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“Party Appeal, Asymmetric Elite Polarization, and Voter Turnout”

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Party Appeal, Asymmetric Elite Polarization, and Voter Turnout

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Abstract

This paper studies a root of asymmetric party polarization, where one party becomes more ideologically extreme and the other remains relatively moderate. In a modified two-party Hotelling-Downs model with heterogeneous electorates—which differ in incentives to vote —we show that when one party experiences a disproportionate decline in public appeal, the resulting equilibrium features asymmetric polarization and higher voter turnout, in line with recent elections.

Keywords: abstention, Hotelling-Downs model, party's appeal, political polarization

JEL Classification: D72

Highlights

- We extend the Hotelling-Downs model by incorporating voter abstention, parties' appeal, and two types of electorate, which differ in incentives to vote.
- Asymmetric polarization arises when one party experiences a disproportionate decline in public appeal.
- This form of polarization increases voter turnout by mobilizing both extremists and centrists.

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1 Introduction

Party polarization has become an increasingly central concern in both academic research and political debate, particularly in advanced democracies such as the United States and Europe. This trend stands in contrast to the classical prediction of the Hotelling-Downs model (Hotelling, 1929; Downs, 1957), which implies party convergence to the median voter under a symmetric and centrist voter distribution—a pattern broadly consistent with mid-20th-century observations (American Political Science Association. Committee on Political Parties, 1950). However, recent empirical observations indicate that parties—even before voters themselves did (Hetherington, 2001)—have instead begun to diverge, and notably, in asymmetric ways, with one party becoming significantly more ideologically extreme, whereas the other has remained relatively moderate (Moskowitz et al., 2024). This suggests that party divergence can occur even under symmetric voter distributions. Yet, the mechanisms behind this shift are still not fully understood.

This paper posits that the declining appeal of one party—often reflected in public disillusionment with the incumbent party—can be a key driver of asymmetric party polarization. To explore this, we extend the standard two-party Hotelling-Downs model by introducing heterogeneous electorate behavior. Specifically, we distinguish between two types of electorate, symmetrically distributed around the center: "naïve electorate," who always support the nearest party, and "policy-sensitive electorate," who turn out only if party platforms are sufficiently distinct and close enough to their bliss points. This distinction between the two types of electorate reflects a situation where some vote mechanically, whereas a politically attentive electorate actively responds to policy shifts. Our formulation of the policy-sensitive electorate is inspired by Adams and Merrill (2003) and Adams et al. (2006), which model two types of voter abstention arising from both "indifference" and "alienation."

In this setup, we show that both parties converge to the center when neither suffers a significant loss of public appeal among the policy-sensitive electorate. However, if one party experiences a substantial decline in public support, perhaps due to policy failures or persistent economic stagnation, the opposition's optimal response is to adopt a more extreme policy position. Furthermore, such asymmetric polarization leads to higher voter turnout. Extremist voters become more engaged as one party shifts closer to their ideal points, while the increased policy gap also mobilizes otherwise apathetic centrist voters. As a result, the overall turnout rate rises.

This analysis highlights a potential root cause of polarization: A significant decline in one party's public appeal can trigger a strategic shift by its opponent. For instance, observable policy failures by the incumbent may lead to a decline in the incumbent's appeal, prompting the opposition to adopt a more polarized stance in subsequent elections. In addition, the resulting increase in voter turnout may help explain recent trends in the United States.

The next section presents the model and assumptions, followed by the main results in Section 3. Section 4 situates our findings within the literature.

