Does Polarizing Information Matter for Reform?\textsuperscript{1}

A Comparative Study Between Egypt and USA

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Abstract

We examine whether politically polarizing information in elections is an obstacle to re-form. We conduct experiments in two ideologically polarized countries, Egypt and the United States, and through the provision of information manipulate the salience of polarization to evaluate its effect on support for welfare-improving reform. Subjects vote between enacting a reform which yields higher expected payoffs than the costs of implementation (but has differential benefits for supporters of only one polarized ideological group) versus not enacting the reform and everyone receiving lower payoffs. When polarizing information leads voters to expect that a specific ideological group will differentially benefit from reform, they are significantly more likely to explain their vote as being influenced by their own membership in a group. Subjects are significantly less likely to vote for reform when informed that the political out-group would differentially benefit, and significantly more likely to support reform should the in-group benefit more.

Word Count: 11,443

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Introduction

Reforms that are welfare improving and not inherently political are often introduced only to languish for years without implementation. What explains this phenomenon? We offer an explanation that builds on the literature on political cueing, opinion formation, and social identity theory: Even where future payoffs are certain and outweigh the present costs, if polarizing identities are salient then individuals may deviate from supporting payoff maximizing reforms when those reforms are identified with particular political out-groups.¹

Our theory seeks to explain the reality that it is difficult to enact common value reforms in countries with political competition and substantial polarization on ideological grounds. Consider welfare-improving fuel subsidies reform in Egypt. These subsidies represent a substantial drain on Egypt’s budget, amounting to 73% of all subsidies and 21% of the country’s budget (Castel 2012). Moreover, as in other countries, the subsidies are not benefiting most voters.² Coady et al. (2006) found that the bottom 40% of the population typically receives only 15-25% of energy subsidies; a second study (IMF 2010) found that the top income quintile captures six times more in subsidies than the bottom. Hence, reform of the subsidy program should be popular with the vast majority of voters and supportable across ideological lines. Such support nevertheless has proved largely absent in introduction of reforms in Egypt. The failure to implement common value reforms is not unique to Egypt or developing countries. For example, Austria has struggled to implement comprehensive reforms to the retirement age and generous early retirement pension plans long after such policies became a significant drain on public resources and unsustainable in the long-term (Pfanner 2003).

We argue that a significant factor affecting public attitudes toward reforms is polarizing information individuals receive. When people receive such cues, they judge reforms through the

¹Our argument therefore differs from theories emphasizing how costs can derail welfare-improving reforms.
²See Pradiptyo and Sahadewo (2012) and James (2014) on the need for fuel subsidy reform in, respectively, Indonesia and Sudan.
lens of political identities. The stories of public attitudes toward fuel subsidies reform in Egypt and the retirement age and pension policies in Austria both testify to our contention.

In Egypt and Austria, parties supported reforms when in office that they opposed when in opposition. This process played out in Egypt beginning in 2008 when Hosni Mubarak’s National Democratic Party (NDP) decreased some subsidies, increased petrol and diesel prices, and advocated additional further measures. After Mubarak’s removal and their ascent to power, the Muslim Brotherhood suggested reforms bearing strong resemblance to plans suggested during the last years of the Mubarak regime (El-Zoghby 2014). And in June 2014, al-Sisi, with the support of the founder of the ‘Tammarod (or Rebellion) Movement’ which led the movement to remove Mohamed Morsi, raised petrol and diesel prices. Given the similarity of the reforms proposed under the different political groups, passage should be expected. However, each time, the advocates faced opposition from other political actors who supported almost the same measures when in power themselves. When Mubarak’s party enacted reforms in 2008, the Muslim Brotherhood unanimously voted against the legislation even though they previously proposed similar reforms. In 2012/13 the liberal opposition to Morsi cited as a reason for his removal rising energy prizes even though they later supported Sisi’s reductions of subsidies (Antar 2014). And after Sisi’s ascent to power, the Muslim Brotherhood came full circle, again rejecting reforms and organizing protests in opposition to fuel price increases (Ali et al. 2014, Tarek 2014).

A similar pattern emerged in Austria over the question of retirement and pension plan reform. In the mid-1990s, a coalition government of the center-left Social Democratic Party of Austria and the center-right Austrian People’s Party proposed a series of cuts to the pension system to address its growing costs (Alfonso 2015). Along with trade unions, the far-right Freedom Party led the movement against the measures, with its leader Haider referring to the proposal as “unsocial” and “irresponsible” (Alfonso 2015). However, once inaugurated as part of a governing coalition with the Austrian People’s Party from 2000 to 2006, the Freedom Party

supported reforms similar to those they had opposed. However, this time the measures faced stiff opposition from the Social Democrats (Pfanner 2003). The Social Democratic Party returned to a coalition with the Austrian People’s Party in 2006, and the Freedom Party, now relegated to the opposition, has since similarly returned to its anti-reform stance (Prodhan 2013). As in Egypt, parties were anti-common value reforms when certain political out-groups were in power, only to take a different stance when in power themselves. Having a constant strong voice in opposition prevented the passage of welfare-improving comprehensive reforms.

We argue that these cases speak to a more general problem: where there is political competition and political polarization on ideological grounds is made salient, individuals may choose to forgo welfare-improving reforms. We investigate our contention by considering the effects of ideologically polarizing information on support for common value reforms. We do so by conducting two incentivized experiments that are tailored to incorporate naturally occurring ideological divisions in two vastly different countries: Egypt and the United States. Although both Egypt and the U.S. feature a high degree of political polarization, the two countries differ from each other on most other dimensions—for example, the U.S. ranked 16th in GDP per capita in 2016 and had a score of 10 on the Polity IV -10/+10 authoritarian/democratic index in 2015, as compared with, respectively, 125th and -4 for Egypt (CIA World Factbook 2016, Polity IV Project 2015). The U.S. was accordingly chosen to evaluate whether our findings in Egypt were externally valid: if results from the study in Egypt can be generalized to a population in the U.S. that is different on so many dimensions, then we can be more confident that our results are externally valid. In the next section of the paper, we briefly review the related literature on political cueing and opinion formation. Section III outlines our theoretical argument, Sections IV and V describe our experiment design and results for the study in Egypt, Sections VI and VII describe the design and results for the second study in the U.S., and Section VIII concludes.

4The most recent data from Polity IV is from 2015. The index defines countries with a score from 6 to 10 as “democracies,” from -5 to 5 as hybrid regimes or “anocracies,” and from -6 to -10 as “autocracies.” Data on GDP per capita comes from the CIA World Factbook and is for 2016.
Related Literature

Our argument in this paper builds on a large literature on how individuals form opinions and preferences about candidates or policies. Many of these studies are concerned with how voters form preferences when the acquisition of information is costly or information is unavailable. Lupia (1994) shows that individuals may use information shortcuts, or heuristics, to overcome their lack of information. Accordingly, where information acquisition is costly and partisan identities are strongly held, individuals might look to informed in-group partisans who because of their shared partisan identity are highly perceived to have common interests and thus provide valuable cues on which stances to take and candidates to support.

