5}{4}|\mathcal{P}'\right) = -0.74.$

In order to give empirical content to the theoretical results in this section, consider preferences about degree of power transfer to the European Union. Consider an initial consideration set for voters $\mathcal{P} = \{p_A, p_B\}$, where p_A entails a larger degree of power transfer from national states to the EU. For example, p_A is "belong to the European Monetary Union (EMU) and to the EU" and p_B is "belong to the EU, but not to the EMU". Voters who prefer p_B focus on the costs of transferring power to the EU. Our model says that adding an extreme policy p_C (for example, "belong to neither the EMU nor the EU") might change the attribute these voters focus on and, thus, their preference between p_A and p_B. If we interpret the decision of UK citizens to leave the EU as the addition of this extreme policy to the choice set of voters in other European countries, the backlash effect discussed above can potentially explain why "support for the EU has risen in Europe in the wake of Brexit" (Financial Times, November 21, 2016, see also Figure 6). Similarly, it can explain why in the Spanish parliamentary elections that were held two days after Britain's vote to leave the European Union, "Spanish voters turned away from anti-establishment parties and endorsed the perceived safety and security of ruling conservatives" (LA Times, June 27, 2016).[26]

[26]See also the Financial Times, June 28, 2016: "Unidos Podemos was the big loser of Spain's general election, shedding more than 1m votes since the last ballot in December. [...] Unidos Podemos leaders [...] pointed to Britain's shock decision to leave the EU just two days before the election. [...] some leftwing voters may have decided at the last minute to back more conservative options, or to stay at home."

6.2 The Decoy Effect on Electoral Competition

In this section, we consider how the policies endogenously offered by two office motivated parties are affected by the presence of an exogenous policy which belongs to voters' choice set or, more generally, contributes to the salience of an attribute and the direction of their focus. Suppose an additional party, party C, enters the election with platform $p_C \in \mathbb{R}_+$. In order to isolate the effect of C on voters' focus, we assume that voters in neither group are willing to vote for C.

Proposition 11. *Consider an electoral competition between parties A and B in the presence of an additional party C with policy $p_C \in \mathbb{R}_+$. There exists at most one pure strategy Nash equilibrium. If (p_A^*, p_B^*) constitute a Nash equilibrium, then $p_A^* = p_B^* = p_d^*$ where $p_d^* \geq p_f^*$ if $p_f^* \geq p_C$ while $p_d^* \leq p_f^*$ if $p_f^* \leq p_C$.*

Proposition 11 shows that the additional party does not create asymmetric or multiple equilibria. At the same time, despite the fact that no voters vote for it, its presence potentially changes the equilibrium policies proposed by the two mainstream or viable parties, A and B. Namely, the policy of this third party pushes the equilibrium policy away from the equilibrium policy prevailing in its absence. In other words, Proposition 11 provides an endogenous version of the backlash effect discussed above for exogenous policies. The intuition lies behind the effect of p_C in determining the attribute voters focus on. If p_C is sufficiently small and parties A and B locate their policies in $[p_1, p_n]$, all voters focus on benefits under the resulting choice set. This leads to larger equilibrium policies.

The characterization of the electoral equilibria with a third extreme or non-viable party C is complex, but becomes tractable when p_C is sufficiently large. In this case, for any pair of policies announced by parties A and B, all voters focus on costs and, hence, the electoral competition between parties A and B facing focusing voters is isomorphic to the electoral competition between parties A and B facing rational voters who overweight costs (but whose weighting is not affected by a marginal deviation by either party).

Proposition 12. *Consider electoral competition between parties A and B in the presence of an additional party C with policy $p_C > \max_{i \in N} \tilde{0}^i$. A Nash equilibrium in pure strategies exists and is unique. The equilibrium policies are (p_d^*, p_d^*), where p_d^* is the unique solution to:*

$$\max_{p \in \mathbb{R}_+} \sum_{i \in N} \tfrac{2m_i}{1+\delta_i} \left[\delta_i B_i(p) - C_i(p)\right] = 0.$$

The equilibrium characterized in Proposition 12 has several properties that do not emerge with rational voters nor with focusing voters in the absence of a third, exogenous policy p_C. First, in this equilibrium, voters from all social groups focus on costs. This is driven by the large policy of the additional party: since, by Assumption A1, costs eventually grow faster than benefits, the addition of a sufficiently large p_C expands the range of costs beyond the range of benefits for all voters. Second, it is possible for the equilibrium policy p_d^* to lie outside the interval of the consumption bliss points of the electorate; in particular, we can have $p_d^* < p_1$, that is, an equilibrium policy which is Pareto inefficient: when all voters focus on costs for any marginal deviation, it is no longer true that a party moving its policy below p_1 loses votes from all social groups. With a sufficiently severe degree of focusing by all groups, the equilibrium policy can even equal 0.

Example 5. *As in Example 1, consider a society composed of two social groups, $i \in \{1, 2\}$, of equal size, $m_1 = m_2 = \frac{1}{2}$, with $B_1(p) = \sqrt{p}$, $C_1(p) = \frac{p^2}{4}$, $B_2(p) = 4\sqrt{2p}$, and $C_2(p) = \frac{p^2}{2}$. The groups' consumption bliss points are $p_1 = 1$ and $p_2 = 2$. The efficient policy is $p_r^* = 1.70 \in (p_1, p_2)$. When voters' degree of focusing is $\delta_1 = \delta_2 = 0.75$ and there are no exogenous policies in voters' choice set, the equilibrium policy is $p_f^* = 1.87 > p_r^*$. When voters' degree of focusing is $\delta_1 = \delta_2 = 0.25$ and there are no exogenous policies in voters' choice set, the equilibrium policy is $p_f^* = 2 = p_2 > p_r^*$. The policies which give to voters in each group the same consumption utility as $p = 0$ are, respectively, $\tilde{0}^1 = 2.52$ and $\tilde{0}^2 = 5.04$. Consider the entrance of a third party offering an exogenous policy, $p_C = 6$. Voters are exogenously assumed to be unwilling to vote for C but p_C contributes to determine voters' focus. Since $p_C > \max_{i \in N} \tilde{0}^i$, voters from all social groups focus on costs for any $\{p_A, p_B\}$ offered endogenously by parties A and B. When voters' degree of focusing is $\delta_1 = \delta_2 = 0.75$, the equilibrium policy is $p_d^* = 1.40 < p_f^*$. The addition of p_C, a sufficiently large policy, shifts focus of one group towards costs and moves the equilibrium policy away from p_C. When voters' degree of focusing is $\delta_1 = \delta_2 = 0.25$, the equilibrium policy is $p_d^* = 0.68$ which is lower than both groups' consumption bliss points and, thus, Pareto inefficient.*

7 Conclusions

How voters allocate their attention is fundamental for understanding political preferences and public policies. Cognitive psychology has pointed to two complementary mechanisms: a goal-driven and ex-ante allocation of attention that is driven by preferences (or *rational inattention*) and a stimulus-driven and ex-post allocation of attention that shapes preferences (or *focusing*). While the existing literature in political economy has centered on the former, this is the first paper to explore the latter.

We introduce focusing in a formal model of electoral competition by assuming that, in forming their perception of policies, voters' attention is attracted by the attribute in which their options differ more and that, in turn, they weigh disproportionately the attribute they focus on. We show that this selective focus leads to a polarized electorate; that politicians facing focusing voters offer inefficient policies; that social groups that are larger, have more distorted focus, and are more sensitive to changes on a single attribute are more influential; and that selective focus can contribute to explain puzzling empirical patterns, as the inverse correlation between income inequality and redistribution.

Our simple framework can deliver many other interesting results that we have not explored in this paper: for example, voters with distorted focus have stronger preferences and this makes them more likely to turn out to vote, make financial contributions, actively participate to a candidate's campaign or engage in other forms of collective action. We believe that there are many possible directions for the next steps in this research. Regarding the model we introduced, it would be interesting to introduce heterogeneous parties (for example, policy motivated parties) or allow policies to have uncorrelated attributes (for example, electoral platforms which offer a position on many different issues or candidates who have different personal characteristics). While we explored the consequences of focusing on electoral competition, incorporating the psychology of voters' attention in models of campaign rhetoric and agenda setting is likely to generate novel insights. For example, in a monopolistic agenda setting model à la Romer and Rosenthal (1978, 1979), the agenda setter could propose multiple reforms of the status quo in order to affect the focus of its bargaining counterpart (e.g., the median voter or a veto holder) and expand the set of acceptable reforms to his advantage. More generally, there are many exciting open questions, as what exact features of the political environment trigger voters' attention and how focusing interacts with the conscious research for information by poorly informed voters.

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A1 Proofs

A1.1 Preliminaries

Following notation and lemmas facilitate the proofs of the propositions below. First, for any $i \in N$ and $p \in \mathbb{R}_+$, let $\tilde{p}^i$ be the solution to $V_i(p) = V_i(\tilde{p}^i)$ such that $p \neq \tilde{p}^i$ if the solution exists and let it be an arbitrary negative constant when the solution does not exists. Notice that for $p < p_i$, $\tilde{p}^i > p_i$ and for $p > p_i$, $\tilde{p}^i < p_i$.

Second, $\forall i \in N$, $\forall p \in \mathbb{R}_+$, $\forall p' \in \mathbb{R}_+$ and any choice set $\mathcal{P}$ with $p \in \mathcal{P}$ and $p' \in \mathcal{P}$, let $\widetilde{D}_i(p|\mathcal{P}) = \widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P})$. Derivative of $\widetilde{D}_i$ with respect to p is $\widetilde{D}'_i(p|\mathcal{P}) = \frac{\partial}{\partial p}\widetilde{D}_i(p|\mathcal{P})$ and includes the effect of p directly on $\widetilde{V}_i(p|\mathcal{P})$ as well as indirectly on both $\widetilde{V}_i(p|\mathcal{P})$ and $\widetilde{V}_i(p'|\mathcal{P})$ through $\mathcal{P}$ that contains p.

Third, for a real valued function f, denote by f'^- and f'^+ the left and right derivative of f respectively. Fourth, let $\mathcal{P}_+$ and $\mathcal{P}_-$ be the largest and smallest elements, respectively, of $\mathcal{P}$. Finally, let

$$\begin{aligned} v_{b,i}(p) &= \tfrac{2}{1+\delta_i}B_i(p) - \tfrac{2\delta_i}{1+\delta_i}C_i(p) \\ v_{n,i}(p) &= B_i(p) - C_i(p) \\ v_{c,i}(p) &= \tfrac{2\delta_i}{1+\delta_i}B_i(p) - \tfrac{2}{1+\delta_i}C_i(p) \end{aligned} \tag{A1}$$

and note that, $\forall p \in \mathbb{R}_+$, $\forall i \in N$ and $\forall a \in \{b, n, c\}$, $v''_{a,i}(p) < 0$ by Assumption A1. Furthermore, we have, $\forall p \in \mathbb{R}_+$ and $\forall i \in N$, $v'_{b,i}(p) \geq v'_{n,i}(p) \geq v'_{c,i}(p)$ since

$$v'_{b,i}(p) - v'_{n,i}(p) = v'_{n,i}(p) - v'_{c,i}(p) = \tfrac{1-\delta_i}{1+\delta_i}\left[B'_i(p) + C'_i(p)\right]. \tag{A2}$$

Throughout, we use that, $\forall i \in N$ and $\forall p \in \mathbb{R}_+$, $\widetilde{V}_i(\tilde{p}^i|\{p, \tilde{p}^i\}) - \widetilde{V}_i(p|\{p, \tilde{p}^i\}) = 0$ whenever $\tilde{p}^i \geq 0$. This follows since $\tilde{p}^i \geq 0$ implies that $V_i(p) = V_i(\tilde{p}^i)$, so that voters in group i have undistorted focus given choice set $\mathcal{P} = \{p, \tilde{p}^i\}$.

Lemma A1. *For all $i \in N$, $\forall p \in \mathbb{R}_+$ and $\forall p' \in \mathbb{R}_+$, given $\mathcal{P} = \{p, p'\}$,*

1. *if $p' = p_i$, voters in group i focus on benefits when $p < p_i$ and focus on costs when $p > p_i$; $\widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P})$ is continuous in p and is differentiable in p except at $p = p_i$;*

2. *if $p' < p_i$, voters in group i focus on benefits when $p \in [0, p') \cup (p', \tilde{p}^{i\prime})$ and focus on costs when $p > \tilde{p}^{i\prime}$; $\widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P})$ is continuous and differentiable in p except at $p = \tilde{p}^{i\prime}$ and*

$$\begin{aligned} &\lim\nolimits_{p \to (\tilde{p}^{i\prime})^-} \widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P}) \geq 0 \\ &\lim\nolimits_{p \to (\tilde{p}^{i\prime})^+} \widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P}) \leq 0; \end{aligned}$$

3. *if $p' > p_i$, voters in group i focus on benefits when $p < \tilde{p}^{i\prime}$ and focus on costs when $p \in (\tilde{p}^{i\prime}, p') \cup (p', \infty)$; $\widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P})$ is continuous and differentiable in p except at $p = \tilde{p}^{i\prime}$ and*

$$\begin{aligned} &\lim\nolimits_{p \to (\tilde{p}^{i\prime})^-} \widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P}) \leq 0 \text{ when } \tilde{p}^{i\prime} > 0 \\ &\lim\nolimits_{p \to (\tilde{p}^{i\prime})^+} \widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P}) \geq 0 \text{ when } \tilde{p}^{i\prime} \geq 0; \end{aligned}$$

4. *$\widetilde{D}'_i(p|\mathcal{P}) = \frac{\partial}{\partial p}\left[\widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P})\right]$ equals*

$$\begin{aligned} &\tfrac{2}{1+\delta_i}B'_i(p) - \tfrac{2\delta_i}{1+\delta_i}C'_i(p) \text{ if } p < x \\ &\tfrac{2\delta_i}{1+\delta_i}B'_i(p) - \tfrac{2}{1+\delta_i}C'_i(p) \text{ if } p > x; \end{aligned}$$

where $x = p_i$ if $p' = p_i$ and $x = \tilde{p}^{i\prime}$ if $p' \neq p_i$;

5. if $p' = p_i$, then

$$\widetilde{D}_i'^{-}(p_i|\mathcal{P}) = \tfrac{2}{1+\delta_i}B_i'(p_i) - \tfrac{2\delta_i}{1+\delta_i}C_i'(p_i)$$
$$\widetilde{D}_i'^{+}(p_i|\mathcal{P}) = \tfrac{2\delta_i}{1+\delta_i}B_i'(p_i) - \tfrac{2}{1+\delta_i}C_i'(p_i).$$

Proof. Throughout, fix $i \in N$, $p \in \mathbb{R}_+$ and $p' \in \mathbb{R}_+$ and let $\mathcal{P} = \{p, p'\}$.

