

VOTING UNDER SALIENCE BIAS AND STRATEGIC EXTREMISM

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October 13, 2023

Abstract

We present a model that demonstrates politicians strategically adopt extreme positions even when the voters are homogeneous and moderate. We examine the behavior of voters and electoral candidates under the assumption that the salience of political issues affects voting decisions through voter preferences. Voters have limited attention which is unintentionally captured by distinctive policies. We demonstrate that candidates who differ in their budget constraints along with voters who have such limited attention can account for extremist policies, even though voters are identical in their preferences. Subsequently, we examine the elections with *decoy* candidates, who are unlikely to win. Even though these candidates do not attract the voters, they might still influence the election outcome by altering salience. Moreover, we provide experimental evidence that salience affects consumer preferences and election outcomes.

JEL Classification: D03, D72, C09

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We greatly appreciate the funding from Reinhard Selten Institute through Selten Grant.

1 Introduction

The political economy literature classically presumes that office-oriented candidates observe the electorate and take positions that match the majority voter preferences. However, there are political candidates worldwide who take extreme positions on some issues and propose radical policies. Yet, some of these politicians get elected and implement their pledged policies.¹

Besides, we observe another phenomenon. The policy positions of candidates influence the preferences of voters. Consequently, political positioning can be employed as a strategic tool to shape preferences into a more favorable distribution. In this study, we present a model along with experimental evidence and demonstrate that politicians can optimally choose extreme policies even when none of the voters have extreme preferences. We examine how policy proposals affect preferences and lead to extreme policies, thereby explaining the extreme policy choices of candidates.

We show that when voters exhibit salience bias (i.e., overemphasize the importance of salient issues), candidates can manipulate this bias by adopting radical stances in a policy where they have an advantage. This way they draw attention to that issue and create demand for it by shifting the preferences of voters. When we extend the same argument to two candidates, the electoral competition may become an arms-race scenario where each candidate aims to take an extreme position on a different issue and tries to persuade voters that their issue is the most relevant one.

We implement the probabilistic voting model by Persson and G. Tabellini (2002) with two politicians and a two-dimensional policy platform. As a special case of their model, our voters are not divided into groups and are quite similar to each other in taste, apart from some noise factors. The voters consider the utility they would get from each candidate, which would be driven by the policy choices of candidates. In addition, the utility of voters is affected by salience. A policy dimension becomes more salient as candidates become more diverse, and more salient issues are overemphasized by the voters, similar to Bordalo, Gennaioli, and Shleifer (2012). The voter then votes for the candidate whose policy choices would bring higher utility.

Politicians are aware of the salience bias and by choosing and committing to the two-dimensional policy proposal, they maximize their probability of winning, i.e. their vote share. They are constrained by the same governmental budget. However, they differ in their marginal costs to implement each policy, which reflects both pecuniary and non-pecuniary costs. Pecuniary costs reflect the resources the candidate has such as tools, factories, and manpower, which enables the candidate to provide policies at lower costs. Non-pecuniary costs, on the other hand, reflect the connections of the candidate. For

¹For instance Donald Trump builds a multi-billion dollar wall (<https://www.bbc.com/news/world-us-canada-38740717>). See Carothers and O'Donohue (2019) for an overview of different countries.

instance, if the candidate’s main supporting lobby is in favor of a policy, then shifting resources to the other is more costly for her.

In any equilibrium of the model with two candidates, always the same issue is salient for both candidates. Both candidates invest more in the salient issue, and extremism is enhanced with the salience bias. The candidate who is relatively more advantageous in the salient issue can increase her advantage by choosing even higher levels. Which issue will be salient in the equilibrium will be dictated by the parameters of the model, namely the relative cost advantages.

There is a new but sizable literature on extremism in politics. Unlike our approach, most of the studies assume that there are existing divides in each society and politicians use that polarization to gain power. However, we show that a radical vote base is not necessary for extreme policies. Politicians can promote an issue as the most crucial aspect of the election by taking an extreme position on that. This way, they can manufacture radicalization. We also show that extremism is exacerbated if an issue is already a hot topic. Hence, existing polarization in a society would have a multiplicative effect on extremism.

Our model also explains increased mobilization through extremism. When candidates take disparate positions, the welfare difference between candidates gets larger. Thus, voters have a greater incentive to vote. Additionally, our model can be used to analyze run-off elections and the effect of existing polarization. Furthermore, the tractable form of the model can be used in most of the more complex models to investigate various phenomena.

Additionally, we test the predictions of the model through an experiment with a representative sample of Turkey. We ask subjects to vote on a hypothetical election where hypothetical candidates differ in their positions on climate and defense policy proposals. The experimental findings support the model and confirm that politicians can increase their vote shares by promising extreme policies. We also show that the salience of an issue is the main driver of the voting decision as assumed in the model.

The paper is organized as follows: In Section 2, we provide an overview of the related literature. In Section 3, the model is described and the equilibrium analysis is provided in Section 4. We analyze comparative statics about the optimal choices in Section 5. The possible implications of the model regarding mobilization and second-term elections are explained in Section 6. Section 7 provides the experimental design and the main results. Section 8 concludes.

2 Literature

This paper lies at the intersection of two strands of literature: extremism and salience. In the extremism literature, most studies try to explain radical politicians as a response to radical voters. This bottom-up argument mainly states that the political preferences of (at least some) people in society shift toward extreme attitudes and politicians take extreme stances to match the demands of their voters.