Other more normatively troubling studies show that individuals may follow partisan cues rather blindly and perhaps out of a motivation to confirm their predispositions rather than to make informed decisions. Lenz (2009) shows that upon learning elites’ policy positions, individuals are likely to adopt those positions. Druckman et al. (2013) propose that individuals are less likely to pay attention to substantive information or convincing arguments where there is a high degree of elite polarization, and are more likely to instead adopt the opinion endorsed by their political party. These studies suggest that in polarized political environments, individuals might follow partisan cues even where information about policies is available.

We seek to build on this literature in a few key ways. First, while Bullock (2011) and Druckman et al. (2013) analyze the effects of partisan cues on opinion formation where the costs of information acquisition are low, in both cases uncertainty exists over whether the benefits of the policy outweigh the costs. Thus, these studies do not necessarily speak to opinion formation on policy reforms that motivate this study: those for which there is a clear need and little doubt they will be welfare-improving. Second, these studies do not capture the cost-benefit analysis that individuals likely consider when deciding on policies for two reasons. On the one hand, these studies measure expressed opinions rather than actions which may translate into policy changes. As a result, individuals may register support for policies they would oppose if the
decision was viewed as potentially affecting their payoffs. On the other hand, these studies do not capture a key component of the reform process: even common value reforms are costly to implement, and individuals who vote for reform must be willing to bear those initial costs in order to improve outcomes for everyone. In contrast, laboratory experiments on voting over reform using incentivized choices have failed to consider the role of political polarization (Cason and Mui 2003, 2005, Fischbacher and Schuddy 2014, Paetzel et al. 2014).

Hence, previous research does not solve our puzzle: Why do countries fail to implement reforms which are widely known to be welfare-improving? Following cues to oppose reform in such contexts is curious, as doing so results in an outcome that is known in advance to be a worse choice for society. Accordingly, we propose that the explanation must rest on more than a desire to gain information or to follow an in-group cue to confirm pre-dispositions: individuals must expect that reform will benefit a political out-group differentially more, causing them psychological disutility. In the next Section we outline our argument.

Theoretical Argument

We contend that the existence of deep political divisions can affect voter attitudes towards non ideological policies – i.e. policies that from a cost/benefit calculation benefit all. Polarizing information on political parties’ stances on and differential benefits from reform can cause individuals’ attitudes to change on reform even when they know the costs/benefits of reform and expect reform to be beneficial.

We draw on social identity theory according to which partisan attitudes are a natural psychological outgrowth of self-perceived membership in a political party or group (Greene, 2004). Once such affiliation is established, intergroup differentiation occurs through in-group favoritism and out-group derogation (Brewer and Brown, 1998). We argue that the effect of polarization on support for reform is related to which group is seen to receive differential benefits through the reform’s enactment. These benefits are not necessarily received by those who identify with the
party (or if so, only in small amounts relative to the benefits of reform), but nevertheless voters may get utility or disutility from their existence according to which group benefits. That is, from a cost/benefit calculation reform improves everyone’s payoffs even with one party receiving differential benefits. However, because voters receive psychological disutility when a group that they do not identify with receives differential benefits when reform is enacted, they will be less likely to support reform if they are told that another ideological group is supporting reform and will receive differential benefits. Conversely, because voters receive psychological utility when their associated ideological group receives differential benefits when reform is enacted, they will be more likely to support reform if they are told that their associated ideological group is supporting reform and will receive differential benefits. This reasoning leads us to propose the following predictions. See Supplemental Appendix A for a model that derives these hypotheses for a scenario with three ideologically polarized groups, as was the case in Egypt at the time of our study.

**Prediction 1**  
(a) Polarizing information will affect voter views and behavior when voting over reforms (b) but primarily when there are differences in the benefits from reform by political party.

**Prediction 2**  
Voters are more willing to seek out costly polarizing information on reforms when there are differences in these benefits by political party.

**Experimental Design: Study 1 (Egypt)**

We conducted our first experiment at a large university in Egypt. We faced a number of issues in the design process. First, we desired to create a situation similar to voting over reform. Second, we needed to be able to measure our subjects’ ideological preferences and to assign them to groups such that we could manipulate information they had about support for reform across groups. Third, we needed to do these things in a sensitive manner in the context of a highly polarized environment. Below, we explain how we measured preferences, then we discuss the game and describe how we combined the two in order to manipulate polarizing information.
Measuring Political Preferences

The experiment was conducted in early May 2014 over a 12 day period and on two days in November 2014. The time period is important to the context of the experiment and the difficulties in measuring political preferences. Classes had ended early and exams were being administered so that the university could close in order to prevent possible protest by Morsi supporters or unrest ahead of the May 26-28 presidential election in which former defense minister Sisi faced Nasserist candidate Hamdeen Sabahi. In June 2013, Sisi deposed the elected president Morsi (of the Muslim Brotherhood) after mass uprisings. The Muslim Brotherhood’s banned Freedom & Justice Party did not participate in the May 2014 election. As expected, Sisi won with almost 97% of the vote and turnout was 47.5%. Hence in the period in which the experiment was conducted there was both political tension due to protests and violent acts by Morsi supporters, yet strong military control and the perception that Sisi would be elected. Similarly, the sessions in November 2014 were close to the anniversary of a previous political event leading to considerable unease and some violence between protestors and police.

Therefore, we avoided using questions about partisan affiliation or voting behavior. Instead we created three university societies – with different activities of each – that to a great extent match the three political ideologies dominating political life: “Deep State”, “Liberal”, and “Islamic”. For example, society ‘Z’ (which corresponds to Islamist ideology) sponsors classes to learn reciting the Quran; society ‘Y’ (which leans toward liberalism) organizes student parties and holds talks over controversial novels, and society ‘X’ (deep state/old regime) hosts ‘popular’ cabinet ministers to give talks. We then asked subjects their most preferred society. Note that societies were always called X, Y, and Z, and never labeled Deep State, Liberal, and Islamic, respectively. The choice of society, as in all of the decisions in the experiment, was made privately by subjects over a closed computer network, in separated booths by subject ID number. No individual subject’s choices were revealed to other subjects or recorded by name.