Consider part 1. Since $p' = p_i$, $V_i(p) < V_i(p')$ if $p \neq p'$ and hence, by Proposition 1, which does not rely on this lemma, voters in group i focus on costs when $p > p'$ and focus on benefits when $p < p'$. Voters in group i have undistorted focus when $p = p_i$. Hence $\widetilde{D}_i(p|\mathcal{P})$ equals

$$\begin{aligned} &\tfrac{2}{1+\delta_i}[B_i(p) - B_i(p_i)] - \tfrac{2\delta_i}{1+\delta_i}[C_i(p) - C_i(p_i)] \text{ if } p < p_i \\ &\tfrac{2\delta_i}{1+\delta_i}[B_i(p) - B_i(p_i)] - \tfrac{2}{1+\delta_i}[C_i(p) - C_i(p_i)] \text{ if } p > p_i \\ &[B_i(p) - B_i(p_i)] - [C_i(p) - C_i(p_i)] \text{ if } p = p_i. \end{aligned} \tag{A3}$$

$\widetilde{D}_i(p|\mathcal{P})$ is continuous in p at any $p \neq p_i$ since B_i and C_i are continuous. At $p = p_i$, $\lim_{p\to p_i^-} \widetilde{D}_i(p|\mathcal{P}) = 0$, $\widetilde{D}_i(p_i|\mathcal{P}) = 0$ and $\lim_{p\to p_i^+} \widetilde{D}_i(p|\mathcal{P}) = 0$. $\widetilde{D}_i(p|\mathcal{P})$ is differentiable in p at any $p \neq p_i$ since B_i and C_i are differentiable.

Consider part 2. Since $p' < p_i$, we have $p' < p_i < \tilde{p}^{i\prime}$. When $p < p'$, we have $V_i(p) < V_i(p')$ so that, by Proposition 1, voters in group i focus on benefits. When $p > p'$, by Proposition 1, voters in group i focus on benefits when $V_i(p) > V_i(p')$, or, equivalently, when $p \in (p', \tilde{p}^{i\prime})$, and focus on costs when $V_i(p) < V_i(p')$, or, equivalently, when $p > \tilde{p}^{i\prime}$. Voters in group i have undistorted focus when $p \in \{p', \tilde{p}^{i\prime}\}$. Hence, $\widetilde{D}_i(p|\mathcal{P})$ equals

$$\begin{aligned} &\tfrac{2}{1+\delta_i}[B_i(p) - B_i(p')] - \tfrac{2\delta_i}{1+\delta_i}[C_i(p) - C_i(p')] \text{ if } p \in [0, \tilde{p}^{i\prime}) \setminus \{p'\} \\ &\tfrac{2\delta_i}{1+\delta_i}[B_i(p) - B_i(p')] - \tfrac{2}{1+\delta_i}[C_i(p) - C_i(p')] \text{ if } p > \tilde{p}^{i\prime} \\ &[B_i(p) - B_i(p')] - [C_i(p) - C_i(p')] \text{ if } p \in \{p', \tilde{p}^{i\prime}\}. \end{aligned} \tag{A4}$$

$\widetilde{D}_i(p|\mathcal{P})$ is continuous in p at any $p \notin \{p', \tilde{p}^{i\prime}\}$ since B_i and C_i are continuous. At $p = p'$, $\lim_{p\to(p')^-} \widetilde{D}_i(p|\mathcal{P}) = 0$ if $p' > 0$, $\widetilde{D}_i(p'|\mathcal{P}) = 0$ and $\lim_{p\to(p')^+} \widetilde{D}_i(p|\mathcal{P}) = 0$. At $p = \tilde{p}^{i\prime}$, $\lim_{p\to(\tilde{p}^{i\prime})^-} \widetilde{D}_i(p|\mathcal{P})$ equals

$$\begin{aligned} &\tfrac{2}{1+\delta_i}[B_i(\tilde{p}^{i\prime}) - B_i(p')] - \tfrac{2\delta_i}{1+\delta_i}[C_i(\tilde{p}^{i\prime}) - C_i(p')] \\ =&[B_i(\tilde{p}^{i\prime}) - B_i(p')]\left(\tfrac{2}{1+\delta_i} - \tfrac{2\delta_i}{1+\delta_i}\right) \geq 0 \end{aligned} \tag{A5}$$

where the equality follows from $V_i(\tilde{p}^{i\prime}) = V_i(p') \Leftrightarrow B_i(\tilde{p}^{i\prime}) - B_i(p') = C_i(\tilde{p}^{i\prime}) - C_i(p')$ and the inequality follows by $\tilde{p}^{i\prime} > p'$ and $\delta_i \in (0,1]$, and $\lim_{p\to(\tilde{p}^{i\prime})^+} \widetilde{D}_i(p|\mathcal{P})$ equals

$$\begin{aligned}&\tfrac{2\delta_i}{1+\delta_i}[B_i(\tilde{p}^{i\prime}) - B_i(p')] - \tfrac{2}{1+\delta_i}[C_i(\tilde{p}^{i\prime}) - C_i(p')]\\ =&[B_i(\tilde{p}^{i\prime}) - B_i(p')]\left(\tfrac{2\delta_i}{1+\delta_i} - \tfrac{2}{1+\delta_i}\right) \leq 0.\end{aligned} \tag{A6}$$

$\widetilde{D}_i(p|\mathcal{P})$ is differentiable in p at any $p \notin \{p', \tilde{p}^{i\prime}\}$ since B_i and C_i are differentiable. At $p = p'$, using definition of derivative in (A4), $\widetilde{D}'_i(p'|\mathcal{P}) = \frac{2}{1+\delta_i}B'_i(p') - \frac{2\delta_i}{1+\delta_i}C'_i(p')$.

Consider part 3. Since $p' > p_i$, $\tilde{p}^{i\prime} < p_i < p'$. When $p < p'$, by Proposition 1, voters in group i focus on benefits when $V_i(p) < V_i(p')$, or, equivalently, when $p < \tilde{p}^{i\prime}$, and focus on costs when $V_i(p) > V_i(p')$, or, equivalently, when $p \in (\tilde{p}^{i\prime}, p')$. When $p > p'$, we have $V_i(p) < V_i(p')$ so that, by Proposition 1, voters in group i focus on costs. Voters in group i have undistorted focus when $p \in \{\tilde{p}^{i\prime}, p'\}$. Hence $\widetilde{D}_i(p|\mathcal{P})$ equals

$$\begin{aligned}&\tfrac{2\delta_i}{1+\delta_i}[B_i(p) - B_i(p')] - \tfrac{2}{1+\delta_i}[C_i(p) - C_i(p')] \text{ if } p \in (\tilde{p}^{i\prime}, \infty) \setminus \{p'\}\\ &\tfrac{2}{1+\delta_i}[B_i(p) - B_i(p')] - \tfrac{2\delta_i}{1+\delta_i}[C_i(p) - C_i(p')] \text{ if } p < \tilde{p}^{i\prime}\\ &[B_i(p) - B_i(p')] - [C_i(p) - C_i(p')] \text{ if } p \in \{\tilde{p}^{i\prime}, p'\}.\end{aligned} \tag{A7}$$

$\widetilde{D}_i(p|\mathcal{P})$ is continuous in p at any $p \notin \{\tilde{p}^{i\prime}, p'\}$ since B_i and C_i are continuous. At $p = p'$, $\lim_{p\to(p')^-} \widetilde{D}_i(p|\mathcal{P}) = 0$, $\widetilde{D}_i(p'|\mathcal{P}) = 0$ and $\lim_{p\to(p')^+} \widetilde{D}_i(p|\mathcal{P}) = 0$. At $p = \tilde{p}^{i\prime}$, $\lim_{p\to(\tilde{p}^{i\prime})^-} \widetilde{D}_i(p|\mathcal{P})$ when $\tilde{p}^{i\prime} > 0$ equals

$$\begin{aligned}&\tfrac{2}{1+\delta_i}[B_i(\tilde{p}^{i\prime}) - B_i(p')] - \tfrac{2\delta_i}{1+\delta_i}[C_i(\tilde{p}^{i\prime}) - C_i(p')]\\ =&[B_i(\tilde{p}^{i\prime}) - B_i(p')]\left(\tfrac{2}{1+\delta_i} - \tfrac{2\delta_i}{1+\delta_i}\right) \leq 0\end{aligned} \tag{A8}$$

where the equality follows from $V_i(\tilde{p}^{i\prime}) = V_i(p') \Leftrightarrow B_i(\tilde{p}^{i\prime}) - B_i(p') = C_i(\tilde{p}^{i\prime}) - C_i(p')$ and the inequality follows by $\tilde{p}^{i\prime} < p'$ and $\delta_i \in (0,1]$, and $\lim_{p\to(\tilde{p}^{i\prime})^+} \widetilde{D}_i(p|\mathcal{P})$ when $\tilde{p}^{i\prime} \geq 0$ equals

$$\begin{aligned}&\tfrac{2\delta_i}{1+\delta_i}[B_i(\tilde{p}^{i\prime}) - B_i(p')] - \tfrac{2}{1+\delta_i}[C_i(\tilde{p}^{i\prime}) - C_i(p')]\\ =&[B_i(\tilde{p}^{i\prime}) - B_i(p')]\left(\tfrac{2\delta_i}{1+\delta_i} - \tfrac{2}{1+\delta_i}\right) \geq 0.\end{aligned} \tag{A9}$$

$\widetilde{D}_i(p|\mathcal{P})$ is differentiable in p at any $p \notin \{\tilde{p}^{i\prime}, p'\}$ since B_i and C_i are differentiable. At $p = p'$, using definition of derivative in (A7), $\widetilde{D}'_i(p'|\mathcal{P}) = \frac{2\delta_i}{1+\delta_i}B'_i(p') - \frac{2}{1+\delta_i}C'_i(p')$.

Part 4 for $p = p_i$ follows from (A3), for $p' < p_i$ follows from (A4) and for $p' > p_i$ follows from (A7). Part 5 follows from (A3). $\square$

A1.2 Proof of Proposition 1

Fix $i \in N$, $p_A \in \mathbb{R}_+$ and $p_B \in \mathbb{R}_+$ such that $p_A \geq p_B$. Since $p_A \geq p_B$, by Assumption A1, we have $|B_i(p_A) - B_i(p_B)| = B_i(p_A) - B_i(p_B)$ and $|C_i(p_A) - C_i(p_B)| = C_i(p_A) - C_i(p_B)$. Part (a) follows since $B_i(p_A) - B_i(p_B) > C_i(p_A) - C_i(p_B) \Leftrightarrow V_i(p_A) > V_i(p_B)$. Part (b) follows since $B_i(p_A) - B_i(p_B) < C_i(p_A) - C_i(p_B) \Leftrightarrow V_i(p_A) < V_i(p_B)$. Part (c) follows since $B_i(p_A) - B_i(p_B) = C_i(p_A) - C_i(p_A) \Leftrightarrow V_i(p_A) = V_i(p_B)$. □

A1.3 Proof of Proposition 2

Throughout, fix $i \in N$, $j \in \{A, B\}$, $p_j \in \mathbb{R}_+$ and $p_{-j} \in \mathbb{R}_+$, and let $\mathcal{P} = \{p_A, p_B\}$. To prove part (a), we consider three cases depending on the sign of $V_i(p_j) - V_i(p_{-j})$.

Case 1: $V_i(p_j) = V_i(p_{-j})$: By Proposition 1, $V_i(p_j) = V_i(p_{-j})$ implies that voters in group i have undistorted focus and hence $\widetilde{V}_i(p_j|\mathcal{P}) = \widetilde{V}_i(p_{-j}|\mathcal{P})$.

Case 2: $V_i(p_j) > V_i(p_{-j})$: Since $V_i(p_j) > V_i(p_{-j})$, $p_j \neq p_{-j}$. Suppose first that $p_j > p_{-j}$. Then $V_i(p_j) > V_i(p_{-j})$ implies, by Proposition 1, that voters in group i focus on benefits. $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P})$ thus equals

$$\begin{aligned} &\tfrac{2}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2\delta_i}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \\ &= \tfrac{2}{1+\delta_i}[V_i(p_j) - V_i(p_{-j})] + \tfrac{2(1-\delta_i)}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] > 0 \end{aligned} \tag{A10}$$

where the inequality follows by $V_i(p_j) > V_i(p_{-j})$ and $C_i(p_j) - C_i(p_{-j}) > 0$. Suppose now that $p_j < p_{-j}$. Then $V_i(p_j) > V_i(p_{-j})$ implies, by Proposition 1, that voters in group i focus on costs. $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P})$ thus equals

$$\begin{aligned} &\tfrac{2\delta_i}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \\ &= -\tfrac{2(1-\delta_i)}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] + \tfrac{2}{1+\delta_i}[V_i(p_j) - V_i(p_{-j})] > 0 \end{aligned} \tag{A11}$$

where the inequality follows by $V_i(p_j) > V_i(p_{-j})$ and $B_i(p_j) - B_i(p_{-j}) < 0$.