For instance, Matějka and G. Tabellini (2021) argues that small groups with stark preferences can alter the political outcomes in their favor. They advocate that electoral candidates give those groups a disproportionately large weight in their policy choices since they are more responsive compared to moderate voters. Similarly, Jones, Sirianni, and Fu (2022) argue that if voters with moderate preferences are less likely to vote, politicians take extreme positions to attract more eager radical voters.

Furthermore, there are studies analyzing extremism as a result of identity politics (Kuziemko and Washington (2018), Grossman and Helpman (2021)), communalism (Enke, Rodríguez-Padilla, and Zimmermann (2020), Enke (2020)), globalization (Rodrik (2021)), and polarization (Nunnari and Zápal (2017), Bursztyn, Egorov, and Fiorin (2020), Enke, Polborn, and Wu (2022)).

On the other hand, many studies show that the salience of an issue is a critical factor in voters' decisions. Colussi, Isphording, and Pestel (2021) clearly show that anti-Muslim parties gain votes if the elections are held right after Ramadan. They also demonstrate the effect of the salience of Muslim minorities as the main mechanism. Likewise, Aragonès and Ponsatí (2022) depict a similar phenomenon using the data from the UK and Catalonia. They show that political parties adjust their positions when an exogenous shock makes an issue more salient.

On top of that, there are studies that show the effect of salience is exacerbated when combined with existing stereotypes. Bordalo, M. Tabellini, and Yang (2020) and Bonomi, Gennaioli, and G. Tabellini (2021) show that a salient divide in society creates radical preferences via negative stereotypes. Furthermore, Spirig (2023) shows the strength of salience using Swiss data. When immigration becomes more salient, not only the voter preferences but also the decisions of judges become less favorable for minorities.

Furthermore, some studies show that politicians strategically manipulate the salience of some issues to gain an advantage. For instance, Lewandowsky, Jetter, and Ecker (2020) provide evidence for Donald Trump using Twitter to manipulate the salience of some issues. Similarly, Glaeser (2005) show that politicians can supply hate stories to shape the preferences of individuals. Balart, Casas, and Troumpounis (2022) also show that politicians can exploit social media platforms to push radical opinions.

However, none of the papers in the literature examines the positioning of candidates as a potential manipulation of the salience of different issues. Yet, the idea of politicians

positioning themselves in different attributes is very similar to firms choosing different price, quality, and/or quantity levels to compete with other firms. Although there are differences between firms and politicians, the closest resemblance to our model can be found in IO literature. Several papers show that firms design their menus such that they influence the salience of some aspects of products. The canonical paper by Bordalo, Gennaioli, and Shleifer (2016) (together with Bordalo, Gennaioli, and Shleifer (2013)) provides a model that explains the product choices of firms to exploit the salience bias of consumers.²

3 Model

There are two purely office-oriented candidates running for the election, $i = \{A, B\}$. Both candidates announce and commit to two policy choices $q = (x_i, y_i) \in \mathbb{R}_+^2$, which represent the government spending they will allocate to the two subjects.

There is a continuum of voters. Voters do not have the option to abstain. Following the Probabilistic Voting Model by Persson and G. Tabellini (2002), they simply vote for the candidate whose policy proposal is more favorable. Observing the policy choices, a single voter's utility from candidates is as follows:

$$v(i) = \ln x_i + m \ln y_i$$

However, we assume that the agents have bounded rationality and their attention is limited a la BGS. To be more specific, as the policies in one spectrum are wider spread from each other, this drives the voters' attention to that aspect, resulting in an increase of the relative utility weight that issue in their utility function. In particular, the policy choices of the politicians affect voter preferences such that for $\delta > 1$:

$$v(i) = \begin{cases} \delta \ln x_i + m \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} > \frac{|y_i - \bar{y}|}{\bar{y}} \\ \ln x_i + m \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} = \frac{|y_i - \bar{y}|}{\bar{y}} \\ \ln x_i + \delta m \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} < \frac{|y_i - \bar{y}|}{\bar{y}} \end{cases}$$

BGS uses a more general salience function. However, in this version of the paper we are restricting our attention to a more specific one, which indicates that a policy attribute is more salient for a candidate whenever he deviates from the average spending more, relative to the other policy. Other than the partiality due to salience, the utility function is the sum of two logarithmic utility functions, with a slight adjustment by m that represents the relative importance of issue y for the voters. Voters receive strictly

²See the book chapter by Herweg, Müller, and Weinschenk (2018) for an analysis of these models and their implications.

positive utility from both policies, therefore $m > 0$. If $m < 1$, voters care more about policy x without the interference of the salience bias.

Policy choices are not the only factors that affect voter preferences. Additionally, ideological bias towards candidate B denoted by $\beta \sim U\left[\frac{-1}{2\phi}, \frac{1}{2\phi}\right]$ and relative popularity of B denoted $\epsilon \sim U\left[\frac{-1}{2\phi}, \frac{1}{2\phi}\right]$ represent the noise in the elections. Once the candidates select their positions, salience reveals and voters calculate the utility they would get from each candidate. Furthermore, the noise factors β and ϵ realize and a voter votes for A if $v(A) > v(B) + \beta + \epsilon^3$.