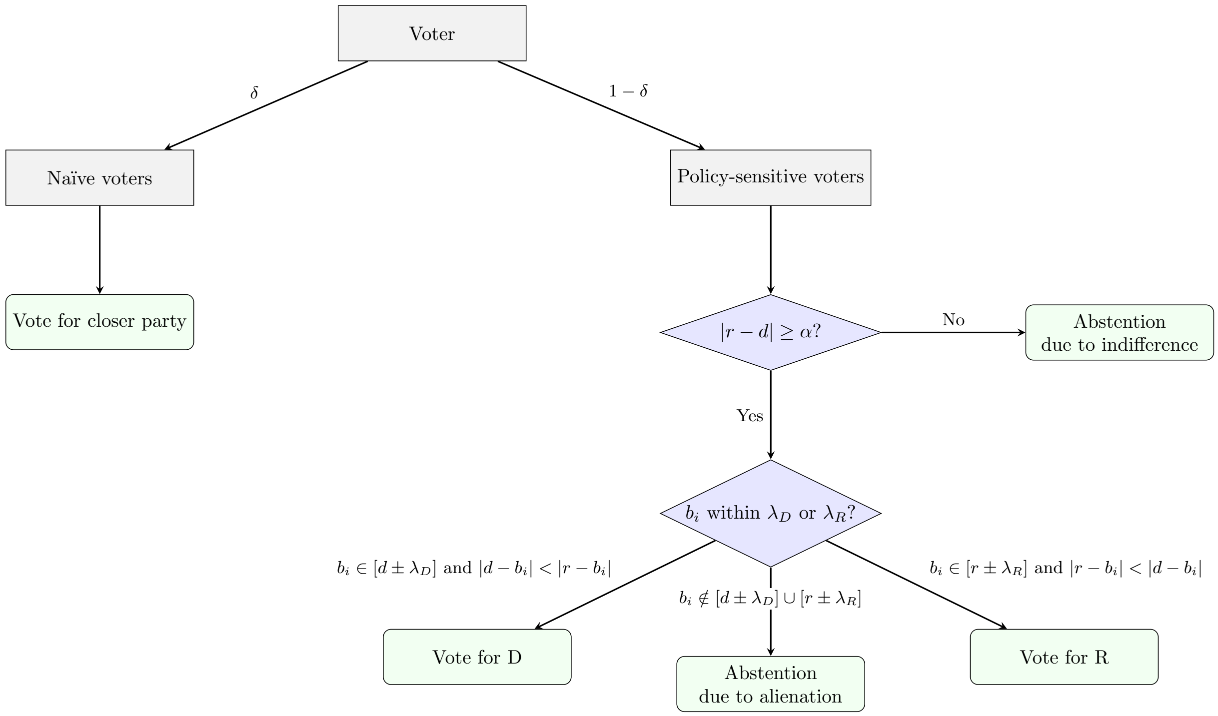

Figure 1: Electorate Types and Voting Rule

2 Model

We consider a setting with two parties, D and R, competing in a plurality-rule election where the party receiving more votes wins. In the event of a tie, the winner is determined randomly. Parties D and R simultaneously choose a policy position $d \in (-\infty, 0]$ and $r \in [0, \infty)$, respectively. That is, we assume that the two parties are ideologically distinct. Each party $j \in \{D, R\}$ primarily aims to win the election and thus chooses its position to maximize the probability of winning $p_j \in \mathcal{P}_j$. Conditional on this, the party also seeks to maximize the expected number of votes it receives $n_j \in \mathcal{N}_j$. Formally, the party j's preference is represented by the lexicographic ordering on $\mathcal{P}_j \times \mathcal{N}_j$: $(p_j, n_j) \succsim (\tilde{p}_j, \tilde{n}_j)$ if and only if $[p_j > \tilde{p}_j \vee (p_j = \tilde{p}_j \wedge n_j \geq \tilde{n}_j)]$, where $(p_j, n_j), (\tilde{p}_j, \tilde{n}_j) \in \mathcal{P}_j \times \mathcal{N}_j$.

Each electorate i has a bliss point b_i, representing their ideal political position, drawn from a density function f that is symmetric around zero, single-peaked at zero, strictly decreasing as one moves away from the peak, and positive everywhere on its domain. The electorate consists of two groups. A fraction $\delta \in (0, 1)$ of electorate, classified as naïve electorate, who always vote for the party closest to their ideal point b_i: They vote for D if $|d - b_i| < |r - b_i|$, for R if the reverse holds, and vote randomly if D and R are equidistant. The remaining fraction $1 - \delta$ is the policy-sensitive electorate, who abstain when the parties are insufficiently distinguishable or when neither party is close enough to their bliss point. Formally, they follow:

$$i \begin{cases} \text{abstains} & \text{if } |r-d| < \alpha \text{ or } b_i \notin [d-\lambda_D, d+\lambda_D] \cup [r-\lambda_R, r+\lambda_R], \\ \text{votes for } D & \text{if } |r-d| \geq \alpha \text{ and } b_i \in [d-\lambda_D, d+\lambda_D] \text{ and } |d-b_i| < |r-b_i|, \\ \text{votes for } R & \text{if } |r-d| \geq \alpha \text{ and } b_i \in [r-\lambda_R, r+\lambda_R] \text{ and } |d-b_i| > |r-b_i|. \end{cases}$$

Ties are resolved by randomization. $\lambda_j > 0$ represents the range within which the electorate perceives the party as ideologically close, while $\alpha > 0$ corresponds to the threshold of ideological difference at which voters can sufficiently distinguish between the two parties. See Figure 1 for the summary of the voting rule.

Further, we assume $\lambda_j < \alpha/2$, which implies that, for parties' policies to be sufficiently distinguishable, their positions must be far enough apart that the ranges of their appeal do not overlap. In addition, we assume that λ_j is exogenously given. Lastly, we assume that the electorate type is independent of their bliss point, allowing the group-wise densities to be written as $f_{\text{nv}} = \delta f$ and $f_{\text{ps}} = (1-\delta)f$.