Case 3: $V_i(p_j) < V_i(p_{-j})$: Since $V_i(p_j) < V_i(p_{-j})$, $p_j \neq p_{-j}$. Suppose first that $p_j > p_{-j}$. Then $V_i(p_j) < V_i(p_{-j})$ implies, by Proposition 1, that voters in group i focus on costs. $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P})$ thus equals

$$\begin{aligned} &\tfrac{2\delta_i}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \\ &= -\tfrac{2(1-\delta_i)}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] + \tfrac{2}{1+\delta_i}[V_i(p_j) - V_i(p_{-j})] < 0 \end{aligned} \tag{A12}$$

where the inequality follows by $V_i(p_j) < V_i(p_{-j})$ and $B_i(p_j) - B_i(p_{-j}) > 0$. Suppose now that $p_j < p_{-j}$. Then $V_i(p_j) < V_i(p_{-j})$ implies, by Proposition 1, that voters in group i

focus on benefits. $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P})$ thus equals

$$\begin{aligned} &\tfrac{2}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2\delta_i}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \\ &= \tfrac{2}{1+\delta_i}[V_i(p_j) - V_i(p_{-j})] + \tfrac{2(1-\delta_i)}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] < 0 \end{aligned} \tag{A13}$$

where the inequality follows by $V_i(p_j) < V_i(p_{-j})$ and $C_i(p_j) - C_i(p_{-j}) < 0$.

To prove part (b), $\widetilde{V}_i(p_j|\mathcal{P}) = \widetilde{V}_i(p_{-j}|\mathcal{P})$ only in Case 1 above, in which case $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P}) = 0$ for any δ_i. $\widetilde{V}_i(p_j|\mathcal{P}) > \widetilde{V}_i(p_{-j}|\mathcal{P})$ only in Case 2 above, in which case $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P})$ equals

$$\begin{aligned} &\tfrac{2}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2\delta_i}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \text{ if } p_j > p_{-j} \\ &\tfrac{2\delta_i}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \text{ if } p_j < p_{-j} \end{aligned} \tag{A14}$$

which is decreasing in δ_i since $\frac{\partial}{\partial \delta_i}\frac{2}{1+\delta_i} < 0$ and $\frac{\partial}{\partial \delta_i}\frac{2\delta_i}{1+\delta_i} > 0$. $\widetilde{V}_i(p_j|\mathcal{P}) < \widetilde{V}_i(p_{-j}|\mathcal{P})$ only in Case 3 above, in which case $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P})$ equals

$$\begin{aligned} &\tfrac{2\delta_i}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \text{ if } p_j > p_{-j} \\ &\tfrac{2}{1+\delta_i}[B_i(p_j) - B_i(p_{-j})] - \tfrac{2\delta_i}{1+\delta_i}[C_i(p_j) - C_i(p_{-j})] \text{ if } p_j < p_{-j} \end{aligned} \tag{A15}$$

which is increasing in δ_i. □

A1.4 Proof of Proposition 3

We first claim that, by Assumption A3, for any $k \in N$ and $l \in N$ such that $k < l$ and any $p \in \mathbb{R}_+$ and $p' \in \mathbb{R}_+$ such that $p > p'$, $V_k(p) - V_k(p') < V_l(p) - V_l(p')$. To see this, by A3, we have,

$$\begin{aligned} V_k(p) - V_k(p') &= \int_{p'}^{p} \left[B_k'(x) - C_k'(x)\right] dx \\ &< \int_{p'}^{p} \left[B_l'(x) - C_l'(x)\right] dx = V_l(p) - V_l(p'). \end{aligned} \tag{A16}$$

Now fix $p_A \in \mathbb{R}_+$ and $p_B \in \mathbb{R}_+$. It suffices to consider $p_A \neq p_B$. When $p_A = p_B$, then voters in all groups have undistorted focus so that parts (a) and (b) do not apply and part (c) assumes $p_A \neq p_B$. Without loss of generality, assume $p_A > p_B$.

To see part (a), when voters in group $i \in N$ focus on benefits, $V_i(p_A) > V_i(p_B)$ by Proposition 1 and it suffices to prove $V_j(p_A) > V_j(p_B)$ when $j > i$, which follows by the opening claim.

To see part (b), when voters in group $i \in N$ focus on costs, $V_i(p_A) < V_i(p_B)$ by Proposition 1 and it suffices to prove $V_j(p_A) < V_j(p_B)$ when $j < i$, which follows by the opening claim.

To see part (c), when voters in group $i \in N$ have undistorted focus, $V_i(p_A) = V_i(p_B)$ by Proposition 1. By the opening claim, $V_j(p_A) > V_j(p_B)$ when $j > i$, in which case voters in group j focus on benefits by Proposition 1, and $V_j(p_A) < V_j(p_B)$ when $j < i$, in which case voters in group j focus on costs by Proposition 1. $\square$

A1.5 Proof of Proposition 4

Since $\delta_i = 1\ \forall i \in N$, we have, $\forall j \in \{A, B\}$, $\forall (p_j, p_{-j}) \in \mathbb{R}^2_+$ and $\forall i \in N$, $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P}) = B_i(p_j) - C_i(p_j) - [B_i(p_{-j}) - C_i(p_{-j})]$. Thus, $\forall j \in \{A, B\}$, $\forall (p_j, p_{-j}) \in \mathbb{R}^2_+$ and $\forall i \in N$, $\widetilde{V}_i(p_j|\mathcal{P}) - \widetilde{V}_i(p_{-j}|\mathcal{P})$ is strictly concave in p_j and, hence, $\pi_j(p_j|\mathcal{P})$ is strictly concave in p_j. Therefore, $\forall j \in \{A, B\}$ and $\forall p_{-j} \in \mathbb{R}_+$, the unique maximizer of $\pi_j(p_j|\mathcal{P})$ is p^*_r, the unique solution to $\sum_{i \in N} m_i [B'_i(p) - C'_i(p)] = 0$. To see that p^*_r exists and is unique, note that $\sum_{i \in N} m_i [B'_i(p) - C'_i(p)]$ is continuous and decreasing in p since its derivative $\sum_{i \in N} m_i [B''_i(p) - C''_i(p)] < 0$ by Assumption A1. Moreover, $\sum_{i \in N} m_i [B'_i(p_1) - C'_i(p_1)] > 0$ and $\sum_{i \in N} m_i [B'_i(p_n) - C'_i(p_n)] < 0$ by Assumption A2, which also shows that $p^*_r \in (p_1, p_n)$.

That (p^*_r, p^*_r) constitutes a NE and that no other profile of strategies constitutes a NE follows from the fact that, $\forall j \in \{A, B\}$, p^*_r is the unique best response of party j to any strategy of party $-j$. $\square$

A1.6 Proof of Proposition 5

Equilibrium existence and uniqueness is a consequence of Proposition A1. To see the characterization via ($\mathcal{O}_{f,2}$), note that $\mathcal{O}_{f,2}(p)$ equals $\sum_{i \in N} m_i \widetilde{D}'_i(p|\{p, p\})$ when $p \in (p_1, p_2)$, equals $\sum_{i \in N} m_i \widetilde{D}'^{+}_i(p|\{p, p\})$ when $p = p_1$ and equals $\sum_{i \in N} m_i \widetilde{D}'^{-}_i(p|\{p, p\})$ when $p = p_2$. $\mathcal{O}_{f,2}(p)$ is decreasing in p by Assumption A1 and proving Proposition A1, we establish $\sum_{i \in N} m_i \widetilde{D}'^{-}_i(p_1|\{p_1, p_1\}) > 0$ and $\sum_{i \in N} m_i \widetilde{D}'^{+}_i(p_2|\{p_2, p_2\}) < 0$. Therefore, $p^*_f = p_1$ if $\mathcal{O}_{f,2}(p_1) \le 0$, $p^*_f = p_2$ if $\mathcal{O}_{f,2}(p_2) \ge 0$ and p^*_f solves $\mathcal{O}_{f,2}(p) = 0$ otherwise. $\square$

A1.7 Proof of Proposition 6

From Proposition 4, with rational voters, there exists unique Nash equilibrium in pure strategies with equilibrium platforms (p^*_r, p^*_r), where p^*_r is the unique solution to ($\mathcal{O}_r$), to $\sum_{i \in N} m_i [B'_i(p) - C'_i(p)] = 0$. Within the application, $B'_i(p) = B(p)'\ \forall i \in \{P, R\}$, $C'_R(p) = \frac{y_R}{\overline{y}}$ and $C'_P(p) = \frac{y_P}{\overline{y}}$. $B'(p^*_r) = 1$ now follows after straightforward algebra. $\square$

A1.8 Proof of Proposition 7

From Proposition 5, with focusing voters, there exists unique Nash equilibrium in pure strategies with equilibrium platforms (p^*_f, p^*_f), where p^*_f, if $p^*_f \in (p_R, p_P)$, is the unique solution to ($\mathcal{O}_{f,2}$), to $\frac{2m_1}{1+\delta_1} [\delta_1 B'_1(p) - C'_1(p)] + \frac{2m_2}{1+\delta_2} [B'_2(p) - \delta_2 C'_2(p)] = 0$. Within the application, group R corresponds to group 1, group P corresponds to group 2, $B_i'(p) = B(p)'\ \forall i \in \{P, R\}$, $C_R'(p) = \frac{y_R}{\bar{y}}$ and $C_P'(p) = \frac{y_P}{\bar{y}}$. Hence the equation that implicitly defines p_f^* reads

$$\tfrac{2m_R}{1+\delta_R}\left[\delta_R B'(p_f^*) - \tfrac{y_R}{\bar{y}}\right] + \tfrac{2m_P}{1+\delta_P}\left[B'(p_f^*) - \delta_P \tfrac{y_P}{\bar{y}}\right] = 0. \tag{A17}$$

Below we use the same equation that, equivalently, reads

$$B'(p_f^*) = \frac{1 + \delta_P - \frac{m_P y_P}{\bar{y}}(1 - \delta_P\delta_R)}{1 + \delta_P - m_R(1 - \delta_P\delta_R)}. \tag{A18}$$

The condition $p_f^* \leq p_r^*$ in part (a) is the condition given in Corollary 4, $m_2 B_2'(p_r^*) \leq m_1 C_1'(p_r^*)$, adapted to the notation of the application, after using $B'(p_r^*) = 1$.

The comparative statics with respect to y_R and y_P in part (b) follows from $\frac{\partial}{\partial y_R}\frac{m_P y_P}{\bar{y}} = \frac{-m_P y_P m_R}{\bar{y}^2} < 0$ and $\frac{\partial}{\partial y_P}\frac{m_P y_P}{\bar{y}} = \frac{m_P \bar{y} - m_P^2 y_P}{\bar{y}^2} = \frac{m_P y_R m_R}{\bar{y}^2} > 0$. When y_R increases, the numerator on the right hand side of (A18) increases. When y_P decreases, the numerator on the right hand side of (A18) increases. In both cases, p_f^* decreases. $\square$

A1.9 Proof of Proposition 8

Fix $i \in N$ and $\mathcal{P}$. When $\underline{\mathcal{P}} = \overline{\mathcal{P}}$, $\Delta_i^B(\mathcal{P}) = \Delta_i^C(\mathcal{P}) = 0$ and voters in group i have undistorted focus. When $\underline{\mathcal{P}} \neq \overline{\mathcal{P}}$, we have $\Delta_i^B(\mathcal{P}) - \Delta_i^C(\mathcal{P}) = V_i(\overline{\mathcal{P}}) - V_i(\underline{\mathcal{P}})$ by Assumption A1. Hence part (a) follows since $\Delta_i^B(\mathcal{P}) > \Delta_i^C(\mathcal{P}) \Leftrightarrow V_i(\overline{\mathcal{P}}) > V_i(\underline{\mathcal{P}})$, part (b) follows since $\Delta_i^B(\mathcal{P}) < \Delta_i^C(\mathcal{P}) \Leftrightarrow V_i(\overline{\mathcal{P}}) < V_i(\underline{\mathcal{P}})$ and part (c) follows since $\Delta_i^B(\mathcal{P}) = \Delta_i^C(\mathcal{P}) \Leftrightarrow V_i(\overline{\mathcal{P}}) = V_i(\underline{\mathcal{P}})$. $\square$

A1.10 Proof of Proposition 9

Fix $i \in N$, $\mathcal{P}$ and $\mathcal{P}'$ such that $\mathcal{P}' = \mathcal{P} \cup \{p'\}$.

Consider part (a). Since voters in group i focus on benefits in $\mathcal{P}$, $\underline{\mathcal{P}} < \overline{\mathcal{P}}$ and, by Proposition 8, $V_i(\underline{\mathcal{P}}) < V_i(\overline{\mathcal{P}})$. $V_i(\underline{\mathcal{P}}) < V_i(\overline{\mathcal{P}})$ and $\underline{\mathcal{P}} < \overline{\mathcal{P}}$ jointly imply $\underline{\mathcal{P}} < p_i$ and thus $\tilde{\underline{\mathcal{P}}}^i > p_i$. Since $\tilde{\underline{\mathcal{P}}}^i > p_i > 0$, we have $V_i(\underline{\mathcal{P}}) = V_i(\tilde{\underline{\mathcal{P}}}^i)$. Moreover, $V_i(\tilde{\underline{\mathcal{P}}}^i) = V_i(\underline{\mathcal{P}}) < V_i(\overline{\mathcal{P}})$ and $\tilde{\underline{\mathcal{P}}}^i > p_i$ imply $\overline{\mathcal{P}} < \tilde{\underline{\mathcal{P}}}^i$. In summary, $p_i \in (\underline{\mathcal{P}}, \tilde{\underline{\mathcal{P}}}^i)$ and $\overline{\mathcal{P}} \in (\underline{\mathcal{P}}, \tilde{\underline{\mathcal{P}}}^i)$.