Both politicians are trying to maximize their probability of winning, which, with the logic explained above, is equal to $[v(i) - v(j)]\varphi + \frac{1}{2}$ for candidate i . Furthermore, they are bounded by a budget constraint $c_x^i x_i + c_y^i y_i = G$. This budget constraint represents the pecuniary and non-pecuniary costs of each policy for both candidates. For example, if a candidate possesses tools that would ease implementing a policy, he has a lower marginal cost. These tools might be material such as factories, skilled teams, and other apparatus. However, they could also represent other structures such as networks and lobbies. If the main lobby that supports a candidate is in favor of policy x , then implementing policy y would be more costly for him. Since voters get positive utility from both policies, for a non-trivial analysis of equilibrium policy choices, we impose $c_x^A < c_x^B$ and $c_y^B < c_y^A$.

Simple intuition would hint at the fact that both candidates would want to highlight the dimension in which they have a comparative advantage. At this point, a bridging fact that is shown by BGS simplifies our analysis a lot:

Lemma 1 x is salient by $A \iff x$ is salient by B . (BGS 2012)

4 Equilibrium Analysis

As a result of the features discussed above, a voter with $\tilde{\beta} = v(A) - v(B) - \epsilon$ indifferent between the two candidates and the vote share of A can be calculated as $\Pi_A = \mathbb{P}(\beta < \tilde{\beta}) = \left[\tilde{\beta} + \frac{1}{2\phi}\right]\phi$ and the probability of candidate A winning the election is $\mathbb{P}(\Pi_A > \frac{1}{2}) = \mathbb{P}\left(v(A) - v(B) - \epsilon + \frac{1}{2\phi} > \frac{1}{2\phi}\right) = [v(A) - v(B)]\varphi + \frac{1}{2}$

Furthermore, as discussed in the previous section, candidates try to maximize their probability of winning. They only have control over their own policy choices and take other candidate's positioning as given. Therefore, candidate A 's problem is:

$$\max_{\{x_A, y_A\}} [v(A) - v(B)]\varphi + \frac{1}{2} \quad (1)$$

$$\text{s.t. } c_x^A x_A + c_y^A y_A = G \quad (2)$$

³ β realizes for each individual, whereas ϵ realizes as a common variable for the whole electorate

A key analysis requires embranchment after this point. This is due to the fact that both $v(A)$ and $v(B)$ depend on the salient issue in the election. From the lemma, we know that the same issue will be salient for both candidates, therefore we can call it the salience issue of the election. As the first branch, suppose there exists an x -salient equilibrium. Then, the maximization problem of candidate A is quite straightforward:

$$\max_{\{x_A, y_A\}} [\delta \ln x_A + m \ln y_A - \delta \ln x_B - m \ln y_B] \varphi + \frac{1}{2} \quad (3)$$

$$\text{s.t. } c_x^A x_A + c_y^A y_A = G \quad (4)$$

Since the candidates can only affect their own positions, the problem resembles a basic utility maximization problem of a consumer with a budget constraint. As usual, optimality of the interior solution requires:

$$\frac{\delta y_A}{m x_A} = \frac{c_x^A}{c_y^A}$$

Proposition 1 *In an x -salient equilibrium, the optimally chosen policy profiles of both candidates are as in the following table, and the equilibrium indeed is x -salient iff $\frac{c_x^B}{c_x^A} > \frac{c_y^A}{c_y^B}$.*

| | |
|---|---|
| $x_A^* = \frac{G\delta}{(\delta+m)c_x^A}$ | $x_B^* = \frac{G\delta}{(\delta+m)c_x^B}$ |
| $y_A^* = \frac{G\delta}{(\delta+m)c_y^A}$ | $y_B^* = \frac{G\delta}{(\delta+m)c_y^B}$ |

Observe that in such an equilibrium $x_A^* > x_B^*$ and $y_B^* > y_A^*$. Furthermore, this equilibrium can be sustained if and only if $c_x^B/c_x^A > c_y^A/c_y^B$, meaning that the relative cost advantage of candidate A in policy x should be higher than the relative cost advantage of candidate B in policy y . Furthermore, candidate A wins if and only if $\delta \ln \frac{c_x^B}{c_x^A} - m \ln \frac{c_y^A}{c_y^B} > \epsilon$. The equilibrium policy choices and the necessary condition of a y -salient equilibrium can be found in the appendix.

5 Comparative Statics

In this section, we provide comparative statics of the equilibrium and provides explanations. First of all, in both x -salient and y -salient equilibria, $x_A^* > x_B^*$ and $y_B^* > y_A^*$. This is not related to salience but is solely due to the different cost functions of the candidates. Each candidate prefers higher amounts in the policy that is less costly for him.

Moreover, in x -salient equilibrium, x_i^* increases with δ and in y -salient equilibrium, y_i^* increases with δ . This explains that politicians respond to salience in the sense that they provide more on the salient issues. Thus, the salience has an overshooting effect such that voters' utility from the salient issue increases even more.

The probability of candidate A winning the election in an x -salient equilibrium increases with the salience of x and the cost advantage of A in policy x and decreases with the relative importance of issue y and the cost advantage of B in policy y as expected.

Observe that A prefers an x -salient equilibrium since he has the absolute advantage and will provide more than B in any case. However, which equilibrium is to be sustained will be determined by exogenous variables and the candidates have no means of choosing the equilibrium. With two candidates, they respond to salience only by choosing their own policies, not by the salience structure of the equilibrium.