To make sure that the activities of these societies distinguished between subjects along ideo-
logical lines, a pre-experiment survey was conducted on a sample of students as a manipulation check on the relationship between actual voting behavior and views of current events. Based on the results of this check, some activities of the hypothesized societies were amended (see Appendix B). We also conducted a similar survey at the end of each session on the last day of the experiment as an ex-post check as well. We found that society choices were roughly equally distributed across subjects with 32% choosing the Deep State Society (X), 32% choosing the Liberal Society (Y), and 36% choosing the Islamic Society (Z), hence our assumption that the groups are of equal size was generally realistic. Appendix B presents the final list of activities for each society and results from the survey.

Subjects were paid a fixed amount of 10 Egyptian pounds for choosing a society. Procedures were made clear to the subjects beforehand so that they were free to express their choices and their only motivations in those choices should have been intrinsic.

Creating a Voting Game over Reform

In order to create a situation similar to reform, we first created a “status quo” environment in which reform is needed. That is, after choosing membership in a society, subjects engaged in a simple real-effort task for which they were paid a fixed piece rate of 4 Egyptian pounds for each successful completion. The task consisted of adding or subtracting two numbers 12 times, with all answers in single digits (a list of the problems used is provided in Appendix B).

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5 All payments were made after the experiment was completed. The exchange rate between an Egyptian pound and the U.S. dollar at this time was 1 USD = 7.0072 EGP.

6 Because the experiment was conducted over a few days, it was possible that subjects in later sessions learned that they would be making these choices and the implications for such choices in the voting (as discussed below). However, we do not observe any evidence of strategic behavior in these later groups in their society choices. Furthermore, in the ex-post survey given on the last day we find coherence between political preferences and society choices as in the manipulation check. Finally, note that the experiment was conducted fully in Arabic and only Egyptians not currently engaged in classroom instruction at the university were present during the sessions.

7 In early trials with 45 subjects, we considered slightly more difficult problems with a shorter time limit. Given the difficulty subjects had with these questions, we revised the design.
Subjects were given 5 minutes to complete the task. The task did prove to be easy, with only 3% of subjects completing less than 10 problems and nearly 79% completing all 12 problems. Subjects earned on average approximately 47 Egyptian pounds answering these problems.

After the twelfth problem, subjects were asked to continue the task for another 12 times, but allowed to vote by majority rule between two different scenarios for payment, Options A and B. Abstention was not allowed. Given that there were $N = 15$ voters in each group, there were no ties. Under Option A, the piece rate was cut in half to 2 Egyptian pounds while under Option B (Reform) the piece rate was kept the same, but subjects first had to pay a fixed up front fee of 10 Egyptian pounds (cost of implementation). Subjects were told that the fees collected when Option B was selected by the majority would be used to subsidize activities supported by the society that provided the most votes in favor of Option B. If two societies tied for the most votes for Option B, the experimenters kept the money. The fees were used as described if Option B was selected by the majority, hence there was no deception. The distribution of the fee then represented the differential benefit/reward to one of the parties from reform. The reduction in the piece rate in Option A captured the costs of not engaging in reform. Thus, the framing of the game captured the situation where reform results in an outcome known to be collectively welfare-improving, but is costly and has differential benefits to the party in power.

Given the size of the fee, piece rates, simplicity of the task, and their previous performance in the task, the expected experimental payoffs to almost all subjects was greater under Option B than Option A (even with the fee and the fact that not all benefitted from the fee). The payoff to a subject from Option A was expected to be $A = 2 \times 12 = 24$, while the payoff to a subject from Option B was expected to equal $B = 4 \times 12 - 10 = 38$.

Only two subjects out of 525 across sessions earned less than 24 Egyptian pounds in the first task part of the experiment; over 97% earned 40 Egyptian pounds or more. Hence, even with the fee and Option B having a 10 to 18 pound advantage over Option A, a subject should be extremely risk averse to prefer Option A to Option B. As discussed in Appendix B, we attempted to measure risk aversion to control for differences due to risk preferences, although we find no evidence to support risk aversion explaining votes for Option A.
After voting, subjects completed the assigned task and a short post-experiment survey. Table 1 below summarizes the basic stages in the Experiment.

<table>
<thead>
<tr>
<th>Table 1: Sequence of Steps in Experiment</th>
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<tbody>
<tr>
<td>Introduction</td>
</tr>
<tr>
<td>Part 1</td>
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<tr>
<td>Part 2</td>
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<tr>
<td>Part 3</td>
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<tr>
<td>Part 4</td>
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<tr>
<td>Part 5</td>
</tr>
</tbody>
</table>

**Manipulating Polarizing Information**

We designed two principal treatments (*Information* and *Baseline*) in order to manipulate the degree to which voters perceived the societies as polarized over reform. In the *Information Treatment*, before subjects voted (but after being explained the differences between Options A and B) subjects were given the following information (in Arabic): “The Society that voted most for Option B was Society Z and the Societies that voted most for Option A were Societies X and Y.” The information provided to the subjects was truthful and based on voting which occurred in preliminary trials to avoid deception. In the *Baseline Treatment* subjects were not provided with this information prior to voting. Subjects in both *Information* and *Baseline Treatments* were also shown again descriptions of the three societies and their activities as well as their own society choice. Hence, the only difference between the two was the one sentence revealing the results of previous voting by society affiliation. Comparing voters’ choices between these treatments measures the effect of polarizing information.

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9 The information was based on preliminary trials which used more difficult problems and a piece rate under Option A of 3 Egyptian pounds. We changed the design of the experiment after these trials in order to reduce the possible influence of risk aversion and increase the benefits to all subjects from supporting Option B.
We conducted two sessions each of the Information and Baseline Treatments. In each session two groups of 15 subjects played the voting game independently.\footnote{The experiment was programmed in z-tree, see Fischbacher (2007). The laboratory consisted of 30 workstations divided by privacy partitions. Each session, subjects were randomly assigned to one of 2 groups, each with 15 subjects. Subjects did not know which of the other 30 subjects were in their group. Instructions (in Arabic) appeared on the subjects’ screens and were also read aloud by the same individual in all sessions and treatments. Subjects were also given quizzes during the experiment to ensure they understood the instructions and could not proceed unless they gave correct responses. The full instructions are provided in the Supplemental Material and the z-tree program is available on request.} Hence, a total of 60 subjects participated in the Information Treatment and 60 in the Baseline Treatment. In the next Section we compare subjects’ choices in these treatments in two ways. First, we analyze their voting behavior. Second, at the end of the experiment we asked them to explain their choices. Specifically, we asked the subjects (in Arabic): “What were your reasons for voting for the option you chose?” Their answers provide us with a measure of the influence of the information on their thinking of the choices between Options A and B.