Under $\mathcal{P}'$, voters in group i focus as follows. When $p' < \underline{\mathcal{P}}$, then $\underline{\mathcal{P}}' = p'$, $\overline{\mathcal{P}}' = \overline{\mathcal{P}}$ and $V_i(p') < V_i(\underline{\mathcal{P}}) < V_i(\overline{\mathcal{P}})$ so that voters in group i, by Proposition 8, focus on benefits. When $p' = \underline{\mathcal{P}}$, then $\underline{\mathcal{P}}' = \underline{\mathcal{P}}$ and $\overline{\mathcal{P}}' = \overline{\mathcal{P}}$ so that voters in group i focus on benefits. When $p' \in (\underline{\mathcal{P}}, \tilde{\underline{\mathcal{P}}}^i)$, then $\underline{\mathcal{P}}' = \underline{\mathcal{P}}$, $\overline{\mathcal{P}}' \in \{\overline{\mathcal{P}}, p'\}$ and $V_i(\underline{\mathcal{P}}) < V_i(\overline{\mathcal{P}}') \in \{V_i(\overline{\mathcal{P}}), V_i(p')\}$ so that voters in group i, by Proposition 8, focus on benefits. When $p' = \tilde{\underline{\mathcal{P}}}^i$, then $\underline{\mathcal{P}}' = \underline{\mathcal{P}}$, $\overline{\mathcal{P}}' = p'$ and $V_i(\underline{\mathcal{P}}) = V_i(p')$ so that voters in group i, by Proposition 8, have undistorted focus. When $p' > \tilde{\underline{\mathcal{P}}}^i$, then $\underline{\mathcal{P}}' = \underline{\mathcal{P}}$, $\overline{\mathcal{P}}' = p'$ and $V_i(\underline{\mathcal{P}}) > V_i(p')$ so that voters in group

i, by Proposition 8, focus on costs.

Consider part (b). Since voters in group i focus on costs in $\mathcal{P}$, $\mathcal{P}_- < \mathcal{P}_+$ and, by Proposition 8, $V_i(\mathcal{P}_-) > V_i(\mathcal{P}_+)$. $V_i(\mathcal{P}_-) > V_i(\mathcal{P}_+)$ and $\mathcal{P}_- < \mathcal{P}_+$ jointly imply $\mathcal{P}_+ > p_i$ and thus $\tilde{\mathcal{P}}^i_+ < p_i$. When $\tilde{\mathcal{P}}^i_+ < 0$, clearly $\mathcal{P}_- > \tilde{\mathcal{P}}^i_+$. When $\tilde{\mathcal{P}}^i_+ \geq 0$, $V_i(\mathcal{P}_+) = V_i(\tilde{\mathcal{P}}^i_+)$ and thus $V_i(\tilde{\mathcal{P}}^i_+) = V_i(\mathcal{P}_+) < V_i(\mathcal{P}_-)$, which together with $\tilde{\mathcal{P}}^i_+ < p_i$ implies $\mathcal{P}_- > \tilde{\mathcal{P}}^i_+$. In summary, $p_i \in (\tilde{\mathcal{P}}^i_+, \mathcal{P}_+)$ and $\mathcal{P}_- \in (\tilde{\mathcal{P}}^i_+, \mathcal{P}_+)$.

Under $\mathcal{P}'$, voters in group i focus as follows. When $p' > \mathcal{P}_+$, then $\mathcal{P}'_- = \mathcal{P}_-$, $\mathcal{P}'_+ = p'$ and $V_i(p') < V_i(\mathcal{P}_+) < V_i(\mathcal{P}_-)$ so that voters in group i, by Proposition 8, focus on costs. When $p' = \mathcal{P}_+$, then $\mathcal{P}'_- = \mathcal{P}_-$, $\mathcal{P}'_+ = \mathcal{P}_+$ so that voters in group i focus on costs. When $p' \in (\tilde{\mathcal{P}}^i_+, \mathcal{P}_+)$, then $\mathcal{P}'_- \in \{\mathcal{P}_-, p'\}$, $\mathcal{P}'_+ = \mathcal{P}_+$ and $V_i(\mathcal{P}_+) < V_i(\mathcal{P}'_-) \in \{V_i(\mathcal{P}_-), V_i(p')\}$ so that voters in group i, by Proposition 8, focus on costs. When $p' = \tilde{\mathcal{P}}^i_+$, so that $\tilde{\mathcal{P}}^i_+ \geq 0$, then $\mathcal{P}'_- = p'$, $\mathcal{P}'_+ = \mathcal{P}_+$ and $V_i(\mathcal{P}_+) = V_i(p')$ so that voters in group i, by Proposition 8, have undistorted focus. When $p' < \tilde{\mathcal{P}}^i_+$, so that $\tilde{\mathcal{P}}^i_+ \geq 0$, then $\mathcal{P}'_- = p'$, $\mathcal{P}'_+ = \mathcal{P}_+$ and $V_i(\mathcal{P}_+) > V_i(p')$ so that voters in group i, by Proposition 8, focus on benefits.

Consider part (c). Since voters in group i have undistorted focus in $\mathcal{P}$, then, by Proposition 8, $V_i(\mathcal{P}_-) = V_i(\mathcal{P}_+)$. Since $\mathcal{P}_- < \mathcal{P}_+$ and $V_i(\mathcal{P}_-) = V_i(\mathcal{P}_+)$, we have $p_i \in (\mathcal{P}_-, \mathcal{P}_+)$.

Under $\mathcal{P}'$, voters in group i focus as follows. When $p' < \mathcal{P}_-$, then $\mathcal{P}'_- = p'$, $\mathcal{P}'_+ = \mathcal{P}_+$ and $V_i(p') < V_i(\mathcal{P}_-) = V_i(\mathcal{P}_+)$ so that voters in group i, by Proposition 8, focus on benefits. When $p' \in [\mathcal{P}_-, \mathcal{P}_+]$, then $\mathcal{P}'_- = \mathcal{P}_-$ and $\mathcal{P}'_+ = \mathcal{P}_+$ so that voters in group i have undistorted focus. When $p' > \mathcal{P}_+$, then $\mathcal{P}'_- = \mathcal{P}_-$, $\mathcal{P}'_+ = p'$ and $V_i(p') < V_i(\mathcal{P}_+) = V_i(\mathcal{P}_-)$ so that voters in group i, by Proposition 8, focus on costs. $\square$

A1.11 Proof of Proposition 10

Fix $i \in N$, $\mathcal{P}$ and $\mathcal{P}'$ such that $\delta_i < 1$, $p_A \in \mathcal{P}$, $p_B \in \mathcal{P}$, $p_A > p_B$ and $\mathcal{P} \cup \{p_C\} = \mathcal{P}'$.

To prove parts (a) and (b), we have

$$\begin{aligned} &\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) - \left[\widetilde{V}_i(p_A|\mathcal{P}') - \widetilde{V}_i(p_B|\mathcal{P}')\right] \\ &\qquad = c\left[B_i(p_A) + C_i(p_A) - [B_i(p_B) + C_i(p_B)]\right] \end{aligned} \tag{A19}$$

where $c = \frac{2(1-\delta_i)}{1+\delta_i}$ when voters in group i focus on benefits in $\mathcal{P}$ and on costs in $\mathcal{P}'$, $c = \frac{1-\delta_i}{1+\delta_i}$ either when voters in group i focus on benefits in $\mathcal{P}$ and have undistorted focus in $\mathcal{P}'$ or when voters in group i have undistorted focus in $\mathcal{P}$ and focus on costs in $\mathcal{P}'$, $c = -\frac{1-\delta_i}{1+\delta_i}$ either when voters in group i focus on costs in $\mathcal{P}$ and have undistorted focus in $\mathcal{P}'$ or when voters in group i have undistorted focus in $\mathcal{P}$ and focus on benefits in $\mathcal{P}'$, and $c = -\frac{2(1-\delta_i)}{1+\delta_i}$ when voters in group i focus on costs in $\mathcal{P}$ and on benefits in $\mathcal{P}'$.

Since $p_A > p_B$, by Assumption A1, $B_i(p_A) + C_i(p_A) - [B_i(p_B) + C_i(p_B)] > 0$. Hence, the sign of $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) - \left[\widetilde{V}_i(p_A|\mathcal{P}') - \widetilde{V}_i(p_B|\mathcal{P}')\right]$ coincides with the sign of c.

To prove part (c), consider choice set $\mathcal{R}$ with $p_A \in \mathcal{R}$ and $p_B \in \mathcal{R}$. Then

$$\begin{aligned}
&\lim_{\delta_i \to 0} \widetilde{V}_i(p_A|\mathcal{R}) - \widetilde{V}_i(p_B|\mathcal{R}) = 2\left[B_i(p_A) - B_i(p_B)\right] > 0 \\
&\lim_{\delta_i \to 0} \widetilde{V}_i(p_A|\mathcal{R}) - \widetilde{V}_i(p_B|\mathcal{R}) = -2\left[C_i(p_A) - C_i(p_B)\right] < 0
\end{aligned} \tag{A20}$$

when voters in group i focus on benefits and costs respectively, where the inequalities follow from $p_A > p_B$ by Assumption A1. Since voters in group i focus on different attributes and have distorted focus both in $\mathcal{P}$ and $\mathcal{P}'$, they either focus on benefits in $\mathcal{P}$ and on cost in $\mathcal{P}'$, or vice versa. Thus, there has to exists $\overline{\delta}_i \in (0,1)$ such that for any $\delta_i < \overline{\delta}_i$, $\widetilde{V}_i(p_A|\mathcal{P}) - \widetilde{V}_i(p_B|\mathcal{P}) > 0$ and $\widetilde{V}_i(p_A|\mathcal{P}') - \widetilde{V}_i(p_B|\mathcal{P}') < 0$, or vice versa.

To prove part (d), we consider three cases depending on which attribute voters in group i focus on in $\mathcal{P}$.

Case 1: voters in group i focus on benefits in $\mathcal{P}$: It suffices to show that, $\forall p \in \mathcal{P}$, $V_i(p) \geq V_i(p_C)$ and $p_C > p$. To see this, if voters in group i have undistorted focus in $\mathcal{P}'$, then $\widetilde{V}_i(p|\mathcal{P}') - \widetilde{V}_i(p_C|\mathcal{P}') = V_i(p) - V_i(p_C)$, so that $\widetilde{V}_i(p|\mathcal{P}') \geq \widetilde{V}_i(p_C|\mathcal{P}')$ $\forall p \in \mathcal{P}'$ if $V_i(p) \geq V_i(p_C)$ $\forall p \in \mathcal{P}$, and if voters in group i focus on costs in $\mathcal{P}'$, then

$$\begin{aligned}
&\widetilde{V}_i(p|\mathcal{P}') - \widetilde{V}_i(p_C|\mathcal{P}') \\
&\quad = \tfrac{2\delta_i}{1+\delta_i} B_i(p) - \tfrac{2}{1+\delta_i} C_i(p) - \left[\tfrac{2\delta_i}{1+\delta_i} B_i(p_C) - \tfrac{2}{1+\delta_i} C_i(p_C)\right] \\
&\quad = -\tfrac{2(1-\delta_i)}{1+\delta_i} B_i(p) + \tfrac{2}{1+\delta_i} V_i(p) - \left[-\tfrac{2(1-\delta_i)}{1+\delta_i} B_i(p_C) + \tfrac{2}{1+\delta_i} V_i(p_C)\right] \\
&\quad = \tfrac{2}{1+\delta_i}\left[V_i(p) - V_i(p_C)\right] + \tfrac{2(1-\delta_i)}{1+\delta_i}\left[B_i(p_C) - B_i(p)\right]
\end{aligned} \tag{A21}$$

so that $\widetilde{V}_i(p|\mathcal{P}') \geq \widetilde{V}_i(p_C|\mathcal{P}')$ $\forall p \in \mathcal{P}'$ if $V_i(p) \geq V_i(p_C)$ and $p_C > p$ $\forall p \in \mathcal{P}$.

We now show that, $\forall p \in \mathcal{P}$, $V_i(p) \geq V_i(p_C)$ and $p_C > p$, when voters in group i focus on benefits in $\mathcal{P}$ and do not focus on benefits in $\mathcal{P}' = \mathcal{P} \cup \{p_C\}$. Since voters in group i focus on benefits, $\mathcal{P}_- < \mathcal{P}_+$, so that $V_i(\mathcal{P}_-) < V_i(\mathcal{P}_+)$ by Proposition 8, and, hence, $\mathcal{P}_- < p_i$. $\mathcal{P}_- < p_i$ implies $\tilde{\mathcal{P}}_-^i > p_i$ so that, since $V_i(\tilde{\mathcal{P}}_-^i) = V_i(\mathcal{P}_-) < V_i(\mathcal{P}_+)$, $\mathcal{P}_+ < \tilde{\mathcal{P}}_-^i$. In summary, $p_i \in (\mathcal{P}_-, \tilde{\mathcal{P}}_-^i)$ and $\mathcal{P}_+ \in (\mathcal{P}_-, \tilde{\mathcal{P}}_-^i)$. Moreover, $V_i(\mathcal{P}_-) = \min_{p \in \mathcal{P}} V_i(p)$. To see this, if there exists $p \in \mathcal{P}$ such that $V_i(\mathcal{P}_-) > V_i(p)$, then $p > \tilde{\mathcal{P}}_-^i$ since $\mathcal{P}_- < p_i$, but then $p > \mathcal{P}_+$. Therefore, it suffices to show that $V_i(\mathcal{P}_-) \geq V_i(p_C)$ and $p_C > \mathcal{P}_+$. Since voters in group i do not focus on benefits in $\mathcal{P}'$, by Proposition 9, $p_C \geq \tilde{\mathcal{P}}_-^i$. Combining $p_C \geq \tilde{\mathcal{P}}_-^i$ with $p_i \in (\mathcal{P}_-, \tilde{\mathcal{P}}_-^i)$ and $\mathcal{P}_+ \in (\mathcal{P}_-, \tilde{\mathcal{P}}_-^i)$, we have $V_i(\mathcal{P}_-) \geq V_i(p_C)$ and $p_C > \mathcal{P}_+$.