However, even with this simple strategic behavior, in x -salient equilibrium, $x_A^* - x_B^*$ increases with δ and $y_B^* - y_A^*$ decreases with δ . This sustains the salience bias in policy x .

In the following section, we consider an extension to the model where another candidate is introduced into the environment.

6 Extensions and Implications

6.1 Introduction of a Decoy Candidate

Similar to the industrial organization literature, an interesting implication of this model occurs when a decoy candidate appears on the election platform. In marketing, the *decoy effect* is the phenomenon whereby consumers tend to have a specific change in preference between two options when also presented with a third option that is dominated. In social choice, it is known as *independence of irrelevant alternatives* (Luce (2012)) and in matching theory, the notion corresponds to *irrelevance of rejected contracts* Aygün and Sönmez (2013). In any of the fields, the flavor is similar: An alternative that is not going to be chosen by the decision-makers should not affect the choice process at all.

In this paper, a candidate is a *decoy* if he is unlikely to be chosen but affects the election outcomes by interfering with salience. We show that, for a given policy choice, an initially disadvantageous candidate might benefit from the existence of a decoy candidate.

Consider an initial setup where candidates A and B choose relatively moderate locations in policy y , whereas their policy choices are wider spread in policy x , such that policy x is the salient issue for both candidates. Additionally, suppose B chooses a higher level of x and for non-triviality, and A chooses a higher level in y . In such a scenario, candidate B has a relatively upper hand by choosing more in the salient issue.

Now we introduce a third candidate C in the election. Candidate C is a far-extremist in policy y and will not allocate any budget to policy x . This simple assumption ensures that candidate C will not be chosen in any kind of equilibrium due to the utility function of the voters. The following proposition shows that, even though C will not be voted for by any voter, his existence can affect the outcome of the election by interfering with salience, and salience only.

Proposition 2 Suppose the alignment of the candidates is as in the table below, and $h > \varepsilon > 0$, $\frac{h}{\bar{x}} > \frac{\varepsilon}{\bar{y}}$ and $\bar{x} > h > \frac{\bar{x}}{3}$.

| | A | B | C |
|-----|-------------------------|-------------------------|----------|
| x | $\bar{x} - h$ | $\bar{x} + h$ | 0 |
| y | $\bar{y} + \varepsilon$ | $\bar{y} - \varepsilon$ | ω |

Then, introduction of an extremist candidate C where ω is large enough ($\omega > \frac{4\bar{x}\bar{y}+6\bar{y}h+6\bar{x}\varepsilon}{3h-\bar{x}}$ and $\omega > \frac{2\bar{y}h-2\bar{x}\varepsilon}{\bar{x}-h}$) increases the vote share of candidate A if $m \ln(\bar{y} + \varepsilon) > \ln(\bar{x} - h)$.

First of all, observe that candidate C 's choice of 0 in policy x indeed ensures him not being elected. In the initial positions, candidate A would prefer making y salient. With the far extremist C , policy x is still salient for candidate B . However, with three candidates, it is now possible that different issues are salient for different candidates. If C is extremist enough policy y becomes salient for candidate A . If the utility A creates with policy y exceeds the utility A creates with x , policy y becoming salient for A increases the probability of him winning the election.

The proposition shows that, if voters' rationality is bounded by salience bias, introducing a third candidate can interfere with the election outcome, even though the third candidate is *irrelevant*, in the sense that he does not attract any votes. This candidate only serves as an agenda setter and attracts voters' attention to the policy, in which the initially disadvantageous candidate has a comparative advantage.

6.2 Polarization in the Electorate

For this extension, suppose there is an already existing polarization in the electorate. Namely, apart from their ideological bias towards candidate B , the voters also differ in the importance they attribute to policy y . Recall that in the benchmark model, m reflected the relative importance of policy y from the voters' perspective. Now, a voter either belongs to the group that intrinsically cares less about policy y with m_L (with probability p) or more with m_H (with probability $1 - p$), where $m_L < m < m_H$.

Solving the model for such parameters shows that the optimal policy choices of the candidates depend only on the average relative importance of policy y in the society, namely $pm_L + (1-p)m_H$. How the optimal policy choices and winning probabilities change is then the same question as the comparative statics with respect to m . Interestingly, the candidates' positions are not affected as long as the weighted average of relative importance remains the same in the electorate.

6.3 Mobilization

In line with the probabilistic voting model, our agents simply vote for the candidate they like better. However, we could also consider a scenario where voters do not simply go to the ballot box. Instead, similar to Coate, Conlin, and Moro (2008), they might require the election to be sufficiently important. The importance of the election can be reflected in the utility difference between the two candidates. The next proposition suggests that as the salience bias gets stronger, no abstention is ensured and all voters indeed vote.

Proposition 3 *Suppose voting is costly, and voters vote if and only if the utility difference they get from both candidates exceeds the cost of voting. If the cost of voting is bounded from above, i.e. $c_v < \infty$, $\exists \underline{\delta} < \infty$ such that for all $\delta > \underline{\delta}$ everybody in the electorate votes.*

The above proposition suggests that, apart from affecting candidate positioning, salience bias can also be a factor that incentivizes people to vote. Therefore, increasing the salience of an issue can be used as a tool to increase voter turnout.

7 Experiment

As our theoretical framework suggests plausible dynamics, we also conduct a supplementary experiment to test whether the implications are applicable in real life. Namely, in the experiment, we test whether the prediction of the model about the positive effect of extremism on the vote share hold.