We also conducted two additional treatments in order to evaluate the extent that it is the ideologically polarizing nature of the information, which affects voters’ views and choices and not just a group identification effect as found in minimal group experiments such as Tajfel (1972). In these two treatments, Balanced Information and Balanced Baseline, everything was the same as in the Information and Baseline Treatments except that instead of subjects choosing societies, subjects were arbitrarily assigned a society membership and the societies’ activities were distributed such that they were balanced ideologically. If the effect of information on previous voting by society is primarily through the ideologically polarizing nature of the information, then we expect that there will be no difference in how subjects view their votes and their voting behavior between the Balanced Information and Balanced Baseline Treatments. If the effect of information on previous voting by society is simply due to group identification and assignment, then we will find similar differences between the two Balanced treatments as to what we find be-
between the two primary treatments. As with the previous treatments, 60 (4 groups) new subjects participated in each of these treatments for a total of 120 (8 groups) subjects.

**Measuring the Effect of Differential Benefits**

Comparing the *Information* and *Baseline Treatments* and the two *Balanced Treatments* addresses the first part of Prediction 1 – whether polarizing information affects voters’ views and choices on reform. To investigate the second part of Prediction 1 – that polarizing information is important when there are differential benefits, we created two additional treatments: *Information No Reward* and *Baseline No Reward*. These treatments were exactly like their counterparts, *Information* and *Baseline*, except that the fee for Option B was not given to a society but returned to the experimenters. Hence, although as above almost all subjects are better off with Option B as compared to Option A, there were no additional benefits to the society that most voted for Option B. By comparing the *Information No Reward Treatment* to the *Baseline No Reward Treatment* we are able to determine the effects of the polarizing information when there are no differential benefits and by comparing the *Information No Reward Treatment* and the *Information Treatment*, we can measure the additional effect of differential benefits (as well as when we compare the two *Baseline Treatments*). Thus, we can address the second part of Prediction 1 above. Ninety subjects (6 groups) participated in the *Information No Reward Treatment* and 75 subjects (5 groups) participated in the *Baseline No Reward Treatment*.

Our Prediction 2 posits that voters are more likely to seek out polarizing information when there are differential benefits. In order to evaluate this prediction we created two more treatments: *Information Choice* and *Information Choice No Reward*. These two treatments were the same as the *Information* and *Information No Reward Treatments*, respectively, with the exception that before voting, subjects were given the opportunity to purchase information

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11One group of 15 subjects in the *Baseline No Reward Treatment* were given more difficult problems in the task part of the experiment (and a higher payoff for Option A) due to a computer glitch such that their data is not comparable to the other treatments.
Table 2: Summary of Treatments in Study 1

<table>
<thead>
<tr>
<th>Treatment Name</th>
<th>Information Provided</th>
<th>Differential Benefits</th>
<th>Ideological Societies</th>
<th>Choice</th>
<th>Sessions (Groups)</th>
<th>Total Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Baseline</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>2 (4)</td>
<td>60</td>
</tr>
<tr>
<td>Primary Information</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>2 (4)</td>
<td>60</td>
</tr>
<tr>
<td>Balanced Baseline</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>2 (4)</td>
<td>60</td>
</tr>
<tr>
<td>Balanced Information</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>2 (4)</td>
<td>60</td>
</tr>
<tr>
<td>No Reward Baseline No Reward</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>2.5</td>
<td>5 (5)</td>
</tr>
<tr>
<td>No Reward Information No Reward</td>
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<td>No</td>
<td>Yes</td>
<td>No</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Choice Information Choice</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>2 (4)</td>
<td>60</td>
</tr>
<tr>
<td>Choice Information Choice No Reward</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>2 (4)</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>17.5</td>
<td>35</td>
<td>525</td>
<td></td>
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</tbody>
</table>

as to how previous voters had chosen by society instead of arbitrarily seeing the information. We used a Becker-DeGroot-Marshak (hereafter, BDM) procedure to elicit subjects’ willingness to pay for the information. Subjects were asked if they wished to purchase the information. If so, then subjects were asked to name a demand price between 1 and 5 Egyptian pounds. A price between 1 and 5 had been randomly drawn prior to each session (the price was a new random draw for each session) and recorded on a white board but hidden by a sheet of paper. After each subject named his or her price, the chosen price was revealed. Subjects whose demand prices were equal to or higher than the chosen price had their payoffs deducted by the chosen price and were shown the polarizing information. Subjects whose demand prices were lower than the chosen price or who chose not to name a demand price did not see the information.

12See Becker et al (1964). See Appendix B for instructions used for this treatment. Note that we conducted the choice treatments prior to the information treatments without choice in order to prevent possible cross effects if subjects knew someone who had participated in an earlier session.

13We used this procedure to avoid using lottery mechanisms which might be offensive to the subjects since Islam prohibits gambling. We were especially concerned about this issue given that we were asking questions related to religion when we measured ideological preferences.

14As noted previously, in one of the sessions there was a computer glitch, which invalidated the data for one group of 15 subjects assigned to the Baseline No Reward Treatment.
The comparison of the treatments *Information Choice* and *Information Choice No Reward*, then, allows us to determine the extent to which differential benefits affect the demand prices of subjects for polarizing information, specifically, Prediction 2. These treatments also allow us to compare the behavior of the subjects who willingly purchased the polarizing information at a cost to those who were randomly assigned to receive the information by being assigned to one of the other information treatments. That is, we can determine if those who select to receive the information are differently affected by the information. Such a question may be relevant in naturally occurring elections where individuals may choose or not to receive polarizing information prior to voting. Hence, comparing informed voter behavior in *Information Choice* and *Information Treatments* (and informed voter behavior in *Information Choice No Reward* and *Information No Reward Treatments*) allows us to measure the effects of self selection. Sixty subjects (4 groups) participated in the *Information Choice Treatment* and 60 (4 groups) participated in the *Information Choice No Reward Treatment*.

Table 2 summarizes our 8 treatments. Each of the 525 subjects participated only once in the experiment. At the end of each session, subjects were paid in a secure place and total earnings were on average $15. Additional control variables and measures used in the experiment are discussed in Appendix B.

**Results: Study 1 (Egypt)**

**Evaluation of Prediction 1(a): Explaining Vote Choices**

We begin with a comparison of our two principal treatments, the *Information Treatment* and the *Baseline Treatment*. As discussed above, we have two measures of how voters responded to the polarizing information; their explanations of their choices and their actual choices. First we discuss the explanations. We classified them into four categories: *Non-Political Private*; *Political Own Society*; *Political All Societies*; and *Unclear*. Explanations classified as *Non-Political Private* discussed only the anticipated earnings to the subject personally from the two options and did not mention society benefits. For example, one subject who voted for $B$ wrote:
“The reward from Option A will be \(2 \times 12 = 24\), and from option B will be \(4 \times 12 - 10 = 38\).”