Case 2: voters in group i focus on costs in $\mathcal{P}$: It suffices to show that, $\forall p \in \mathcal{P}$, $V_i(p) \geq V_i(p_C)$ and $p_C < p$. To see this, if voters in group i have undistorted focus in $\mathcal{P}'$, then $\widetilde{V}_i(p|\mathcal{P}') - \widetilde{V}_i(p_C|\mathcal{P}') = V_i(p) - V_i(p_C)$, so that $\widetilde{V}_i(p|\mathcal{P}') \geq \widetilde{V}_i(p_C|\mathcal{P}')$ $\forall p \in \mathcal{P}'$ if

$V_i(p) \geq V_i(p_C)$ $\forall p \in \mathcal{P}$, and if voters focus on benefits in $\mathcal{P}'$, then

$$\begin{aligned}
&\widetilde{V}_i(p|\mathcal{P}') - \widetilde{V}_i(p_C|\mathcal{P}') \\
&\qquad = \tfrac{2}{1+\delta_i} B_i(p) - \tfrac{2\delta_i}{1+\delta_i} C_i(p) - \left[\tfrac{2}{1+\delta_i} B_i(p_C) - \tfrac{2\delta_i}{1+\delta_i} C_i(p_C)\right] \\
&\qquad = \tfrac{2}{1+\delta_i} V_i(p) + \tfrac{2(1-\delta_i)}{1+\delta_i} C_i(p) - \left[\tfrac{2}{1+\delta_i} V_i(p_C) + \tfrac{2(1-\delta_i)}{1+\delta_i} C_i(p_C)\right] \\
&\qquad = \tfrac{2}{1+\delta_i}[V_i(p) - V_i(p_C)] + \tfrac{2(1-\delta_i)}{1+\delta_i}[C_i(p) - C_i(p_C)]
\end{aligned} \tag{A22}$$

so that $\widetilde{V}_i(p|\mathcal{P}') \geq \widetilde{V}_i(p_C|\mathcal{P}')$ $\forall p \in \mathcal{P}'$ if $V_i(p) \geq V_i(p_C)$ and $p_C < p$ $\forall p \in \mathcal{P}$.

We now show that, $\forall p \in \mathcal{P}$, $V_i(p) \geq V_i(p_C)$ and $p_C < p$, when voters in group i focus on costs in $\mathcal{P}$ and do not focus on costs in $\mathcal{P}' = \mathcal{P} \cup \{p_C\}$. First note that focus on costs in $\mathcal{P}$ and not in $\mathcal{P}'$ implies, by Proposition 9, that $p_C \leq \tilde{\mathcal{P}}^i_+$ and hence $\tilde{\mathcal{P}}^i_+ \geq 0$. Since voters in group i focus on costs, $\mathcal{P}_- < \mathcal{P}_+$, so that $V_i(\mathcal{P}_-) > V_i(\mathcal{P}_+)$ by Proposition 8, and, hence, $\mathcal{P}_+ > p_i$. $\mathcal{P}_+ > p_i$ implies $\tilde{\mathcal{P}}^i_+ < p_i$ so that, since $V_i(\tilde{\mathcal{P}}^i_+) = V_i(\mathcal{P}_+) < V_i(\mathcal{P}_-)$, $\mathcal{P}_- > \tilde{\mathcal{P}}^i_+$. In summary, $p_i \in (\tilde{\mathcal{P}}^i_+, \mathcal{P}_+)$ and $\mathcal{P}_- \in (\tilde{\mathcal{P}}^i_+, \mathcal{P}_+)$. Moreover, $V_i(\mathcal{P}_+) = \min_{p \in \mathcal{P}} V_i(p)$. To see this, if there exists $p \in \mathcal{P}$ such that $V_i(\mathcal{P}_+) > V_i(p)$, then $p < \tilde{\mathcal{P}}^i_+$ since $\mathcal{P}_+ > p_i$, but then $p < \mathcal{P}_-$. Therefore, it suffices to show that $V_i(\mathcal{P}_+) \geq V_i(p_C)$ and $p_C < \mathcal{P}_-$. We already have $p_C \leq \tilde{\mathcal{P}}^i_+$. Combining $p_C \leq \tilde{\mathcal{P}}^i_+$ with $p_i \in (\tilde{\mathcal{P}}^i_+, \mathcal{P}_+)$ and $\mathcal{P}_- \in (\tilde{\mathcal{P}}^i_+, \mathcal{P}_+)$, we have $V_i(\mathcal{P}_+) \geq V_i(p_C)$ and $p_C < \mathcal{P}_-$.

Case 3: voters in group i have undistorted focus in $\mathcal{P}$: If voters in group i focus on costs in $\mathcal{P}'$, by (A21), it suffices to show that, $\forall p \in \mathcal{P}$, $V_i(p) \geq V_i(p_C)$ and $p_C > p$. If voters in group i focus on benefits in $\mathcal{P}'$, by (A22), it suffices to show that, $\forall p \in \mathcal{P}$, $V_i(p) \geq V_i(p_C)$ and $p_C < p$. Since voters in group i have undistorted focus in $\mathcal{P}$, by Proposition 8, $V_i(\mathcal{P}_-) = V_i(\mathcal{P}_+)$. Moreover, we have $p_A > p_B$ and hence $\mathcal{P}_- < \mathcal{P}_+$ so that, since $V_i(\mathcal{P}_-) = V_i(\mathcal{P}_+)$, $p_i \in (\mathcal{P}_-, \mathcal{P}_+)$. Thus $V_i(\mathcal{P}_-) = V_i(\mathcal{P}_+) = \min_{p \in \mathcal{P}} V_i(p)$. If voters in group i focus on costs in $\mathcal{P}'$, by Proposition 9, $p_C > \mathcal{P}_+$. Combining $p_C > \mathcal{P}_+$ with $p_i \in (\mathcal{P}_-, \mathcal{P}_+)$ implies $V_i(\mathcal{P}_+) > V_i(p_C)$. If voters in group i focus on benefits in $\mathcal{P}'$, by Proposition 9, $p_C < \mathcal{P}_-$. Combining $p_C < \mathcal{P}_-$ with $p_i \in (\mathcal{P}_-, \mathcal{P}_+)$ implies $V_i(\mathcal{P}_-) > V_i(p_C)$. $\square$

A1.12 Proof of Proposition 11

The proof is complicated by the fact that we need to establish properties of the parties' objective functions given presence of an additional policy. We start the proof by proving four technical Lemmas A2, A3, A4, A5. Recall that $\widetilde{D}'_i(p|\mathcal{P}) = \frac{\partial}{\partial p}\left[\widetilde{V}_i(p|\mathcal{P}) - \widetilde{V}_i(p'|\mathcal{P})\right]$, given choice set $\mathcal{P}$ and policies $p \in \mathcal{P}$ and $p' \in \mathcal{P}$. Below, when listing the policies in $\mathcal{P}$ explicitly, we use the convention to list p and p' in the first two positions. That is, given $\mathcal{P} = \{p, p', p''\}$, $\widetilde{D}_i(p|\{p, p', p''\}) = \left[\widetilde{V}_i(p|\{p, p', p''\}) - \widetilde{V}_i(p'|\{p, p', p''\})\right]$, and analogously for derivatives.

Lemma A2. *For all $i \in N$, $\forall p \in \mathbb{R}_+$ and $\forall p' \in \mathbb{R}_+$,*

$$\widetilde{D}'_i(p|\{p,p,p'\}) = \begin{cases} v'_{b,i}(p) & \text{if } p < \tilde{p}^{i\prime} \\ v'_{c,i}(p) & \text{if } p > \tilde{p}^{i\prime} \end{cases}$$
$$\widetilde{D}'^{-}_i(\tilde{p}^{i\prime}|\{\tilde{p}^{i\prime},\tilde{p}^{i\prime},p'\}) = \begin{cases} v'_{n,i}(\tilde{p}^{i\prime}) & \text{if } p' < p_i \\ v'_{b,i}(\tilde{p}^{i\prime}) & \text{if } p' \geq p_i \end{cases}$$
$$\widetilde{D}'^{+}_i(\tilde{p}^{i\prime}|\{\tilde{p}^{i\prime},\tilde{p}^{i\prime},p'\}) = \begin{cases} v'_{c,i}(\tilde{p}^{i\prime}) & \text{if } p' \leq p_i \\ v'_{n,i}(\tilde{p}^{i\prime}) & \text{if } p' > p_i \end{cases}$$

Proof. Fix $i \in N$, $p \in \mathbb{R}_+$ and $p' \in \mathbb{R}_+$. Note that

$$\begin{aligned} \widetilde{D}'^{-}_i(p|\{p,p,p'\}) &= \lim_{h\to 0^-} \tfrac{\widetilde{D}_i(p+h|\{p+h,p,p'\}) - \widetilde{D}_i(p|\{p,p,p'\})}{h} \\ \widetilde{D}'^{+}_i(p|\{p,p,p'\}) &= \lim_{h\to 0^+} \tfrac{\widetilde{D}_i(p+h|\{p+h,p,p'\}) - \widetilde{D}_i(p|\{p,p,p'\})}{h} \end{aligned} \tag{A23}$$

where $\widetilde{D}_i(p|\{p,p,p'\}) = 0$. By Proposition 8, direct verification shows that there exists $\bar{h} > 0$ such that, $\forall h \in (-\bar{h}, 0)$, $\widetilde{D}_i(p+h|\{p+h,p,p'\}) = v_{z,i}(p+h) - v_{z,i}(p)$, where

$$z = \begin{cases} b & \text{if } (p' < p_i \wedge p < \tilde{p}^{i\prime}) \text{ or } (p' \geq p_i \wedge p \leq \tilde{p}^{i\prime}) \\ n & \text{if } p' < p_i \wedge p = \tilde{p}^{i\prime} \\ c & \text{if } (p' < p_i \wedge p > \tilde{p}^{i\prime}) \text{ or } (p' \geq p_i \wedge p > \tilde{p}^{i\prime}) \end{cases} \tag{A24}$$

and such that, $\forall h \in (0, \bar{h})$, $\widetilde{D}_i(p+h|\{p+h,p,p'\}) = v_{z,i}(p+h) - v_{z,i}(p)$, where

$$z = \begin{cases} b & \text{if } (p' > p_i \wedge p < \tilde{p}^{i\prime}) \text{ or } (p' \leq p_i \wedge p < \tilde{p}^{i\prime}) \\ n & \text{if } (p' > p_i \wedge p = \tilde{p}^{i\prime}) \\ c & \text{if } (p' > p_i \wedge p > \tilde{p}^{i\prime}) \text{ or } (p' \leq p_i \wedge p \geq \tilde{p}^{i\prime}) \end{cases} \tag{A25}$$

which proves the lemma. □

Lemma A3. *For all $i \in N$ and $\forall p \in \mathbb{R}_+$,*

$$\widetilde{D}'_i(p|\{p,p\}) = \begin{cases} v'_{b,i}(p) & \text{if } p < p_i \\ v'_{c,i}(p) & \text{if } p > p_i \end{cases}$$
$$\widetilde{D}'^{-}_i(p_i|\{p_i,p_i\}) = v'_{b,i}(p_i)$$
$$\widetilde{D}'^{+}_i(p_i|\{p_i,p_i\}) = v'_{c,i}(p_i)$$

Proof. The first equality follows from Lemma A1 part 4 and the last two equalities follow from Lemma A1 part 5. ☐

Lemma A4. *For any $i \in N$, $\forall p \in \mathbb{R}_+$, $\forall p' \in \mathbb{R}_+$ and $\forall p'' \in \mathbb{R}_+$, when $p < p'$,*

1. $\widetilde{D}_i'^{-}(p|\{p,p\}) > \widetilde{D}_i'^{-}(p'|\{p',p'\})$ *and* $\widetilde{D}_i'^{+}(p|\{p,p\}) > \widetilde{D}_i'^{+}(p'|\{p',p'\})$*;*
2. $\widetilde{D}_i'^{-}(p|\{p,p,p''\}) > \widetilde{D}_i'^{-}(p'|\{p',p',p''\})$ *and* $\widetilde{D}_i'^{+}(p|\{p,p,p''\}) > \widetilde{D}_i'^{+}(p'|\{p',p',p''\})$.

Proof. Fix $i \in N$, $p'' \in \mathbb{R}_+$, $p \in \mathbb{R}_+$ and $p' \in \mathbb{R}_+$ such that $p < p'$. To see part 1, by Lemma A3 we have

$$\begin{aligned} \widetilde{D}_i'^{-}(p|\{p,p\}) &= \begin{cases} v_{b,i}'(p) & \text{if } p \leq p_i \\ v_{c,i}'(p) & \text{if } p > p_i \end{cases} \\ \widetilde{D}_i'^{+}(p|\{p,p\}) &= \begin{cases} v_{b,i}'(p) & \text{if } p < p_i \\ v_{c,i}'(p) & \text{if } p \geq p_i \end{cases} \end{aligned} \tag{A26}$$

and part 1 follows by $v_{b,i}''(p) < 0$, $v_{c,i}''(p) < 0$ and $v_{b,i}'(p) \geq v_{c,i}'(p)$. To see part 2, by Lemma A2 we have

$$\begin{aligned} \widetilde{D}_i'^{-}(p|\{p,p,p''\}) &= \begin{cases} v_{b,i}'(p) & \text{if } (p'' < p_i \wedge p < \tilde{p}^{i\prime\prime}) \text{ or } (p'' \geq p_i \wedge p \leq \tilde{p}^{i\prime\prime}) \\ v_{n,i}'(p) & \text{if } (p'' < p_i \wedge p = \tilde{p}^{i\prime\prime}) \\ v_{c,i}'(p) & \text{if } (p'' < p_i \wedge p > \tilde{p}^{i\prime\prime}) \text{ or } (p'' \geq p_i \wedge p > \tilde{p}^{i\prime\prime}) \end{cases} \\ \widetilde{D}_i'^{+}(p|\{p,p,p''\}) &= \begin{cases} v_{b,i}'(p) & \text{if } (p'' > p_i \wedge p < \tilde{p}^{i\prime\prime}) \text{ or } (p'' \leq p_i \wedge p < \tilde{p}^{i\prime\prime}) \\ v_{n,i}'(p) & \text{if } (p'' > p_i \wedge p = \tilde{p}^{i\prime\prime}) \\ v_{c,i}'(p) & \text{if } (p'' > p_i \wedge p > \tilde{p}^{i\prime\prime}) \text{ or } (p'' \leq p_i \wedge p \geq \tilde{p}^{i\prime\prime}) \end{cases} \end{aligned} \tag{A27}$$

so that part 2 follows by $v_{b,i}''(p) < 0$, $v_{c,i}''(p) < 0$ and $v_{b,i}'(p) \geq v_{n,i}'(p) \geq v_{c,i}'(p)$. ☐

Lemma A5. *For all $i \in N$, $\forall p \in \mathbb{R}_+$ and $\forall p' \in \mathbb{R}_+$,*