The main goal of the experiment is to investigate two conjectures of the model. First, we check if a candidate can gain more votes by choosing an extreme policy. Secondly, we assess attention as the main driver of policy preferences and voting decisions.

7.1 Experimental Design

The experiment is in a survey format. Each participant answers simple questions using the online platform. Our main goal is to test the predictions of the model in a stylized context. Specifically, participants are presented with a hypothetical election scenario and asked to vote for one of the two candidates. The positions of the hypothetical candidates regarding climate and defense policies are either extreme or moderate (2x2 design). The experiment is in a between-subject design, hence subjects are only aware of a single scenario. The timeline of the experiment is as follows:

1. Demographics: In this part, we ask simple demographic questions about age, gender, education, employment, city of residence, and per-person income in the household.
2. Political Engagement: We use agreement with four statements to measure general interest in politics. The statements are about following the news, attachment to

an ideology, being influenced by the election polls, and regular voting. We also ask participants whether they have ever voted and if they are registered members of any political party.

3. Issue Ranking: We ask them to rank political issues such as health services, economic stability, and freedom of speech according to subjective importance. We mainly focus on the ranking of climate and defense policies.
4. Voting: We present hypothetical candidates (A and B) and ask participants to vote for one. They see the information about the verbal proposals of candidates on climate and defense policies, in addition to their age, gender, education, and family status. For both candidates, climate and defense policy can either be extreme or moderate. Treatment manipulation is implemented here.
5. Key Factors: We ask participants to state the factors that were crucial for their voting choice in the previous question. We use this question to detect the salient issues.
6. Donation: Participants are asked to divide 10.000 Turkish Liras among two charities. One participant is going to be randomly selected and her choice of donations is implemented. One charity (TEMA) is one of the biggest associations in Turkey that focus on the environment, whereas the other charity supports the war veterans and families of martyrs. The donations would reflect the importance of climate and defense policies, respectively.

Participants will be randomly allocated to one of the four treatments differing only in the voting question:

- Moderate-Moderate (MM) Treatment: There are 2 candidates and they have moderate proposals on both climate and defense policies.
- Extreme-Moderate (EM) Treatment: There are two candidates and they have extreme and opposing views on climate policies such that one promises urgent solutions to the climate crisis and the other does not find it necessary to take any action. Defense proposals are moderate.
- Extreme-Moderate (ME) Treatment: There are two candidates and they have extreme and opposing views on defense policies such that one considers border security as a top priority issue and the other does not attach much importance to it. Climate proposals are moderate.
- Extreme-Extreme (EE) Treatment: There are two candidates and they have extreme and opposing views on climate policies. Defense proposals are moderate.

This study received ethical approval from the German Association for Experimental

Economic Research.⁴ The screenshots from the experiment (in Turkish) are provided in Appendix.

7.2 Experimental Results

The experiment is conducted with 604 participants in September 2022 in Turkey with a representative sample of the country’s adult population in terms of geographical region, age, gender, and socio-economical status. The data is collected by a third-party company to reach a representative subject pool. We conduct the experiment in Turkey because the political conjuncture is similar to our model environment where presidential elections are run with two opposing candidates. The experiment takes around 10 minutes and the participation fee is 4 Euros.

The main result of the experiment is in line with the model prediction such that the vote share of a candidate increases as she takes more extreme positions in her strong policy. As you can see in Table 1, participants are more likely to vote for the climate-oriented candidate (Candidate B) when climate policy proposals are extremely different, and vice-versa.

| Vote for climate-oriented candidate | | | | |
|---|----------------------|----------------------|-----------------------|-----------------------|
| | votes B | votes B | votes B | votes B |
| EM | 0.185*** (0.0544) | 0.165*** (0.0531) | | |
| ME | -0.119** (0.0544) | -0.128** (0.0531) | | |
| EE | 0.0199 (0.0544) | -0.00344 (0.0530) | | |
| extreme climate | | | 0.162*** (0.0384) | 0.145*** (0.0374) |
| extreme defense | | | -0.142*** (0.0384) | -0.149*** (0.0376) |
| constant | 0.351*** (0.0385) | 0.029*** (0.241) | 0.363*** (0.0333) | 0.033*** (0.241) |
| <i>N</i> | 604 | 604 | 604 | 604 |
| Control vars. | | ✓ | | ✓ |
| Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$ | | | | |

Table 1: OLS regression of voting for candidate B on treatment variations. The baseline is the MM treatment in the first two regressions.

The second result of the experiment is about the underlying channel of this effect. As shown in Table 2, people who report that they considered climate proposals while voting

⁴You can find the certificate under the link: <https://gfew.de/ethik/J2S1c2TN>

have a higher probability of voting for the climate-oriented candidate, and the opposite is true for defense proposals. Crucially, the coefficients are similar when we control for the importance of those policies before the voting decision. Hence, paying more attention to a policy increases the likelihood of voting for the stronger candidate in that policy.

| Vote for climate-oriented candidate | | | | |
|-------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | votes B | votes B | votes B | votes B |
| considered climate | 0.210*** (0.0398) | 0.185*** (0.0401) | | |
| considered defense | -0.268*** (0.0388) | -0.235*** (0.0399) | | |
| donation for climate | | | 0.0331*** (0.0107) | 0.0277*** (0.0106) |
| constant | 1.471*** (0.0351) | 1.077*** (0.233) | 1.213*** (0.0553) | 0.881*** (0.246) |
| <i>N</i> | 604 | 604 | 604 | 604 |
| Control vars. | | ✓ | | ✓ |

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: OLS regression of voting for candidate B on indicators of (self-reported) considered policies and donation for the environmental charity.