Explanations classified as *Political Own Society* mentioned the effect of voting on differential benefits to their own society. For instance, one subject who voted for B, remarked: “I chose society Z because of its religious nature. I voted for B because my society made this choice before.” We also classified subjects as *Political Own Society* if they mentioned their private benefits as well. For example, one subject stated: “I voted for B because it will allow me to support the society that I like with a small amount of money, and also because it gives a bigger reward than A.”

Explanations classified as *Political All Societies* suggested that they voted for B (at least partly) to benefit some society, acknowledging it may not be their own. For instance, one subject wrote: “I voted for B to get a bigger reward, 38 pounds instead of 24, especially since I know that I will answer all questions correctly. And also, option B will benefit society (Y) and I never stand in the way of others’ benefit even if it was not my society. But in option A, no one will benefit.” Finally, explanations classified as *Unclear* did not provide enough information to be categorized. For instance, one subject said simply: “It matches my desires to a great extent.”

We find significant differences in the types of explanations between the *Baseline* and *Information Treatments*, as shown in Figure 1.\(^{15}\) In the *Baseline Treatment* the modal response is to only mention private benefits (43% of the explanations), while in the *Information Treatment* the modal response is to include a mention of one’s own society (48%) and only 38% mention private benefits only. The increase in mentioning one’s own society appears strongly related to the decrease in mentioning benefits to all societies (in the *Baseline Treatment* explanations refer to all societies 27% of the time, whereas in the *Information Treatment* they do so only 8% of the time). Thus it appears that receiving polarizing information clearly structures the ways in which voters describe the two choices.

\(^{15}\)For the comparison overall the Pearson \(\chi^2\) statistic = 10.40, \(Pr = 0.015\) and Fisher’s exact test yields \(Pr = 0.012\).
To evaluate if voters who performed poorly in the math problems are driving this result, we also compared the distribution of explanations of just those subjects who received perfect scores on the first set of math problems, that is, answered all 12 correctly (also shown in Figure 1). Our results are robust to this restriction; the polarizing information results in significantly more voters mentioning their own society (52% among informed compared to 27% in the baseline), less their private benefits (37% among informed compared to 46% in the baseline), and less then the benefits to all societies (10% among informed compared to 23% in the baseline).16

As discussed in the previous section, we also conducted the same two treatments but with non-ideological societies to which subjects were arbitrarily assigned (Balanced Baseline and Balanced Information). We expect that information with non-ideological societies should have no effect on how voters’ view their choices between Options A and B or how they actually vote. Indeed we find that information had no effect on explanations or vote choices in the Balanced

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16Pearson’s $\chi^2$ statistic for the comparison is 7.55, Pr = 0.06 and the Fisher’s exact test yields Pr = 0.04.
Hence, we can conclude that it is the ideological polarization that the information provides which leads to the effects observed above.

**Evaluation of Prediction 1(a): Voting Behavior**

We turn now to whether the polarizing information also affects how subjects vote. Recall that the polarizing information suggests to voters that Society Z (the Islamic Society) votes the most for Option B (and presumably would receive the differential benefits if Option B is selected) and that Societies X and Y vote the most for Option A. Hence, if the polarizing information affects voter behavior, then we expect that voters in Society Z in the *Information Treatment* will be more likely to vote for Option B than they are in the *Baseline Treatment* and that voters in Societies X and Y will be less likely to vote for Option B than they are in the *Baseline Treatment*. Figure 2 below summarizes voting behavior in the two treatments by whether a subject chose the Islamic Society or not. We find evidence supporting our prediction. That is, we find higher support for Option B among Islamic Society members in the *Information Treatment* (96% in the *Information Treatment* compared to 79% in the *Baseline Treatment*) and lower support for Option B among non-Islamic Society members in the *Information Treatment* (91% in the *Information Treatment* compared to 100% in the *Baseline Treatment*). Both differences are significant using a one-tailed test of proportions, although using Fisher’s exact 1-sided test they are not significant at conventional levels.\(^{18}\)

When we restrict our attention just to the subjects who answered all math problems in the first set correctly (shown in Figure 2 as well), we find the same relationships, also weakly

\(^{17}\)The \(\chi^2\) statistic for the comparison of explanations in these two treatments = 1.44, \(Pr = 0.70\), and Fisher’s exact test yields \(Pr = 0.71\). The \(z\) statistic for the comparison of the two treatments of voting for Option B from voters given information that their assigned society voted least for Option B previously = 0.73, \(Pr = 0.44\) and for those votes given information that their assigned society voted most for Option B previously = 1.46, \(Pr = 0.14\).

\(^{18}\)For the test of the proportions for Islamic Society members the \(z\) statistic = 1.77, \(Pr = 0.04\) in a one-tailed test and for non-Islamic Society members the \(z\) statistic = 1.91, \(Pr = 0.03\) in a one-tailed test. Fisher’s exact one-sided test for Islamic Society members yields \(Pr = 0.10\) and for non-Islamic Society members \(Pr = 0.09\).
significant. Islamic Society members who answered all problems correctly choose Option B 100% of the time when they received polarizing information compared to only 79% of the time when not informed. Non-Islamic Society members who answered all problems correctly chose Option B 91% of the time when they received polarizing information, but 100% of the time when not informed. Thus, we find supportive evidence of an effect on voter choices, although it is weak.

Evaluation of Prediction 1(b)

We find that the polarizing information appears to have a large effect on how voters describe their vote choices and a smaller, but still significant, effect on how voters choose. To what extent is this effect driven by the fact that under Option B there is a differential gain to the society which votes the most for that option? In order to examine this question, we make two

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19For the comparison with Islamic Society members, the $\chi^2$ statistic = 4.48, Pr = 0.03, Fisher’s exact test yields Pr = 0.07 and for the comparison with non-Islamic Society members, the $\chi^2$ statistic = 3.24, Pr = 0.07, Fisher’s exact test yield Pr = 0.11.
comparisons. First we compare the voter explanations in our Information Treatment with the Information No Reward Treatment as shown in Figure 3. We find significant differences. In the Information No Reward Treatment the vast majority of subjects provide an explanation that only refers to their personal private benefits from the options (90%) and only about 7% refer to their own society in explaining their vote (recall these voters have received information about their society’s position on the two options). None of the voters mention all societies. Clearly the differential benefits increase the tendency of voters to explain their positions by society. The results are equally significant if we restrict to the subjects who answered all 12 of the first set of math problems correctly as shown in Figure 3.