1. $\widetilde{D}_i'^{-}(p|\{p,p,p'\}) = \widetilde{D}_i'^{-}(p|\{p,p\})$ *and* $\widetilde{D}_i'^{+}(p|\{p,p,p'\}) = \widetilde{D}_i'^{+}(p|\{p,p\})$ *if $p' = p_i$;*
2. *if $p' < p_i$, then*

$$\begin{aligned} \widetilde{D}_i'^{-}(p|\{p,p,p'\}) - \widetilde{D}_i'^{-}(p|\{p,p\}) &\begin{cases} = 0 & \text{if } p \notin (p_i, \tilde{p}^{i\prime}] \\ \geq 0 & \text{if } p \in (p_i, \tilde{p}^{i\prime}] \end{cases} \\ \widetilde{D}_i'^{+}(p|\{p,p,p'\}) - \widetilde{D}_i'^{+}(p|\{p,p\}) &\begin{cases} = 0 & \text{if } p \notin [p_i, \tilde{p}^{i\prime}) \\ \geq 0 & \text{if } p \in [p_i, \tilde{p}^{i\prime}); \end{cases} \end{aligned}$$

3. if $p' > p_i$, then

$$\widetilde{D}_i'^{-}(p|\{p,p,p'\}) - \widetilde{D}_i'^{-}(p|\{p,p\}) \begin{cases} = 0 & \text{if } p \notin (\tilde{\overline{p}}^{i\prime}, p_i] \\ \leq 0 & \text{if } p \in (\tilde{\overline{p}}^{i\prime}, p_i] \end{cases}$$

$$\widetilde{D}_i'^{+}(p|\{p,p,p'\}) - \widetilde{D}_i'^{+}(p|\{p,p\}) \begin{cases} = 0 & \text{if } p \notin [\tilde{\overline{p}}^{i\prime}, p_i) \\ \leq 0 & \text{if } p \in [\tilde{\overline{p}}^{i\prime}, p_i). \end{cases}$$

Proof. Fix $i \in N$, $p \in \mathbb{R}_+$ and $p' \in \mathbb{R}_+$. Part 1 follows from (A26) and (A27) and the fact that $p' = p_i$ implies $p_i = \tilde{\overline{p}}^{i\prime}$. To see part 2, the equality when $p \notin (p_i, \tilde{\overline{p}}^{i\prime}]$ and $p \notin [p_i, \tilde{\overline{p}}^{i\prime})$ respectively follows directly from (A26) and (A27). The inequality when $p \in (p_i, \tilde{\overline{p}}^{i\prime}]$ and $p \in [p_i, \tilde{\overline{p}}^{i\prime})$ respectively follows from $\widetilde{D}_i'^{-}(p|\{p,p\}) = v'_{c,i}(p)$ when $p > p_i$ and $\widetilde{D}_i'^{+}(p|\{p,p\}) = v'_{c,i}(p)$ when $p \geq p_i$. To see part 3, the equality when $p \notin (\tilde{\overline{p}}^{i\prime}, p_i]$ and $p \notin [\tilde{\overline{p}}^{i\prime}, p_i)$ respectively follows directly from (A26) and (A27). The inequality when $p \in (\tilde{\overline{p}}^{i\prime}, p_i]$ and $p \in [\tilde{\overline{p}}^{i\prime}, p_i)$ respectively follows from $\widetilde{D}_i'^{-}(p|\{p,p\}) = v'_{b,i}(p)$ when $p \leq p_i$ and $\widetilde{D}_i'^{+}(p|\{p,p\}) = v'_{b,i}(p)$ when $p < p_i$. □

We first prove that the electoral competition game has at most one pure strategy Nash equilibrium and that, in any Nash equilibrium in pure strategies, the two competing parties offer the same policy.

Fix $p_C \in \mathbb{R}_+$. Suppose profile (p_A^*, p_B^*) constitutes a pure strategy Nash equilibrium in the electoral competition game between parties A and B in the presence of an additional party with policy $p_C \in \mathbb{R}_+$. Then, by an argument similar to the one used in the proof of Proposition A1, $\forall p^* \in \{p_A^*, p_B^*\}$,

$$\sum_{i\in N} m_i \widetilde{D}_i'^{-}(p^*|\{p^*,p^*,p_C\}) \geq 0 \qquad \sum_{i\in N} m_i \widetilde{D}_i'^{+}(p^*|\{p^*,p^*,p_C\}) \leq 0. \tag{$\mathcal{O}_d$}$$

We now argue that there exists at most one p^* such that ($\mathcal{O}_d$) holds. Fix p^* such that ($\mathcal{O}_d$) holds at p^*. First, we claim that ($\mathcal{O}_d$) fails at any $p \in (p^*, \infty)$. To see this, since ($\mathcal{O}_d$) holds at p^*, by Lemma A4 part 2, $\forall p \in (p^*, \infty)$, $0 \geq \sum_{i\in N} m_i \widetilde{D}_i'^{+}(p^*|\{p^*,p^*,p_C\}) > \sum_{i\in N} m_i \widetilde{D}_i'^{+}(p|\{p,p,p_C\})$. Furthermore, from Lemma A2, $\forall i \in N$ and $\forall p \in \mathbb{R}_+ \setminus \{\tilde{\overline{p}}^{i}_C\}$, $\widetilde{D}_i'^{-}(p|\{p,p,p_C\}) = \widetilde{D}_i'^{+}(p|\{p,p,p_C\})$. Hence, there exists $\overline{p} > p^*$ such that, $\forall p \in (p^*, \overline{p})$, we have $\sum_{i\in N} m_i \widetilde{D}_i'^{-}(p|\{p,p,p_C\}) = \sum_{i\in N} m_i \widetilde{D}_i'^{+}(p|\{p,p,p_C\}) < 0$, and thus, by Lemma A4 part 2, $\forall p \in (p^*, \infty)$, $\sum_{i\in N} m_i \widetilde{D}_i'^{-}(p|\{p,p,p_C\}) < 0$ so that ($\mathcal{O}_d$) fails at any $p \in (p^*, \infty)$. We now claim that ($\mathcal{O}_d$) fails at any $p \in [0, p^*)$. To see this, since ($\mathcal{O}_d$) holds at p^*, by Lemma A4 part 2, $\forall p \in [0, p^*)$, $\sum_{i\in N} m_i \widetilde{D}_i'^{-}(p|\{p,p,p_C\}) > \sum_{i\in N} m_i \widetilde{D}_i'^{-}(p^*|\{p^*,p^*,p_C\}) \geq 0$. By Lemma A2 again, there exists $\overline{p} < p^*$ such that, $\forall p \in (\overline{p}, p^*)$, we have $\sum_{i\in N} m_i \widetilde{D}_i'^{+}(p|\{p,p,p_C\}) = \sum_{i\in N} m_i \widetilde{D}_i'^{-}(p|\{p,p,p_C\}) > 0$, and thus, by Lemma A4 part 2, $\forall p \in [0, p^*)$, $\sum_{i\in N} m_i \widetilde{D}_i'^{+}(p|\{p,p,p_C\}) > 0$ so that ($\mathcal{O}_d$) fails at any $p \in [0, p^*)$.

We now prove that $p_d^* \geq p_f^*$ if $p_f^* \geq p_C$. Recall that p_f^* is the unique solution to

$$\sum_{i \in N} m_i \widetilde{D}_i'^-(p|\{p,p\}) \geq 0 \qquad \sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p\}) \leq 0 \tag{A28}$$

and satisfies $p_f^* \in [p_1, p_n]$. Suppose first that there exists $k \in N \setminus \{n\}$ such that $p_f^* \in (p_k, p_{k+1})$. Then, from Lemma A3, $\forall i \in N$ and $\forall p \in \mathbb{R}_+ \setminus \{p_i\}$, $\widetilde{D}_i'^-(p|\{p,p\}) = \widetilde{D}_i'^+(p|\{p,p\})$ and hence $\sum_{i \in N} m_i \widetilde{D}_i'^+(p_f^*|\{p_f^*, p_f^*\}) = 0$. Thus, there exists $\overline{p} < p_f^*$ such that, $\forall p \in (\overline{p}, p_f^*)$,

$$\begin{aligned}
0 < \sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p\}) &= \sum_{i=1}^{k} m_i v_{c,i}'(p) + \sum_{i=k+1}^{n} m_i \widetilde{D}_i'^+(p|\{p,p\}) \\
&\leq \sum_{i=1}^{k} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\}) + \sum_{i=k+1}^{n} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\})
\end{aligned} \tag{A29}$$

where the first inequality follows by Lemma A4 part 1, the first equality follows by Lemma A3 and the second inequality follows, for the first sum, since Lemma A2 implies $\widetilde{D}_i'^+(p|\{p,p,p_C\}) \in \{v_{b,i}'(p), v_{n,i}'(p), v_{c,i}'(p)\}$ $\forall i \in N$ and $\forall p \in \mathbb{R}_+$ and we have $v_{b,i}'(p) \geq v_{n,i}'(p) \geq v_{c,i}'(p)$ $\forall p \in \mathbb{R}_+$ and, for the second sum, since Lemma A5 part 2 implies $\widetilde{D}_i'^+(p|\{p,p,p_C\}) = \widetilde{D}_i'^+(p|\{p,p\})$ $\forall i \in N$ such that $p_C < p_i$ and $\forall p \in \mathbb{R}_+$ such that $p < p_i$. Thus, $\forall p \in (\overline{p}, p_f^*)$, $\sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\}) > 0$ and hence, by Lemma A4 part 2, $\sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\}) > 0$ $\forall p \in [0, p_f^*)$.

Suppose now that there exists $k \in N$ such that $p_f^* = p_k$. Then we have that $\sum_{i \in N} m_i \widetilde{D}_i'^-(p_f^*|\{p_f^*, p_f^*\}) \geq 0$ and, by Lemma A4 part 1, there exists $\overline{p} < p_f^*$ such that, $\forall p \in (\overline{p}, p_f^*)$, $\sum_{i \in N} m_i \widetilde{D}_i'^-(p|\{p,p\}) > 0$, so that, by Lemma A3, $\sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p\}) > 0$. Therefore, $\forall p \in (\overline{p}, p_f^*)$,

$$\begin{aligned}
0 < \sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p\}) &= \sum_{i=1}^{k-1} m_i v_{c,i}'(p) + \sum_{i=k}^{n} m_i \widetilde{D}_i'^+(p|\{p,p\}) \\
&\leq \sum_{i=1}^{k-1} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\}) + \sum_{i=k}^{n} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\})
\end{aligned} \tag{A30}$$

where the first equality follows by Lemma A3 and the second inequality follows, for the first sum, by similar argument as in the previous paragraph and, for the second sum, since $\widetilde{D}_i'^+(p|\{p,p,p_C\}) = \widetilde{D}_i'^+(p|\{p,p\})$ either $\forall i \in N$ such that $p_C = p_i$ and $\forall p \in \mathbb{R}_+$, by Lemma A5 part 1, or $\forall i \in N$ such that $p_C < p_i$ and $\forall p \in \mathbb{R}_+$ such that $p < p_i$, by Lemma A5 part 2. Thus, $\forall p \in (\overline{p}, p_f^*)$, $\sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\}) > 0$ and hence, by Lemma A4 part 2, $\sum_{i \in N} m_i \widetilde{D}_i'^+(p|\{p,p,p_C\}) > 0$ $\forall p \in [0, p_f^*)$. The proof that $p_d^* \leq p_f^*$

if $p_f^* \leq p_C$ is analogous and omitted. □

A1.13 Proof of Proposition 12

Suppose the policy of the additional party $p_C > \max_{i \in N} \overset{\sim i}{0}$. This implies, $\forall i \in N$, that $p_C > p_i$ and $V_i(p_C) < V_i(p)$ $\forall p \in [0, p_C)$. Consider any pair of policies of parties A and B, (p_A, p_B) and choice set $\mathcal{P} = \{p_A, p_B, p_C\}$. If $\mathcal{P}_- = \mathcal{P}_+$, $p_A = p_B = p_C$, so that voters in any group i have undistorted focus. If $\mathcal{P}_- < \mathcal{P}_+$, we have $\mathcal{P}_- \leq p_C$ and $p_C \leq \mathcal{P}_+$. The former implies that, $\forall i \in N$, $V_i(\mathcal{P}_-) \geq V_i(p_C)$, and the latter implies that, $\forall i \in N$, $V_i(p_C) \geq V_i(\mathcal{P}_+)$. Since $\mathcal{P}_- < \mathcal{P}_+$, $V_i(\mathcal{P}_-) > V_i(\mathcal{P}_+)$ $\forall i \in N$, so that voters in all groups focus on costs by Proposition 8.

We now argue that profile of profile (p_C, p_C) does not constitute a Nash equilibrium in the electoral game. To see this, the payoff of party A from (p_C, p_C) is $\frac{1}{2}$. Consider deviation by party A to 0. We know that, $\forall i \in N$, $V_i(0) > V_i(p_C)$. Moreover, $\forall i \in N$, the attribute voters in group i focus on in $\{0, p_C, p_C\}$ is equal to the attribute voters in group i focus on in $\{0, p_C\}$. Therefore, by Proposition 2, $\forall i \in N$, $\widetilde{V}_i(0|\{0, p_C, p_C\}) > \widetilde{V}_i(p_C|\{0, p_C, p_C\})$ and thus payoff of party A from the deviation is (strictly) profitable.

Given $j \in \{A, B\}$, consider policy party j contests the election with, p_j, and suppose $p_j \neq p_C$. We argue that the best response of party $-j = \{A, B\} \setminus \{j\}$ is p_d^*, where p_d^* is the unique solution to

$$\max_{p \in \mathbb{R}_+} \sum_{i \in N} \tfrac{2m_i}{1+\delta_i} \left[\delta_i B_i(p) - C_i(p)\right]. \tag{A31}$$

This follows from the fact that given $p_j \neq p_C$ and any p_{-j}, voters in all groups focus on costs. Given this, any solution to (A31) is the best response of party $-j$ to p_j. By Assumption A1, the objective function in (A31) is strictly concave and thus (A31) has unique solution.