Both findings support the implications of our model. Politicians can attract voters via choosing extreme positions in a policy and they achieve that by drawing the attention of the voters to that specific policy. These results suggest that extremist policies can arise as a way to stand out in the competition and catch the attention of voters.

8 Conclusion

We provided a model that explains the mechanism behind the extreme policy proposals by electoral candidates. We assume voters involuntarily pay more attention to issues where candidates take extreme positions and overstate the importance of those salient issues. As a result, intrinsically differentiated politicians exploit this bias by strategically positioning themselves in extreme positions and trying to attract attention to their strong issues.

This model shows the top-to-bottom process of extremism and polarization. Unlike the existing studies, an already polarized vote base is not a necessary condition, and all the results hold for homogeneous voters. We also show that the supply-driven extremism that we propose gets exacerbated if there is an already existing polarization in society. Hence, the results of this paper can also be seen as a multiplier of previous findings on extremism.

Additionally, our model clearly shows the effect of extremism on the mobilization of voters. When the candidates take extreme positions to exploit salience bias, the utility difference between them for the voter gets larger. This creates an extra incentive for individuals to vote which leads to higher turnout.

The model can also be used to analyze the second-round elections. If the opposition party chooses a moderate candidate, extremist politicians in the opposition can help her to gain votes by manipulating the salient issues. For instance, in the 2020 US presidential elections, more radical politicians such as Bernie Sanders and Elizabeth Warren may have had a positive impact on Joe Biden by attracting attention to some issues different than Donald Trump’s campaign.

We also conducted an experiment with a representative sample to test the predictions of the theory. The results of the experiment provide supportive evidence for our model. The vote share of candidates increases when they take extreme positions and the salience of their strong issues is the main channel of this increase.

The natural next step in this line of research would be investigating the ways to combat this supply-driven extremism. Raising awareness about those strategies and more informative media consumption are likely promising channels but their analysis is beyond the scope of this paper.

A Theory

Proof of Lemma 1 **Proof.**

$$\frac{|x_A - \bar{x}|}{\bar{x}} > \frac{|y_A - \bar{y}|}{\bar{y}} \iff \frac{|x_A - \frac{x_A + x_B}{2}|}{\bar{x}} > \frac{|y_A - \frac{y_A + y_B}{2}|}{\bar{y}} \quad (5)$$

$$\iff \frac{|\frac{x_A - x_B}{2}|}{\bar{x}} > \frac{|\frac{y_A - y_B}{2}|}{\bar{y}} \iff \frac{|\frac{x_B - x_A}{2}|}{\bar{x}} > \frac{|\frac{y_B - y_A}{2}|}{\bar{y}} \quad (6)$$

$$\iff \frac{|x_B - \frac{x_A + x_B}{2}|}{\bar{x}} > \frac{|y_B - \frac{y_A + y_B}{2}|}{\bar{y}} \iff \frac{|x_B - \bar{x}|}{\bar{x}} > \frac{|y_B - \bar{y}|}{\bar{y}} \quad (7)$$

■

Values in y -salient equilibrium: In a y -salient equilibrium, the optimally chosen policy profiles of both candidates are as in the following table, and the equilibrium indeed is x -salient iff $\frac{c_y^A}{c_y^B} > \frac{c_x^B}{c_x^A}$.

| | |
|---|---|
| $x_A^* = \frac{G}{(1+\delta m)c_x^A}$ | $x_B^* = \frac{G}{(1+\delta m)c_x^B}$ |
| $y_A^* = \frac{G\delta m}{(1+\delta m)c_y^A}$ | $y_B^* = \frac{G\delta m}{(1+\delta m)c_y^B}$ |

Proof of Proposition 2: At the initial positioning without candidate C , policy x is salient for both candidates. However, with the introduction of candidate C , different policies may become salient for both candidates. The assumptions $h > \varepsilon > 0$ and $\frac{h}{x} > \frac{\varepsilon}{y}$ ensure that both policies are positive values initially. Furthermore, $\bar{x} > h > \frac{\bar{x}}{3}$ ensures x is salient for candidate B even after C comes on stage.

For ω is large enough ($\omega > \frac{4\bar{x}\bar{y}+6\bar{y}h+6\bar{x}\varepsilon}{3h-\bar{x}}$ and $\omega > \frac{2\bar{y}h-2\bar{x}\varepsilon}{\bar{x}-h}$), policy y becomes salient for candidate A , in which A proposes a higher budget than B . Since candidate C offers 0 in policy x , this candidate does not attract any votes. Then, candidate A benefits from the introduction of C if the utility it creates with policy y is larger than the utility created by the proposal for x .