3 Results

We begin by analysing the case where $\lambda_D = \lambda_R$, which corresponds to a situation in which both parties maintain equal levels of public appeal among the policy-sensitive electorate. In this case, the parties converge to the center, as established below.

Proposition 1. *Suppose $\lambda_D = \lambda_R$. Then, the unique Nash equilibrium is centrist convergence, $(d, r) = (0, 0)$.* ♣

Proof. First, we prove that $(d, r) = (0, 0)$ is a Nash equilibrium. If party D is positioned at 0, then party R can maximize its probability of winning by also choosing 0; any $\tilde{r} \neq 0$ yields zero probability of winning, while $\tilde{r} = 0$ yields its probability $1/2$. By symmetry, the same applies to D when R is positioned at 0. Thus, $(0, 0)$ is a Nash equilibrium. This analysis also implies that for all $r, d \neq 0$, neither $(0, r)$ nor $(d, 0)$ is a Nash equilibrium.

To verify uniqueness, suppose instead that (d', r') is a Nash equilibrium where neither d' nor r' is 0. Without loss of generality, we can assume D's probability to win is less than or equal to $1/2$. Then, D has an incentive to choose 0, where it can win with probability 1. This contradicts our hypothesis. Hence, no such (d', r') can be a Nash equilibrium, completing the proof. □

We now turn to the case where $\lambda_D < \lambda_R$, meaning that party D has experienced a greater loss of appeal than party R. In this case, if the loss of appeal is modest, both parties still converge toward the center, and party polarization does not occur. However, under sufficiently strong disillusionment with D, an asymmetric equilibrium emerges in which only party R adopts a more extreme position.

Formally, two parties asymmetrically polarize if and only if

$$\begin{aligned} &\int_{-\lambda_D}^{\lambda_D} f_{\text{ps}}(x)\,dx + \int_{-\infty}^{\alpha/2} f_{\text{nv}}(x)\,dx \leq \int_{\alpha-\lambda_R}^{\alpha+\lambda_R} f_{\text{ps}}(x)\,dx + \int_{\alpha/2}^{\infty} f_{\text{nv}}(x)\,dx \\ \iff &\int_{-\lambda_D}^{\lambda_D} f_{\text{ps}}(x)\,dx \leq \int_{\alpha-\lambda_R}^{\alpha+\lambda_R} f_{\text{ps}}(x)\,dx - \int_{-\alpha/2}^{\alpha/2} f_{\text{nv}}(x)\,dx, \qquad (\star) \end{aligned}$$

where the equivalence is followed by the symmetry of the density function f_{nv}. Intuitively speaking, the condition ($\star$) says that λ_D is sufficiently smaller than λ_R. Suppose, for example, $\lambda_R - \lambda_D \to 0$, then one can see that the condition ($\star$) is less likely to hold by the single peakedness of f_{ps}. Now, we are in a position to state the following result:

Proposition 2. *Suppose that $\lambda_D < \lambda_R$. Then, asymmetric polarization occurs under asymmetric, sufficient loss of appeal. Specifically, parties positions profile (d, r) such that*

$$(d, r) = \begin{cases} (0, \alpha) & \text{if } (\star) \text{ holds} \\ (0, 0) & \text{otherwise} \end{cases}$$

is the unique (in each case) Nash equilibrium. ♣

Proof. Case 1 ($\int_{-\lambda_D}^{\lambda_D} f_{\text{ps}}(x)\,dx \leq \int_{\alpha-\lambda_R}^{\alpha+\lambda_R} f_{\text{ps}}(x)\,dx - \int_{-\alpha/2}^{\alpha/2} f_{\text{nv}}(x)\,dx$):

First, we show that $(d, r) = (0, \alpha)$ is a Nash equilibrium. If R is positioned at α, then D cannot win at any position other than 0 since the density function is strictly decreasing as one moves away from 0 and $\int_{-\lambda_D}^{\lambda_D} f_{\text{ps}}(x)\,dx \leq \int_{\alpha-\lambda_R}^{\alpha+\lambda_R} f_{\text{ps}}(x)\,dx - \int_{-\alpha/2}^{\alpha/2} f_{\text{nv}}(x)\,dx$. Given $\lambda_j < \alpha/2$, D's best response is to maximize the probability of winning and the expected number of votes by choosing 0. If D is positioned at 0, R has no incentive to move away from α as it can maximize the probability to win and the expected number of votes at α. Hence, $(0, \alpha)$ is a Nash equilibrium.