Since the best response of any party to the policy of its opposition that differs from p_C is p_d^*, and given that (p_C, p_C) does not constitute a Nash equilibrium, the electoral competition game admits unique pure strategy Nash equilibrium (p_d^*, p_d^*). □

A2 Electoral Competition with Focusing Voters, $n \geq 2$

In this appendix, we characterize the equilibrium of the electoral game for an arbitrary number of social groups, $n \geq 2$. In this more general case, the equilibrium policy is determined by a condition on the left and right derivatives of $\widetilde{D}_i(p'|\{p', p\}) = \widetilde{V}_i(p'|\{p', p\}) - \widetilde{V}_i(p|\{p', p\})$ with respect to p', evaluated at $p' = p$. These elements, which are denoted, respectively, by $\widetilde{D}_i'^{-}(p|\{p, p\})$ and $\widetilde{D}_i'^{+}(p|\{p, p\})$, capture the effect of a marginal deviation from a convergent pair of policies—(p, p)—to (p', p) with $p' < p$, for the left derivative; and to (p', p) with $p' > p$, for the right derivative.

Proposition A1. *Let p_f^* be the unique solution to*

$$\sum_{i\in N} m_i \widetilde{D}_i'^{-}(p|\{p,p\}) \geq 0 \qquad \sum_{i\in N} m_i \widetilde{D}_i'^{+}(p|\{p,p\}) \leq 0. \tag{$\mathcal{O}_f$}$$

A Nash equilibrium in pure strategies exists and is unique. The equilibrium platforms of the two parties are (p_f^*, p_f^*). Moreover, $p_f^* \in [p_1, p_n]$.

Proposition A1, which we prove below, shows that there exists a unique equilibrium characterized by a convergent equilibrium policy p_f^*. Since voters' focus-weighted utilities and, thus, parties' objective functions are not everywhere differentiable, we need to use this more general approach, with left and right derivatives, to characterize p_f^*. Consider Figure 1b and an electorate with three social groups. Assume that, with rational voters, the equilibrium policy coincides with p_2, the consumption bliss point of the middle group. In this case, a marginal deviation from (p_2, p_2) by either party has no effect on the votes from group 2 since $V_2'(p_2) = 0$. Consider now focusing voters and a marginal deviation to (p, p_2) with $p < p_2$. Since benefits decrease faster than costs, the range of benefits in the new choice set is larger than the range of costs. This induces voters in group 2 to focus on benefits and, thus, to react more strongly than rational voters to a deviation from p_2 to $p < p_2$. Formally, $\widetilde{D}_2'^{-}(p_2|\{p_2,p_2\}) > 0$. Similarly, a marginal deviation to (p, p_2) with $p > p_2$ implies a faster increase in costs than in benefits. This induces voters in group 2 to focus on costs and, thus, to react more strongly than rational voters to a deviation. Formally, $\widetilde{D}_2'^{+}(p_2|\{p_2,p_2\}) < 0$. Since $\widetilde{D}_2'^{-}(p_2|\{p_2,p_2\}) \neq \widetilde{D}_2'^{+}(p_2|\{p_2,p_2\})$, the objective function of party A is not differentiable in p_A when $p_A = p_B = p_2$ and we cannot use the derivative to characterize the equilibrium policy. Despite this, p_f^* can be characterized using the left and right derivatives of the parties' objective functions.[27]

In the discussion above, we assumed $p_f^* = p_i$ for some $i \in N$. When $p_f^* \neq p_i$ for any $i \in N$, we do not need to use the left and right derivatives since, as shown in Lemma A1, $\widetilde{D}_i'(p|\{p,p\})$ exists for any $i \in N$ when $p \neq p_i$. In this case, $p_f^* \in (p_k, p_{k+1})$ for some $k \in \{1, \ldots, n-1\}$ is implicitly defined by a generalized version of ($\mathcal{O}_{f,2}$):

$$\sum_{i=1}^{k} m_i \left[\tfrac{2\delta_i}{1+\delta_i} B_i'(p_f^*) - \tfrac{2}{1+\delta_i} C_i'(p_f^*)\right] + \sum_{i=k+1}^{n} m_i \left[\tfrac{2}{1+\delta_i} B_i'(p_f^*) - \tfrac{2\delta_i}{1+\delta_i} C_i'(p_f^*)\right] = 0. \tag{A32}$$

It is immediate that the comparative statics stated in Corollary 2 for $n = 2$ as well as the local unresponsiveness of p_f^* to the model parameters stated in Corollary 3 carry over to the model with arbitrary number of groups.[28]

[27] $\widetilde{D}_2'^{-}(p_2|\{p_2,p_2\}) > 0$ and $\widetilde{D}_2'^{+}(p_2|\{p_2,p_2\}) < 0$ imply that $\widetilde{D}_2$ has a kink at p_2 that constitutes a local maximum. ($\mathcal{O}_f$) therefore requires the objective function of the parties to have a kink at the equilibrium policy.

[28] When m_i increases for some i, m_j has to decrease for some $j \neq i$. To make the comparative static

Proof. Proof of Proposition A1 relies on Lemmas A6, A8, and A9. Lemma A7 is used to prove Lemma A8. We state and prove all the lemmas first.

Lemma A6. *If (p_A^*, p_B^*) constitutes a pure strategy NE, then, $\forall j \in \{A, B\}$,*

$$\sum_{i \in N} m_i \widetilde{D}_i'^{-}(p_j^* | \{p_j^*, p_j^*\}) \geq 0$$
$$\sum_{i \in N} m_i \widetilde{D}_i'^{+}(p_j^* | \{p_j^*, p_j^*\}) \leq 0.$$

Proof. Suppose (p_A^*, p_B^*) constitutes a NE. Since (p_A^*, p_B^*) constitutes a NE in a constant-sum game, the equilibrium vote share equals $\frac{1}{2}$ for both parties. Moreover, $\forall j \in \{A, B\}$, $\sum_{i \in N} m_i \widetilde{D}_i(p_j^* | \{p_j^*, p_j^*\}) = 0$ so that $\pi_{-j}(p_j^* | \{p_j^*, p_j^*\}) = \frac{1}{2}$.

Notice, by Lemma A1, $\forall p \in \mathbb{R}_+$, $\sum_{i \in N} m_i \widetilde{D}_i'^{-}(p|\{p, p\})$ and $\sum_{i \in N} m_i \widetilde{D}_i'^{+}(p|\{p, p\})$ exist (the left derivative at $p > 0$). Suppose, towards a contradiction, that either $\sum_{i \in N} m_i \widetilde{D}_i'^{-}(p_j^* | \{p_j^*, p_j^*\}) < 0$ or $\sum_{i \in N} m_i \widetilde{D}_i'^{+}(p_j^* | \{p_j^*, p_j^*\}) > 0$ for some $j \in \{A, B\}$. Then there exists $p < p_j^*$ or $p > p_j^*$, respectively, such that $\pi_{-j}(p|\{p, p_j^*\}) > \frac{1}{2}$, a contradiction since (p_A^*, p_B^*) constitutes a NE. □

To state Lemma A7, for any $k \in \{0, \ldots, n\}$ and $p \in \mathbb{R}_+$ define $T(p, k)$ as:

$$T(p, k) = \sum_{i=1}^{k} \tfrac{2\delta_i m_i}{1+\delta_i} B_i'(p) - \tfrac{2m_i}{1+\delta_i} C_i'(p) + \sum_{i=k+1}^{n} \tfrac{2m_i}{1+\delta_i} B_i'(p) - \tfrac{2\delta_i m_i}{1+\delta_i} C_i'(p) \tag{A33}$$

$T(p, k)$ is the derivative, if it exists, of $\sum_{i \in N} m_i \widetilde{D}_i(p|\{p, p\})$ when groups $i \leq k$ focus on costs and groups $i \geq k + 1$ focus on benefits in case of a marginal deviation from (p, p). Lemma A7 proves several properties of $T(p, k)$, where $T'(p, k)$ denotes the derivative of $T(p, k)$ with respect to p.

Lemma A7.

1. *$\forall p \in \mathbb{R}_+$ and $\forall k \in \{0, \ldots, n - 1\}$, $T(p, k) \geq T(p, k + 1)$;*
2. *$\forall p \in \mathbb{R}_+$ and $\forall k \in \{0, \ldots, n\}$, $T'(p, k) < 0$;*
3. *$T(p, 0) > 0$ $\forall p \leq p_1$ and $T(p, n) < 0$ $\forall p \geq p_n$.*

Proof. For part 1, $\forall p \in \mathbb{R}_+$ and $\forall k \in \{0, \ldots, n - 1\}$:

$$T(p, k) - T(p, k + 1) = \tfrac{2m_{k+1}(1-\delta_{k+1})}{1+\delta_{k+1}} \left[B_{k+1}'(p) + C_{k+1}'(p)\right] \geq 0 \tag{A34}$$

statement sharper, we assume that when m_i increases, m_j decreases for some $j \neq i$ such that p_i and p_j are on different sides of p_f^* and, thus, voters in group i and j focus on different attributes after a marginal deviation from the equilibrium policy.

where the inequality follows by Assumption A1.

Part 2 is immediate since $B_i'' \leq 0$ and $C_i'' \geq 0$ with at least one strict inequality $\forall i \in N$ by Assumption A1.

For part 3,

$$T(p,0) = \sum_{i\in N} \tfrac{2m_i}{1+\delta_i}\left[B_i'(p) - C_i'(p)\right] + \tfrac{2(1-\delta_i)m_i}{1+\delta_i} C_i'(p) > 0 \tag{A35}$$

where the inequality follows from $p \leq p_1$, and

$$T(p,n) = \sum_{i\in N} -\tfrac{2(1-\delta_i)m_i}{1+\delta_i} B_i'(p) + \tfrac{2m_i}{1+\delta_i}\left[B_i'(p) - C_i'(p)\right] < 0 \tag{A36}$$

where the inequality follows from $p \geq p_n$. $\square$

Lemma A8. *A solution to* ($\mathcal{O}_f$), p_f^*, *exists, is unique and satisfies* $p_f^* \in [p_1, p_n]$.

Proof. Denote by $p_0 = 0$ and $p_{n+1} = \infty$. Since $0 < p_i < p_{i+1} < \infty$ $\forall i \in \{1,\ldots,n-1\}$, we have $p_i < p_{i+1}$ $\forall i \in \{0,\ldots,n\}$. Notice that, $\forall k \in \{0,\ldots,n\}$, $\sum_{i\in N} m_i \widetilde{D}_i'(p|\{p,p\}) = T(p,k)$ if $p \in (p_k, p_{k+1})$ and, $\forall k \in \{1,\ldots,n\}$, $\sum_{i\in N} m_i \widetilde{D}_i'^-(p|\{p,p\}) = T(p,k-1)$ and $\sum_{i\in N} m_i \widetilde{D}_i'^+(p|\{p,p\}) = T(p,k)$ if $p = p_k$. The former by Lemma A1 part 4 and the latter by Lemma A1 parts 4 and 5. Therefore, if p_f^* solves ($\mathcal{O}_f$), then either $T(p_f^*, k) = 0$ and $p_f^* \in (p_k, p_{k+1})$ for some $k \in \{0,\ldots,n\}$ or $T(p_f^*, k-1) \geq 0$, $T(p_f^*, k) \leq 0$ and $p_f^* = p_k$ for some $k \in \{1,\ldots,n\}$. Conversely, any $p' \in \mathbb{R}_+$ such that either $T(p',k) = 0$ and $p' \in (p_k, p_{k+1})$ for some $k \in \{0,\ldots,n\}$ or $T(p',k-1) \geq 0$, $T(p',k) \leq 0$ and $p' = p_k$ for some $k \in \{1,\ldots,n\}$ solves ($\mathcal{O}_f$). To prove the lemma, it thus suffices to show that p' exists, is unique and $p' \in [p_1, p_n]$.

For existence, we will show that if $p' \in \mathbb{R}_+$ such that $T(p',k) = 0$ and $p' \in (p_k, p_{k+1})$ for some $k \in \{0,\ldots,n\}$ does not exist, then there exists $p' \in \mathbb{R}_+$ such that $T(p',k-1) \geq 0$, $T(p',k) \leq 0$ and $p' = p_k$ for some $k \in \{1,\ldots,n\}$. Since p' such that $T(p',k) = 0$ and $p' \in (p_k, p_{k+1})$ for some $k \in \{0,\ldots,n\}$ does not exist and since $T(p,k)$ is continuous in p $\forall k \in \{0,\ldots,n\}$, we have, $\forall k \in \{0,\ldots,n\}$, either $T(p,k) > 0$ $\forall p \in (p_k, p_{k+1})$ or $T(p,k) < 0$ $\forall p \in (p_k, p_{k+1})$. By Lemma A7 part 3, $T(p,0) > 0$ $\forall p \in (p_0, p_1)$ and $T(p,n) < 0$ $\forall p \in (p_n, p_{n+1})$. Since $T(p,k) > T(p'',k+1)$ $\forall p \in \mathbb{R}_+$, $\forall k \in \{0,\ldots,n-1\}$ and $\forall p'' > p$ by Lemma A7 parts 1 and 2, there exist $k' \in \{1,\ldots,n\}$ such that, $\forall k'' \leq k'$, $T(p,k''-1) > 0$ $\forall p \in (p_{k''-1}, p_{k''})$ and, $\forall k'' \geq k'$, $T(p,k'') < 0$ $\forall p \in (p_{k''}, p_{k''+1})$. By continuity of $T(p,k)$ in p $\forall k \in \{0,\ldots,n\}$, we thus have $T(p_{k'}, k'-1) \geq 0$ and $T(p_{k'}, k') \leq 0$.

For uniqueness, suppose either $T(p',k') = 0$ and $p' \in (p_{k'}, p_{k'+1})$ for some $k' \in \{0,\ldots,n\}$ or $T(p',k'-1) \geq 0$, $T(p',k') \leq 0$ and $p' = p_{k'}$ for some $k' \in \{1,\ldots,n\}$.