Polarization in the Electorate Suppose that a voter either has m_L with probability p or m_H with probability $(1-p)$. Note that the salience is not affected by m values. Therefore, the valuation for both types is as follows:

$$v_L(i) = \begin{cases} \delta \ln x_i + m_L \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} > \frac{|y_i - \bar{y}|}{\bar{y}} \\ \ln x_i + m_L \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} = \frac{|y_i - \bar{y}|}{\bar{y}} \\ \ln x_i + \delta m_L \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} < \frac{|y_i - \bar{y}|}{\bar{y}} \end{cases}$$

$$v_H(i) = \begin{cases} \delta \ln x_i + m_H \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} > \frac{|y_i - \bar{y}|}{\bar{y}} \\ \ln x_i + m_H \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} = \frac{|y_i - \bar{y}|}{\bar{y}} \\ \ln x_i + \delta m_H \ln y_i & \text{if } \frac{|x_i - \bar{x}|}{\bar{x}} < \frac{|y_i - \bar{y}|}{\bar{y}} \end{cases}$$

Among the voters with m_L , voters with $\tilde{\beta}_L = v_L(A) - v_L(B) + \beta + \epsilon$ vote for A and among the voters with m_H , voters with $\tilde{\beta}_H = v_H(A) - v_H(B) + \beta + \epsilon$ vote for A .

Hence, vote share of A boils down to $\phi[p\tilde{\beta}_L + (1-p)\tilde{\beta}_H] + \frac{1}{2}$, which turns A 's winning probability into:

$$[p(v_L(A) - v_L(B)) + (1-p)(v_H(A) - v_H(B))] \varphi + \frac{1}{2}$$

Therefore, A 's problem becomes a weighted average:

$$\max_{\{x_A, y_A\}} [pv_L(A) + (1-p)v_H(A)] \quad (8)$$

$$\text{s.t. } c_x^A x_A + c_y^A y_A = G \quad (9)$$

In return, this leads to a replacement of m in the original problem by $pm_L + (1-p)m_H$ in the optimality conditions. Nothing else changes.

Proof of Proposition 3: Suppose we are in an x -salient equilibrium. The utility difference that a voter gets from both candidates is formulated as follows:

$$|\delta \ln x_A + m \ln y_A - \delta \ln x_B - m \ln y_B|$$

Plugging in the equilibrium policy choices of both candidates yield

$$|\delta \ln \frac{c_x^B}{c_x^A} + m \frac{c_y^B}{c_y^A}|$$

We know that $\delta \geq 1$ and $m > 0$. Because $c_x^B > c_x^A$ and $c_y^B < c_y^A$, the first term is positive and the latter is negative. If $\delta \ln \frac{c_x^B}{c_x^A} > m \ln \frac{c_y^A}{c_y^B}$, the whole term in absolute value is positive and therefore increases with δ .

B Screenshots from the Experiment

Onay Metni:

Bu çalışmada bireylerin kamu politikalarına dair tercihlerini ölçmeyi amaçlıyoruz. Bu bir seçim anketi değildir ve gerçek siyasi kişi ve kurumlarla ilgili sorular içermemektedir.

Seçimleriniz tamamen anonim tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Elde edilecek bilgiler bilimsel yayınlarda kullanılacaktır.

Devam etmek için onay kutusunu işaretleyin.

☐ Evet, onaylıyorum.

☐ Hayır, onaylamıyorum.



Yaşınız:

Cinsiyetiniz:

☐ Kadın

☐ Erkek

☐ Diğer/Belirtmek istemiyorum.

En son tamamladığınız okul nedir?

☐ İlkokul veya altı

☐ Ortaokul

☐ Lise

☐ Üniversite veya Yüksekokul

☐ Yüksek Lisans veya Doktora

Şu anki çalışma durumunuz nedir?

☐ Tam zamanlı çalışan

☐ Yarı zamanlı çalışan

☐ Öğrenci

☐ Emekli

☐ Çalışmıyor

Hangi şehirde ikamet ediyorsunuz?

Hanenizde kişi başı gelir ne kadardır?

☐ 1000 TL altı

☐ 1000 TL - 2500 TL arası

☐ 2500 - 5000 TL arası

☐ 5000 - 10000 TL arası

☐ 10000 - 20000 TL arası

☐ 20000 TL üzeri



Aşağıdaki ifadelere ne kadar katılıyorsunuz?

| | Kesinlikle katılmıyorum | Pek katılmıyorum | Ne katılıyorum ne katılmıyorum | Kismen katılıyorum | Tamamen katılıyorum |
|---|----------------------------|-----------------------|---|-----------------------|------------------------|
| Siyasi gelişmeleri sürekli takip ederim. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bir siyasi görüşe veya partiye gönülden bağlı hissediyorum. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seçim anketleri oy tercihimi etkiler. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Her seçimde oy kullanırım. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Daha önce herhangi bir seçimde oy kullandınız mı?

☐ Evet

☐ Hayır

Şu anda herhangi bir siyasi partiye üye misiniz?

☐ Evet

☐ Hayır



Aşağıdaki konuları sizin için önem sırasına göre diziniz.

| |
|--------------------|
| Eğitim Sistemi |
| Sağlık Hizmetleri |
| Çevre Politikaları |
| İnsan Hakları |
| Ekonomik İstikrar |
| İfade Özgürlüğü |
| Sınır Güvenliği |



Bir sonraki soruda olası bir seçimde cumhurbaşkanı adaylarından birini seçmenizi isteyeceğiz. Sunulacak adaylar tamamen varsayımsal olup gerçek kişi ve kurumlarla ilişkisi yoktur.

Seçiminizi yaptıktan sonra geri dönemeyeceksiniz. O yüzden iyi düşünüp dikkatli karar vermenizi tavsiye ediyoruz.