Note that subjects in the Baseline No Reward Treatment never explained their vote in reference to the societies given that they received no polarizing information and there were no differential benefits to the societies (no reward). Hence we can think of the 7% who mentioned

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20Pearson’s $\chi^2$ statistic for the comparison = 48.4, Pr = 0.00 and Fisher’s exact test yields Pr = 0.00.

21Pearson’s $\chi^2$ statistic for the comparison = 42.33, Pr = 0.00 and Fisher’s exact test yields Pr = 0.00.
their society in the *Information No Reward Treatment* as a measure of those who are viewing the options in society terms purely because of the polarizing information. Therefore, the difference between 7% and the 48% who mentioned their own society in *Information Treatment* can be viewed as the effect of the reward in addition to the polarizing information. Alternatively, we can also think of the 25% who mention their own society in the *Baseline Treatment* as compared to the *Baseline No Reward Treatment* as the percentage who are polarized simply by the existence of a differential reward without polarizing information. Obviously the results suggest an interactive relationship between polarizing information and differential benefits.22

Figure 4 compares voting behavior in no reward and reward treatments, broken down by whether a subject is a member of the Islamic Society (Z) in the treatments with information, but not broken down in the non-information, baseline treatments (since there is no reason to expect a difference in behavior by society choice). We find in every comparison the differential benefit increases votes for Option B, although the difference is only mildly significant in the effect of differential benefits for Non-Islamic Society Members in a one-tailed Fisher exact test (Pr = 0.05).23 When we restrict the observations to those who answered all 12 math problems in the first set correctly, we find similar relationships (with differential benefits 91% of non-Islamic Society members who answered all problems in the first set vote for Option B as compared to 84% without differential benefits and with differential benefits 100% of Islamic Society members who answered all problems in the first set correctly vote for Option B as compared to 89% without differential benefits), although the differences are not significant.

In summary, we find evidence that differential benefits have a large effect on how voters view the choices between options; they are much more likely to mention their own society in explaining their vote choices when there are differential benefits to reform. They are also slightly

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22 We are unable to estimate a larger multinomial logit estimating these effects in combination on explanation types with controls due to a lack of sufficient variation in the data.

23 We are unable to estimate a larger probit analysis of vote choice of these effects in combination with controls due to a lack of sufficient variation in the data.
Figure 4: The Effects of Differential Benefits on Voter Behavior

more likely to vote for reform when there are differential benefits, although the difference is not generally significant. The evidence suggests that the effect of differential benefits on vote choice appears to offset, to some extent, the tendency of non-Islamic voters to react to polarizing information by voting for Option B less often found above.

**Evaluation of Prediction 2**

Prediction 2 posits that voters will be more willing to acquire costly polarizing information when there are differential benefits from reform. In order to evaluate this prediction, we compare the two treatments in which voters can choose whether to purchase the polarizing information or not, the *Information Choice* and *Information Choice No Reward Treatments*. Specifically, we examine the effect of rewards on the demand prices of subjects in Figure 5. We find that significantly more subjects choose a positive demand price and higher demand prices on average (the mean demand price in the *Information Choice No Reward Treatment* is 2.39 and is 2.54...
in the *Information Choice Reward Treatment*).\textsuperscript{24} Hence it is clear that significantly many more subjects value the polarizing information when reform has differential rewards.

Our choice treatments also allow us to compare those who selected to receive the polarizing information as compared to those who were given the information without a choice. In Appendix B we compare explanations and voting behavior, respectively, of informed voters in the choice treatments as compared to their no choice counterparts (i.e. *Informed Choice* compared with *Informed* and *Informed Choice No Reward* compared with *Informed No Reward*). We find little evidence of any selection effects.

**Experimental Design: Study 2 (United States)**

The results in Egypt could be due to idiosyncrasies in the country. In order to test for external validity, we conducted a second study in the United States. Our experiment was conducted in late October and early November 2016 on Amazon.com’s Mechanical Turk (MTurk)

\textsuperscript{24}The Pearson’s $\chi^2$ statistic for the comparison is 12.66, $Pr = 0.03$ and Fisher’s exact test yields $Pr = 0.02$. When we regress demand price on treatment including controls for gender and our risk aversion measure (see Appendix B) we find that the treatment effect statistic equals 2.77, $Pr = 0.01$. None of the controls are significant.
and was restricted to U.S. citizens. Studies comparing MTurk subjects to subjects in laboratories have generally shown that while the groups behave similarly, the MTurk subjects better approximate the national population on observable characteristics (Berinsky et al. 2012). As in Egypt, the experiment was conducted during significant political tension and polarization. The first sessions were run on October 28 and the last on November 6, only days before a presidential election that was heralded as one of the most polarizing in U.S. history (Stack 2016).

Measuring Political Preferences

We measured ideological preferences by asking subjects to decide how to split $1 between two sets of organizations that were explicitly associated with different ideological groups. As in the previous study, there was no deception and the money was donated in the amounts decided by the subjects. Subjects were given the following information about the two sets of organizations (the emphasis below was used in the instructions):

SET A: A set of organizations that support limited government and opposing all tax increases; protecting and expanding gun rights; and pro-life policies that would eliminate a woman’s ability to get an abortion. These organizations are the following: Americans for Tax Reform, the National Rifle Association (NRA), and the National Right to Life Committee. This set of organizations advocates policies endorsed by Donald Trump’s presidential campaign.

SET B: A set of organizations that support making sure that government services are adequately funded and having the wealthy pay more in taxes; gun control measures; and a women’s right to choose whether to have an abortion or not. These organizations are the following: Citizens for Tax Justice, the Coalition to Stop Gun Violence, and Naral Pro-choice America. This set of organizations advocates policies endorsed by Hillary Clinton’s presidential campaign.

Subjects were given a sliding scale along which they could choose any division of the $1
between sets A and B. They were told that donations would be made on their behalf and that they would be emailed a receipt as confirmation. Individuals who donated a higher portion of the $1 to set A organizations were classified as conservative/Trump identifiers, while those who donated a higher portion to set B organizations were classified as liberal/Clinton identifiers. Because MTurk tends to skew liberal, we established a quota so that in expectation an equal number of liberal and conservative identifiers would be invited to and would ultimately play the voting game, though some who were invited dropped out before finishing the game and as a result there is not perfect balance. Because sets A and B represented polarized policy preferences and the context was one in which polarization was salient, only 10 of the 315 subjects who participated in the Baseline and Information treatments divided the $1 equally between sets A and B and were accordingly classified as not having a partisan preference.

Voting Game

The voting game was kept as similar as possible to the one in Egypt to maximize comparability across studies. Subjects who were invited to participate first engaged in the same real effort task as in Egypt for which they were paid a fixed piece rate of $.20 for each successful completion. 72% of subjects answered all 12 of the problems correctly, 20% 11 of 12 correctly, and 5% 10 of 12 correctly. Subjects earned around $2.3 answering these first 12 questions.