If $p' \in (p_{k'}, p_{k'+1})$ so that $T(p', k') = 0$, then $T(p'', k'') < 0$ $\forall p'' > p'$ and $\forall k'' \geq k'$ by Lemma A7 parts 1 and 2. Hence $T(p'', k') < 0$ $\forall p'' \in (p', p_{k'+1})$, $T(p'', k'') < 0$ $\forall k'' > k'$ and $\forall p'' \in (p_{k''}, p_{k''+1})$, and $T(p_{k''+1}, k'') < 0$ and $T(p_{k''+1}, k''+1) < 0$ $\forall k'' \geq k'$. Similarly, $T(p'', k'') > 0$ $\forall p'' < p'$ and $\forall k'' \leq k'$ by Lemma A7 parts 1 and 2. Hence $T(p'', k') > 0$ $\forall p'' \in (p_{k'}, p')$, $T(p'', k'') > 0$ $\forall k'' < k'$ and $\forall p'' \in (p_{k''}, p_{k''+1})$, and $T(p_{k''}, k''-1) > 0$ and $T(p_{k''}, k'') > 0$ $\forall k'' \leq k'$.

If $p' = p_{k'}$ so that $T(p_{k'}, k'-1) \geq 0$ and $T(p_{k'}, k') \leq 0$, then, by Lemma A7 parts 1 and 2, $T(p'', k'') < 0$ $\forall k'' \geq k'$ and $\forall p'' \in (p_{k''}, p_{k''+1})$, and $T(p_{k''+1}, k'') < 0$ and $T(p_{k''+1}, k''+1) < 0$ $\forall k'' \geq k'$. Similarly, by Lemma A7 parts 1 and 2, $T(p'', k''-1) > 0$ $\forall k'' \leq k'$ and $\forall p'' \in (p_{k''-1}, p_{k''})$, and $T(p_{k''-1}, k''-2) > 0$ and $T(p_{k''-1}, k''-1) > 0$ $\forall k'' \leq k'$.

That $p' \in [p_1, p_n]$ if $T(p', k) = 0$ and $p' \in (p_k, p_{k+1})$ for some $k \in \{0, \ldots, n\}$ or $T(p', k-1) \geq 0$, $T(p', k) \leq 0$ and $p' = p_k$ for some $k \in \{1, \ldots, n\}$ follows from Lemma A7 part 3, from $T(p, 0) > 0$ $\forall p < p_1$ and $T(p, n) < 0$ $\forall p > p_n$. $\square$

Lemma A9. *Platforms (p_f^*, p_f^*) constitute a Nash equilibrium.*

Proof. It suffices to prove that $\sum_{i \in N} m_i \widetilde{D}_i(p|\{p, p_f^*\})$ has a (unique) maximum at p_f^* as a function of p. Suppose first that there exists $k' \in N$ such that $p_f^* \in (p_{k'}, p_{k'+1})$. In order to recall the coming argument below, let $k'' = k'+1$. By Lemma A1 parts 2 and 3, $\widetilde{D}_i'(p_f^*|\{p_f^*, p_f^*\})$ exists $\forall i \in N$, and hence, since p_f^* solves $(\mathcal{O}_f)$, $\sum_{i \in N} m_i \widetilde{D}_i'(p_f^*|\{p_f^*, p_f^*\}) = 0$. By Lemma A1 part 4, $\forall i \in N$ and $\forall p \in \mathbb{R}_+ \setminus \{\tilde{p}_f^{i*}\}$, $\widetilde{D}_i'(p|\{p, p_f^*\})$ exists and $\widetilde{D}_i''(p|\{p, p_f^*\}) < 0$. Moreover, $\forall i \in N$, whenever $\tilde{p}_f^* > 0$,

$$
\begin{aligned}
\lim_{p \to (\tilde{p}_f^{i*})^-} \widetilde{D}_i'(p|\{p, p_f^*\}) &= \tfrac{2}{1+\delta_i} B_i'(\tilde{p}_f^{i*}) - \tfrac{2\delta_i}{1+\delta_i} C_i'(\tilde{p}_f^{i*}) \\
\lim_{p \to (\tilde{p}_f^{i*})^+} \widetilde{D}_i'(p|\{p, p_f^*\}) &= \tfrac{2\delta_i}{1+\delta_i} B_i'(\tilde{p}_f^{i*}) - \tfrac{2}{1+\delta_i} C_i'(\tilde{p}_f^{i*})
\end{aligned} \tag{A37}
$$

so that $\lim_{p \to (\tilde{p}_f^{i*})^-} \widetilde{D}_i'(p|\{p, p_f^*\}) \geq \lim_{p \to (\tilde{p}_f^{i*})^+} \widetilde{D}_i'(p|\{p, p_f^*\})$, since the difference of the limits is equal to $\frac{2(1-\delta_i)}{1+\delta_i} \left[B_i'(\tilde{p}_f^{i*}) + C_i'(\tilde{p}_f^{i*}) \right] \geq 0$. Therefore, $\forall i \in N$ and $\forall p \in \mathbb{R}_+ \setminus \{\tilde{p}_f^{i*}\}$, $\widetilde{D}_i'(p|\{p, p_f^*\}) > \widetilde{D}_i'(p_f^*|\{p_f^*, p_f^*\})$ when $p < p_f^*$ and $\widetilde{D}_i'(p|\{p, p_f^*\}) < \widetilde{D}_i'(p_f^*|\{p_f^*, p_f^*\})$ when $p > p_f^*$. Hence, $\forall p \in \mathbb{R}_+ \setminus \{\tilde{p}_f^{i*}|i \in N\}$, $\sum_{i \in N} m_i \widetilde{D}_i'(p|\{p, p_f^*\}) > 0$ when $p < p_f^*$ and $\sum_{i \in N} m_i \widetilde{D}_i'(p|\{p, p_f^*\}) < 0$ when $p > p_f^*$. Now consider $\tilde{p}_f^{i*}$. If $i \geq k''$, so that $p_i > p_f^*$, then $\tilde{p}_f^{i*} > p_f^*$ and, by Lemma A1 part 2, $\lim_{p \to (\tilde{p}_f^{i*})^-} \widetilde{D}_i(p|\{p, p_f^*\}) \geq 0 = \widetilde{D}_i(\tilde{p}_f^{i*}|\{\tilde{p}_f^{i*}, p_f^*\}) \geq \lim_{p \to (\tilde{p}_f^{i*})^+} \widetilde{D}_i(p|\{p, p_f^*\})$. If $i \leq k'$, so that $p_i < p_f^*$, then $\tilde{p}_f^{i*} < p_f^*$ and, by Lemma A1 part 3, $\lim_{p \to (\tilde{p}_f^{i*})^-} \widetilde{D}_i(p|\{p, p_f^*\}) \leq 0 = \widetilde{D}_i(\tilde{p}_f^{i*}|\{\tilde{p}_f^{i*}, p_f^*\}) \leq \lim_{p \to (\tilde{p}_f^{i*})^+} \widetilde{D}_i(p|\{p, p_f^*\})$ (if $\tilde{p}_f^{i*} = 0$ only the second inequality is relevant and if $\tilde{p}_f^{i*} < 0$ none are). In summary, $\sum_{i \in N} m_i \widetilde{D}_i(p|\{p, p_f^*\})$ is increasing in p on $[0, p_f^*)$ and decreasing on (p_f^*, ∞).

Suppose now that $p_f^* = p_{k^*}$ for some $k^* \in N$. Since p_f^* solves ($\mathcal{O}_f$), we have $\sum_{i\in N} m_i \widetilde{D}_i'^{-}(p_f^*|\{p_f^*, p_f^*\}) \geq 0$ and $\sum_{i\in N} m_i \widetilde{D}_i'^{+}(p_f^*|\{p_f^*, p_f^*\}) \leq 0$. The argument in the preceding paragraph applies to all $i \in N \setminus \{k^*\}$ using $k' = k^* - 1$ and $k'' = k^* + 1$. For group k^*, by Lemma A1 part 1, $\widetilde{D}_{k^*}(p|\{p, p_f^*\})$ is continuous and is differentiable except at p_f^*, and, by part 4, $\widetilde{D}'_{k^*}(p|\{p, p_f^*\})$ equals

$$\begin{aligned} &\tfrac{2}{1+\delta_{k^*}} B'_{k^*}(p) - \tfrac{2\delta_{k^*}}{1+\delta_{k^*}} C'_{k^*}(p) > \tfrac{2}{1+\delta_{k^*}} \left[B'_{k^*}(p) - C'_{k^*}(p)\right] > 0 \text{ if } p < p_f^* \\ &\tfrac{2\delta_{k^*}}{1+\delta_{k^*}} B'_{k^*}(p) - \tfrac{2}{1+\delta_{k^*}} C'_{k^*}(p) < \tfrac{2}{1+\delta_{k^*}} \left[B'_{k^*}(p) - C'_{k^*}(p)\right] < 0 \text{ if } p > p_f^* \end{aligned} \tag{A38}$$

where the inequalities come from $p_f^* = p_{k^*}$. Therefore, $\sum_{i\in N} m_i \widetilde{D}_i(p|\{p, p_f^*\})$ is increasing in p on $[0, p_f^*)$ and decreasing on (p_f^*, ∞). □

By Lemmas A6 and A8, any pair of platforms different than (p_f^*, p_f^*) cannot constitute a Nash equilibrium. By Lemma A9, (p_f^*, p_f^*) constitutes a Nash equilibrium. Lemma A8 shows that $p_f^* \in [p_1, p_n]$. □

A3 Diminishing Sensitivity

Our focus-weighted utility captures one key feature of sensory perception: human beings' perceptive apparatus is attuned to detect changes in stimuli. This is captured by *ordering*, whereby individuals focus on an attribute when it varies more than other attributes in the choice set. In addition to ordering, Bordalo et al. (2012, 2013a,b, 2015a,b) also assume that individuals perceive stimuli with *diminishing sensitivity*.

In order to consider both ordering and diminishing sensitivity in our basic framework, we can replace Assumption A4 with the following one.

Assumption 5. *(A5) For a voter in group i, the focus-weighted utility from $p \in \mathcal{P} = \{p_A, p_B\}$ with $p_A \neq p_B$ is:*

$$\widetilde{V}_i(p|\mathcal{P}) = \begin{cases} \frac{2}{1+\delta_i} B_i(p) - \frac{2\delta_i}{1+\delta_i} C_i(p) & \text{if } \frac{|B_i(p_A)-B_i(p_B)|}{B_i(p_A)+B_i(p_B)} > \frac{|C_i(p_A)-C_i(p_B)|}{C_i(p_A)+C_i(p_B)} \\ \frac{2\delta_i}{1+\delta_i} B_i(p) - \frac{2}{1+\delta_i} C_i(p) & \text{if } \frac{|B_i(p_A)-B_i(p_B)|}{B_i(p_A)+B_i(p_B)} < \frac{|C_i(p_A)-C_i(p_B)|}{C_i(p_A)+C_i(p_B)} \\ B_i(p) - C_i(p) & \text{if } \frac{|B_i(p_A)-B_i(p_B)|}{B_i(p_A)+B_i(p_B)} = \frac{|C_i(p_A)-C_i(p_B)|}{C_i(p_A)+C_i(p_B)} \end{cases}$$

where $\delta_i \in (0, 1]$ decreases in the severity of focusing.

Consider $\mathcal{P} = \{p_A, p_B\}$ with $p_A > p_B > 0$. Assumption A5 implies that voters in group $i \in N$ focus on benefits if and only if

$$\frac{B_i(p_A) - B_i(p_B)}{B_i(p_A) + B_i(p_B)} > \frac{C_i(p_A) - C_i(p_B)}{C_i(p_A) + C_i(p_B)}. \tag{A39}$$

After some algebra, this condition rewrites as

$$\frac{B_i(p_A)}{C_i(p_A)} > \frac{B_i(p_B)}{C_i(p_B)}. \tag{A40}$$

It is immediate that this condition is unlikely to hold for $p_A > p_B$: since B_i is concave and C_i is convex, $B_i'(p)$ is non-increasing while $C_i'(p)$ is non-decreasing and, hence, $B_i(p)$ is likely to eventually grow at a lower rate than $C_i(p)$. More formally, Proposition A2 shows that, under a mild sufficient condition on B_i and C_i, incorporating diminishing sensitivity à la Bordalo et al. (2012, 2013a,b, 2015a,b) into our *salience function* means that voters in group i focus on costs for any pair of (distinct) policies.[29] Note that, for example, if $C_i(0) = 0$, that is, when policies have no fixed cost, the condition in the statement of Proposition A2 is satisfied.

Proposition A2. *Assume A5, $\mathcal{P} = \{p_A, p_B\}$ and $p_A > p_B > 0$. For all $i \in N$, if $B_i(0)C_i'(0) \geq B_i'(0)C_i(0)$, then voters in group i focus on costs.*

Proof. Fix $i \in N$, $p_A \in \mathbb{R}_+$ and $p_B \in \mathbb{R}_+$ such that $p_A > p_B > 0$. By A5, voters in group i focus on costs if and only if $\frac{B_i(p_A)}{C_i(p_A)} < \frac{B_i(p_B)}{C_i(p_B)}$. Since $p_A > p_B > 0$, it suffices to show that $\frac{B_i(p)}{C_i(p)}$ is decreasing in p for any $p \in \mathbb{R}_{++}$. We have

$$\frac{\partial}{\partial p}\frac{B_i(p)}{C_i(p)} = \frac{B_i'(p)C_i(p) - B_i(p)C_i'(p)}{C_i(p)^2} \tag{A41}$$

so that we need to prove that, $\forall p \in \mathbb{R}_{++}$, $B_i'(p)C_i(p) - B_i(p)C_i'(p) < 0$. We have, $\forall p \in \mathbb{R}_{++}$, $\frac{\partial}{\partial p}\left[B_i'(p)C_i(p) - B_i(p)C_i'(p)\right] = B_i''(p)C_i(p) - B_i(p)C_i''(p) < 0$, where the inequality follows from Assumption A1. Hence $B_i'(p)C_i(p) - B_i(p)C_i'(p) < 0$ for any $p \in \mathbb{R}_{++}$ if $B_i'(0)C_i(0) - B_i(0)C_i'(0) \leq 0$. ◻

[29] Some formulations of diminishing returns require the denominators in A5 to read $xB_i(p_A) + yB_i(p_B)$ and $xC_i(p_A) + yC_i(p_B)$, where x and y are positive constants. Proposition A2 continues to hold with this version of Assumption A5 as well since it leaves (A40) unchanged.