MM Treatment

| | Aday A | Aday B |
|-----------------------------|--|---|
| Yaş: | 52 | 55 |
| Cinsiyet: | Erkek | Erkek |
| Eğitim Durumu: | Üniversite | Yüksek Lisans |
| Aile Durumu: | Evli, 3 çocuklu | Evli, 2 çocuklu |
| Çevre Politikası: | "Çevre önemlidir ancak Türkiye'nin daha öncelikli sorunları vardır." | "Çevre sorunlarını çözmek Türkiye'nin önemli meselelerindendir." |
| Güvenlik Politikası: | "Sınır güvenliğini artırmak için ciddi kaynaklar ayıracağız." | "Sınır güvenliğini önemsiyoruz fakat önce daha acil problemlere odaklanacağız." |

Olası bir seçimde yukarıdaki iki kişi aday olsa hangi adaya oy verirsiniz?

| | |
|---------------------------------|---------------------------------|
| Aday A <input type="radio"/> | Aday B <input type="radio"/> |
|---------------------------------|---------------------------------|

EM Treatment

| | Aday A | Aday B |
|-----------------------------|--|---|
| Yaş: | 52 | 55 |
| Cinsiyet: | Erkek | Erkek |
| Eğitim Durumu: | Üniversite | Yüksek Lisans |
| Aile Durumu: | Evli, 3 çocuklu | Evli, 2 çocuklu |
| Çevre Politikası: | "Çevre konusunda hiçbir sorun görmüyoruz. Asla önceliğimiz değil." | "Çevre sorunları göz ardı edilecek noktayı geçmiştir. Etkin çözümleri acilen hayata geçireceğiz." |
| Güvenlik Politikası: | "Sınır güvenliğini artırmak için ciddi kaynaklar ayıracağız." | "Sınır güvenliğini önemsiyoruz fakat önce daha acil problemlere odaklanacağız." |

Olası bir seçimde yukarıdaki iki kişi aday olsa hangi adaya oy verirsiniz?

| | |
|---------------------------------|---------------------------------|
| Aday A <input type="radio"/> | Aday B <input type="radio"/> |
|---------------------------------|---------------------------------|

ME Treatment

| | Aday A | Aday B |
|-----------------------------|--|--|
| Yaş: | 52 | 55 |
| Cinsiyet: | Erkek | Erkek |
| Eğitim Durumu: | Üniversite | Yüksek Lisans |
| Aile Durumu: | Evli, 3 çocuklu | Evli, 2 çocuklu |
| Çevre Politikası: | "Çevre önemlidir ancak Türkiye'nin daha öncelikli sorunları vardır." | "Çevre sorunlarını çözmek Türkiye'nin önemli meselelerindendir." |
| Güvenlik Politikası: | "Ne pahasına olursa olsun sınırlarımızda tam güvenliği yeniden sağlamak en acil işimiz olacaktır." | "Sınırlarımız zaten güvenlidir. Oraya şimdikinden fazla kaynak ayırmak gereksizdir." |

Olası bir seçimde yukarıdaki iki kişi aday olsa hangi adaya oy verirsiniz?

Aday A



Aday B



EE Treatment

| | Aday A | Aday B |
|-----------------------------|--|---|
| Yaş: | 52 | 55 |
| Cinsiyet: | Erkek | Erkek |
| Eğitim Durumu: | Üniversite | Yüksek Lisans |
| Aile Durumu: | Evli, 3 çocuklu | Evli, 2 çocuklu |
| Çevre Politikası: | "Çevre konusunda hiçbir sorun görmüyoruz. Asla önceliğimiz değil." | "Çevre sorunları göz ardı edilecek noktayı geçmiştir. Etkin çözümleri acilen hayata geçireceğiz." |
| Güvenlik Politikası: | "Ne pahasına olursa olsun sınırlarımızda tam güvenliği yeniden sağlamak en acil işimiz olacaktır." | "Sınırlarımız zaten güvenlidir. Oraya şimdikinden fazla kaynak ayırmak gereksizdir." |

Olası bir seçimde yukarıdaki iki kişi aday olsa hangi adaya oy verirsiniz?

| | |
|---------------------------------|---------------------------------|
| Aday A <input type="radio"/> | Aday B <input type="radio"/> |
|---------------------------------|---------------------------------|

Adaylar arasındaki oy kararınızda en çok hangileri etkili oldu?

☐ Yaş

☐ Cinsiyet

☐ Eğitim Durumu

☐ Aile Durumu

☐ Çevre Politikası

☐ Güvenlik Politikası



Şimdi de olası bir seçime az önce gördüğünüz adaylar ile gidildiğini düşünün.

Bu durumda 10.000 TL bütçeyi aşağıdaki 2 derneğe bağışlamanızı istiyoruz. Çalışmanın sonunda bir katılımcı rastgele seçilecek ve bağışlar o kişinin verdiği karara göre gerçekleştirilecektir.

10.000 TL'yi nasıl bölüştürürsünüz?

| | Bağış: |
|---|-----------------------------------|
| TEMA Çevre Vakfı | <input type="text" value="0"/> TL |
| Türkiye Gaziler ve Şehit Aileleri Vakfı | <input type="text" value="0"/> TL |
| Toplam | <input type="text" value="0"/> TL |

Çalışmanın sonunda gerçekleşen bağış miktarları online olarak duyurulacaktır. Siz de sonuçları öğrenmek ve bağış dekontlarını almak isterseniz e-posta adresinizi aşağı yazabilirsiniz.



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