After the twelfth question, subjects were asked to continue the task for another 12 questions, but first they were told that they had been paired with 14 other MTurkers who had also been asked to divide $1 between the same two sets of organizations. They were told that individuals who had donated more to set A organizations would be referred to as Donald Trump voters, and those who had donated more to set B organizations would be referred to as Hillary Clinton voters. They were then told how they had been classified and that in expectation there were an equal number of Trump and Clinton voters in their group. They were then allowed to vote between two different scenarios for payment, Options A and B.25 As in Egypt, abstention was

25Although we used the same labels A and B for organization sets and voting options, subjects were referred
not allowed and voters were matched in groups of 15.\textsuperscript{26} Under Option A, subjects would continue to earn $.20 for each successfully completed math problem while under Option B they would have to pay a fixed up front fee of $1 but would earn $.40 for each successful completion.\textsuperscript{27} This choice again created a situation where reform was needed: the expected payoff for a subject from the reform Option B was $3.8, as compared with the status quo policy Option A expectation of $2.4. To which set of organizations the money would go should reform win—to those supported by Hillary Clinton or Donald Trump voters—was determined randomly.\textsuperscript{28} The experiment followed the same sequence as summarized for the Egypt study in Table 1, with the exception that Part 1 and Part 2 (explained in Appendix C) were measured using different techniques.

**Manipulating Polarizing Information**

To manipulate the salience of polarization, in the *Information Treatment*, before subjects voted (but after having been told the differences between Options A and B) they were given the following information:  

\begin{quote}
It was randomly determined that should Option B win, 
\end{quote}

\footnote{Subjects were matched in groups ex-post and then paid.}

Accordingly, it is doubtful that these labels confused subjects.

\footnote{Subjects were matched in groups ex-post and then paid.}

\footnote{Note that the differences between the Options were in the same relative proportion in U.S. dollars as they had been using Egyptian pounds: while in pounds the options had been 2 pounds/answer (no reform) or 10 pounds up front but 4 pounds/answer (reform), in the U.S. experiment the amounts were $.2/answer (no reform) or an up front fee of $1 but $.4/answer (reform). In the U.S. experiment, however, the decision was made to make the status quo $.2/answer, rather than $.4. As in Egypt, reform yields a higher payoff for everyone than non-reform, but unlike Egypt where reform keeps the status quo and forestalls a worse situation, in the US reform improves social welfare above the status quo. Framing reform as an improvement over the status quo may make reform more attractive and hence arguably may be a stronger test of our predictions.}

\footnote{Note that in this case to whom the differential reward would go should reform win was made explicit to subjects, so there should be no doubt. This change was made as compared with the Egypt study to make sure that subjects anticipated the recipient of the differential reward in the way expected. Our design also allows us to vary which of the two sides is anticipated to receive the benefits in the information treatments unlike Egypt where the information was always determined by the results in the baseline group.}
the $1 tax collected from everyone in your group will be distributed to the set of organizations supported by [Hillary Clinton/Donald Trump] voters.” We will refer to Information In-Group as the treatment condition under which the information provided to subjects was that their political in-group would receive differential benefits should reform win. Information Out-Group is when subjects learned that the political out-group would receive differential benefits should reform win. In the Baseline Treatment, subjects were told that they would learn which set of organizations would receive the tax only after voting. Comparing support for reform in the Information In-Group and Information Out-Group Treatments with support in the Baseline Treatment allows us to evaluate the effects of polarizing information on support for reform.

As in Egypt, we also conducted two additional treatments, Balanced Baseline and Balanced Information, to ensure that any effect we identified is due to the ideologically polarizing nature of the information as opposed to a group identification effect. To do so, we first had individuals divide $1 between two sets of organizations that were balanced ideologically (see Appendix C for sets of organizations). Before voting, subjects were then assigned to either Group X or Group Y regardless of their earlier division and were reminded which set of organizations were supported by each group. Everything else about the voting game was the same as in the Information and Baseline Treatments.1,171 subjects completed the first stage of the study wherein demographic covariates were collected and subjects chose how to divide the $1 between organizations. Of those who completed the first stage, only some were invited to participate in the voting game according to the criteria already discussed. Ultimately, 405 subjects completed

29The sets were balanced ideologically on abortion and gun rights issues. To account for subjects who might much more heavily weight one of the two issues over the other, subjects were only invited to participate in the voting game if they did not give either set more than $.70, or accordingly less than $.30. Due to an error, one subject outside of this range was invited and participated in stage 2. Results are robust to excluding this subject.

30We did not conduct Baseline and Information No Reward Treatments or the Information and Baseline Choice Treatments in the U.S.
the voting game and earned an average of $9.68.\textsuperscript{31} Table 3 below summarizes the 4 treatments conducted in the U.S. In Appendix C, we discuss additional control variables and measures used in the experiment.

<table>
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<th>Treatment Name</th>
<th>Information Provided</th>
<th>Differential Benefits</th>
<th>Ideological Sets</th>
<th>Total Subjects</th>
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<td></td>
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<tr>
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<td>Yes</td>
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<tr>
<td>Information</td>
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<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Balanced</td>
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<td></td>
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<tr>
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<tr>
<td>Balanced Information</td>
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<td>Yes</td>
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<td>45</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>405</strong></td>
</tr>
</tbody>
</table>

Results: Study 2 (U.S.)

Evaluation of Prediction 1(a): Explaining Vote Choices

First, we compare results in our principal treatments, Information (broken down as Information In-Group and Information Out-Group when we consider voting behavior) and Baseline. As before, we begin with an analysis of explanations before moving on to behavior. We observe some marginally significant differences in the expected directions in explanations for vote choice between the Information and Baseline Treatments, as shown in figure 6 below.\textsuperscript{32} Mirroring our results in Egypt, polarizing information results in more voters mentioning their own political society (32% among informed compared to 21% in the baseline) and less their private benefits (52% among informed compared to 60% in the baseline). Differences are of a greater magnitude and are significant at conventional levels when analysis is restricted to those who answered all 12 of the first set of math questions correctly.\textsuperscript{33} In the Information Treatment as compared

\textsuperscript{31}In addition, six subjects completed the study but due to an error were not assigned a group and as a result are excluded from analysis. The results presented are robust to their inclusion.

\textsuperscript{32}For the comparison overall the Pearson’s $\chi^2$ statistic = 7.02, Pr = 0.071 and Fisher’s exact test yields Pr = 0.072.