To establish uniqueness, suppose that $(d', r') \neq (0, \alpha)$ is a Nash equilibrium. If $r' < \alpha$, then D's optimal position is 0, where it can win with probability 1 and maximize the expected number of votes among the strategies that achieve this probability. But then, as before, r' must be α if $d' = 0$, indicating that $r' \geq \alpha$. If $r' \geq \alpha$, then the distance between two parties will always be greater than or equal to α. Therefore, D will maximize the expected number of votes by choosing $d' = 0$. Then, r' must be α as noted above, which contradicts $(d', r') \neq (0, \alpha)$. The uniqueness is proved.

Case 2 ($\int_{-\lambda_D}^{\lambda_D} f_{\text{ps}}(x)\,dx > \int_{\alpha-\lambda_R}^{\alpha+\lambda_R} f_{\text{ps}}(x)\,dx - \int_{-\alpha/2}^{\alpha/2} f_{\text{nv}}(x)\,dx$):

First, we show that $(d, r) = (0, 0)$ is a Nash equilibrium. If R is positioned at 0, then D can win with probability $1/2$ at 0 and with probability 0 at any other positions, since the density function is strictly decreasing as one moves away from 0. Therefore, positioning at 0 is its optimal strategy. Similarly, noting that $\int_{-\lambda_D}^{\lambda_D} f_{\text{ps}}(x)\,dx > \int_{\alpha-\lambda_R}^{\alpha+\lambda_R} f_{\text{ps}}(x)\,dx - \int_{-\alpha/2}^{\alpha/2} f_{\text{nv}}(x)\,dx$, if D is positioned at 0, R has no incentive to move away from 0 since it can win with the probability $1/2$ at 0 and cannot win otherwise. Therefore, $(0, 0)$ is a Nash equilibrium.

Next, we prove the uniqueness. If there exists a Nash equilibrium where $r' \neq 0$, R cannot win in this equilibrium. This is because given $r' \neq 0$, D can win with probability 1 at 0 as noted above. However, noting that $\lambda_D < \lambda_R$, R can improve the probability of winning by moving to 0, since it can win with probability at least $1/2$ at 0. This contradicts $r' \neq 0$, which implies that $r' = 0$ in any Nash equilibrium. But the previous discussion shows that D has to choose 0 if $r' = 0$. This completes the proof. □

Remarkably, polarization driven by loss of party appeal has an important implication: An increase in voter turnout, consistent with recent trends in U.S. elections.

Proposition 3. *Voter turnout is higher when two parties asymmetrically polarize than when they converge to the center.* ♣

Proof. Let τ_0 and τ_1 be the voter turnout under the equilibria $(0,0)$ and $(0,\alpha)$, respectively. Then, it follows that

$$\tau_0 = \delta, \ \tau_1 = \delta + \int_{-\lambda_D}^{\lambda_D} f_{\text{ps}}(x)\, dx + \int_{\alpha-\lambda_R}^{\alpha+\lambda_R} f_{\text{ps}}(x)\, dx.$$

Since both integrals are positive, we have $\tau_0 < \tau_1$ for any λ_D, λ_R and α. □

The intuition is as follows. The widened policy gap sharpens perceived differences between the parties, encouraging otherwise apathetic centrist voters to participate. At the same time, the polarized stance of party R mobilizes the electorate with right-leaning preferences by positioning closer to their ideal points. As a result, the overall turnout rate increases.

4 Conclusion and Related Literature

Our model may illustrate how the kind of resentment described by Levitsky and Ziblatt (2019)—who write that, "[r]esentment fuels polarization"—can contribute to polarization: such resentment or disillusionment could reduce λ_D, thereby triggering a shift in party positions.

While our analysis primarily considers cases in which one party suffers an uneven decline in public appeal, similar patterns may arise when only one party experiences a disproportionate surge in support. Such a scenario could likewise generate asymmetric polarization. This interpretation may be related to the voting models incorporating the "valence," but note that the typical prediction of such models is that a "superior" party tends to choose more moderate positions, while the disadvantaged party tends to adopt more extreme positions (e.g., Aragones and Palfrey, 2002; Groseclose, 2001). This is in contrast to ours, and one important driver of this difference is our incorporation of abstention by the policy-sensitive electorate.

Moreover, our analysis also complements the dynamic perspective of Callander and Carbajal (2022), who highlight that, once parties have polarized, a feedback loop between voter preferences and party positions can lead to further polarization among the electorate. In this light, our model offers a potential mechanism for the initial emergence of party polarization.

Other important factors considered in the literature—though abstracted from our model—include the convexity of voter preferences (Kamada and Kojima, 2014), the presence of third parties (Palfrey, 1984), partisan affect (Diermeier and Li, 2019), multi-district electoral systems (Callander, 2005), and the influence of targeted information (Glaeser et al., 2005; Prummer, 2020), among others. Incorporating these factors may provide a more comprehensive understanding of the cause of political polarization.

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