\textsuperscript{33}The Pearson’s $\chi^2$ statistic = 9.86, Pr = 0.020 and Fisher’s exact test yields Pr = 0.014.
with the Baseline Treatment, more subjects give as the reason for their vote their own political society (31% among informed compared to 14% in the baseline) and less their private benefits (57% among informed compared to 68% in the baseline). In the U.S. context, the increase in mentioning one’s own society in the Information Treatment as compared with the Baseline Treatment appears to be primarily related to the decrease in mentioning private benefits.\textsuperscript{34,35}

As discussed above, we also conducted the same treatments with non-ideological societies to which subjects were randomly assigned (Balanced Baseline and Balanced Information Treatments). We anticipate that being informed in these treatments should have no effect on how voters view their choices of reform or no reform or on how they ultimately vote. Consistent with this expectation, we find that information did not have any statistically significant effects

\textsuperscript{34}As compared with subjects in Egypt, across treatments fewer participants from MTurk provided explanations classified as “political all societies.” U.S. or MTurk subjects may be more individualistic or materially motivated

\textsuperscript{35}We also estimated a multinomial logit of explanation type as a function of how many problems a subject answered correctly in the first set of math questions and whether a subject was informed, female, and their degree of risk aversion as discussed in Appendix C. Our results are robust to the inclusion of these controls.
on explained vote choice between Balanced Treatments.\footnote{For the comparison overall the Pearson’s $\chi^2$ statistic = 2.09, Pr = 0.55 and Fisher’s exact test yields Pr = 0.58. 53\% of informed subjects gave as the reason for their vote private benefits explanations, as compared with 49\% of baseline subjects. The percentages for own political society explanations were, respectively, 16\% and 13\%. See Appendix C for a figure of the distribution of voter explanations in these treatments.} This result holds if the analysis is restricted to those who answered all questions correctly in the first part of the study, prior to the voting game.\footnote{The Pearson’s $\chi^2$ statistic = 1.39, Pr = 0.71 and Fisher’s exact test yields Pr = 0.79. 56\% of informed subjects gave as the reason for their vote private benefits explanations, as compared with 59\% of baseline subjects. The percentages for own political society explanations were, respectively, 15\% and 12\%.} Hence, we can again conclude that it is the ideological polarization that the information provides which leads to the effects observed above.

**Evaluation of Prediction 1(b): Voting Behavior**

We now consider whether the polarizing information had effects on how individuals voted. We expect that voters will be more likely to support welfare-improving reform where it differentially benefits their political group and less likely to support reform where it differentially benefits the political out-group. Figure 7 below summarizes voting behavior across treatments.

We find evidence supporting our theory. Specifically, support for reform drops precipitously where the out-group receives differential benefits (with 58\% supporting reform) as compared with when the in-group receives differential benefits (with 76\% of subjects supporting reform), and the difference is statistically significant.\footnote{For the test of proportions of support for reform between the Information In-Group and Information Out-Group, the z statistic = 2.41, Pr = 0.008 in a one-tailed test. Fisher’s exact one-sided test yields Pr = 0.012.} As expected, there are no significant differences in voting behavior between the Balanced Treatments or between Balanced Information In-Group and Balanced Information Out-Group Treatments.\footnote{For the comparison between support for reform in the Balanced Baseline Treatment (56\%) and the Balanced Information Treatment (60\%), the Pearson’s $\chi^2$ statistic = 0.18, Pr = 0.67, and Fisher’s exact test yields Pr = 0.83. For the comparison between support for reform in the Balanced Information In-Group Treatment (64\%) and the Balanced Information Out-Group Treatment (57\%), the Pearson’s $\chi^2$ statistic = 0.15, Pr = 0.70, and Fisher’s exact test yields Pr = 1.00.}
Results are robust to restricting analysis to subjects who answered all 12 math questions correctly in the first part of the voting game, as shown in figure 8. Support for reform again drops where the out-group receives differential benefits (with 61% supporting reform) as compared with when the in-group receives differential benefits (with 82% supporting reform), and the difference is statistically significant.\textsuperscript{40} There are still no significant differences in voting behavior between the Balanced Treatments or between Balanced Information In-Group and Balanced Information Out-Group Treatments.\textsuperscript{41} Thus, our results provide support for our theory.\textsuperscript{42}

\textsuperscript{40}The Pearson’s $\chi^2$ statistic = 5.88, $Pr = 0.015$, and Fisher’s exact one-sided test yields $Pr = 0.012$.

\textsuperscript{41}For the comparison between support for reform in the Balanced Baseline Treatment (59%) and the Balanced Information Treatment (62%), the Pearson’s $\chi^2$ statistic = 0.06, $Pr = 0.80$, and Fisher’s exact test yields $Pr = 1.00$. For the comparison between support for reform in the Balanced Information In-Group Treatment (64%) and the Balanced Information Out-Group Treatment (55%), the Pearson’s $\chi^2$ statistic = 0.19, $Pr = 0.67$, and Fisher’s exact test yields $Pr = 1.00$.

\textsuperscript{42}We also estimated a probit analysis of vote choice as a function of whether subjects were informed that their political in-group would receive differential benefits (as opposed to their political out-group), how many problems they answered correctly, whether they were female, and their level of risk aversion as reported in Appendix C. We
Concluding Remarks

One of the more puzzling aspects of political decision-making has been the inability of governments to pass reforms even when there seems to be widespread recognition that reform is needed. In this paper we investigated one possible source of the lack of action – the identification of reform with ideological groups when society is politically polarized. We did so by using a novel approach of a combination of incentivized experiments with naturally occurring political ideological divisions in two polarized settings. We found that polarizing information causes significant numbers of voters to view their positions on reform through ideological lenses and and some voters appear to condition their vote on reform based on ideological considerations even when reform is clearly an improvement for them. We also demonstrated that the ideologically polarized nature of the information is the source of the effect; when subjects were arbitrarily assigned to balanced ideological groups, the information had no effect on explanations or vote-find that subjects are significantly more likely to vote for Option B at the 5% level where they believe differential benefits will go to their political in-group.
ing behavior. We found these results in two different contexts, Egypt and the United States, bolstering our confidence in our findings and providing evidence that they are externally valid.

Our evidence suggests that the influence of polarizing information is highly interactive with the existence of differential benefits from reform. When reform offers differential benefits, then voters are most likely to see reform through polarized and ideological views and their votes are the most likely to be affected, even when reform has clear benefits for all voters, across ideological types. These results have significant implications for policy making. They imply that it might be quite important to reduce levels of political polarization, or at the minimum the possibility of differential benefits, as a prior step before – or in parallel to – tackling major reform areas. Such a task might be equally as challenging as the act of reform itself, nevertheless, it is difficult to imagine a country being able to undergo significant reforms at the same time as its electorate is highly politicized and polarized.

References


