SIGNALING SOPHISTICATION: HOW SOCIAL EXPECTATIONS CAN INCREASE POLITICAL INFORMATION ACQUISITION

JOHN MARSHALL*

DECEMBER 2017

Information plays an integral role in theories of political behavior. However, little is known about why—if ever—voters choose to acquire political information. This article proposes that voters strategically acquire costly political information to cultivate a reputation among their peers as politically sophisticated. I test this theory in Mexico using experimental and observational research designs that exogenously vary the likelihood that an individual's peers observe the political knowledge they possess. The results demonstrate that social incentives significantly increase political knowledge among voters nested within groups that collectively value political knowledge. Consistent with the model, I find that relatively unsophisticated voters seek to reach a minimum standard within their social group, while more sophisticated voters acquire higher levels of information to differentiate themselves from less-informed peers. These findings indicate that social networks can increase informed participation in a major non-consolidated democracy, but also highlight how politically-disengaged networks can generate information traps.

Key words: Information acquisition; Elections; Mexico; Political knowledge; Signaling.

*Assistant Professor, Department of Political Science, Columbia University, NY 10027. Email: jm4401@columbia.edu. I would like to thank the editor and four anonymous reviewers, Jim Alt, Eric Arias, Diego Domínguez, Jorge Domínguez, Raissa Fabregas, Mauricio Fernández Duque, Hernán Flom, Jeff Frieden, Saad Gulzar, Sebastian Garrido de Sierra, Soeren Henn, Torben Iversen, Dorothy Kronick, Joy Langston, Horacio Larreguy, Chappell Lawson, Rakeen Mabud, Pablo Querubín, James Robinson, Luis Schiumerini, Jennifer Sheehy-Skeffington, Jim Snyder, Edoardo Teso, Julie Weaver, and workshop or conference participants at presentations at APSA, Harvard, MIT, NEWEPS, and MPSA for illuminating discussions and useful comments. Replication files are available in the JOP Data Archive on Dataverse (http://thedata.harvard.edu/dvn/dv/jop). Supplementary material for this article is available in the appendix in the online edition. The experimental protocol in this study was approved by the Harvard Committee on the Use of Human Subjects (IRB15-1068). Support for this research was provided by the Eric M. Mindich Research Fund for the Foundations of Human Behavior and the Institute for Quantitative Social Science.

1 Introduction

Political information plays a key role in enabling voters to hold governments to account for their performance in office (Pande 2011), to align their vote choices with their distributive policy interests (Bartels 2008; Iversen and Soskice 2015), and to coordinate collective action (Kuran 1991). However, voters are often poorly informed about politics (Delli Carpini and Keeter 1996; Pande 2011). Particularly where democratic institutions and expectations are weakly ingrained, low levels of voter information may harm political representation where it is already weakest (World Bank 2016).

Despite the foundational role of voter information in theories of political behavior, surprisingly little is known about what motivates voters to become informed about politics. Downs (1957) seminally argued that "rationally ignorant" voters face strong incentives to leave costly information acquisition to others, given the low probability that their informed choice would affect political outcomes.[1] However, a non-trivial share of voters nevertheless still choose to acquire political information.[2] Prominent explanations have suggested that voters consume political information because they find it entertaining (Hamilton 2004), have a strong sense of civic duty (Feddersen and Sandroni 2006), instrumentally require such information for their work (Larcinese 2005), or are subject to informational spillovers within their social networks (Baker, Ames and Renno 2006; Iversen and Soskice 2015; Sokhey and McClurg 2012). Beyond the lack of compelling causal evidence, such accounts struggle to explain variation in demand for political information across time or context (e.g. Jerit, Barabas and Bolsen 2006), because information acquisition reflects exogenously-given preferences or externalities in these models.

This article endogenizes the acquisition of political information. Specifically, I develop and

[1] Moreover, experimental evidence indicates that relatively low levels of political knowledge do not simply reflect limited opportunity to access to information (Gerber, Karlan and Bergan 2009).

[2] Although reducing the costs of acquiring information can increase information acquisition (e.g. Larcinese 2007), such studies abstract from the *benefits* of acquiring information.

test the theory that voters *strategically* acquire political information to cultivate a desirable reputation among their peers as politically sophisticated (or to avoid the shame of being identified as politically unsophisticated).[3] In my signaling model, voters within social groups differ in their underlying political sophistication—a common empirical reality, given that groups often form for reasons unrelated to politics (Abrams, Iversen and Soskice 2011; Ahn, Huckfeldt and Ryan 2014; Sinclair 2012). Political sophistication is a latent characteristic unobserved by peers which allows voters to acquire political information—whether via the media or through discussion—relatively cheaply, e.g. because information is easier to process or more interesting to consume for sophisticated voters. Social groups collectively update their posterior beliefs about an individual's political sophistication after observing how politically knowledgeable that individual is. The resulting semi-separating equilibria highlight two forces facing voters possessing different levels of underlying political sophistication. An increase in the probability that members of a voter's social group are able to observe political knowledge accentuates: (1) the desire to *meet a minimum standard* that separates less sophisticated voters from the least sophisticated that face prohibitively high costs of acquiring information, and (2) a *differentiation* motive where increased information acquisition among less sophisticated voters causes more sophisticated voters to acquire more information to continue differentiating themselves from the newly-informed less sophisticated voters. Both motives are most pronounced among voters in social groups that collectively value political sophistication most.

Leveraging experimental and observational empirical designs in Mexico, I test the model's key predictions by identifying the effect on information acquisition of increasing the probability that a voters' political knowledge is revealed to their peers. As in many consolidating democracies, Mexican voters are often poorly informed about politics (e.g. Lawson and McCann 2005; Marshall 2017).[4] Especially as Mexican civil society seeks to mobilize voters and increase transparency in

[3]Similar signaling models have been proposed for charitable giving (Bénabou and Tirole 2006).

[4]Mexicans' political knowledge ranks near the bottom of the (mostly high- and middle-income) countries included in module 4 of the Comparative Study of Electoral Systems (Gidengil et al. 2016).

the wake of political scandals, including the disappearance of 43 students in Iguala in 2014, understanding voter information acquisition may have important implications for enhancing democratic accountability.

Using a small-scale field experiment conducted at an elite university, I first show that the prospect of friends observing an individual's political sophistication can increase political information acquisition. This panel study consists of a baseline survey conducted three weeks before Mexico's 2015 mid-term legislative elections, and a post-election survey that participating students were informed in advance would include a quiz about the election campaign and results. To vary social incentives to acquire information, treated students were also informed in advance that their quiz results would be emailed to three friends. On average, this treatment did not significantly increase post-election quiz scores. However, this masks heterogeneous effects supporting the signaling model. Consistent with less-sophisticated voters acquiring information to reach a minimum standard when they expect their social group to receive a clear signal of their political sophistication, I find that treated students with low initial levels of political knowledge exhibited substantially greater political knowledge on the quiz. This change was concentrated among unsophisticated students whose friends are relatively interested in politics. As the model suggests, the lack of evidence indicating differentiation among politically sophisticated students may reflect high marginal costs of acquiring information to differentiate oneself within a group where information consumption is already fairly high. The observational evidence is consistent with this explanation.

Using repeated cross-sections from a nationally representative survey, the observational design supports—in the broader Mexican population—the model's implication that voters face social incentives to acquire information before elections. These social incentives reflect the greater likelihood that peers observe a voter's political knowledge before elections, given that politics becomes a more salient discussion topic (e.g. Baker, Ames and Renno 2006; Eifert, Miguel and Posner 2010; Huckfeldt and Sprague 1995; Walsh 2004). Using a difference-in-differences design that leverages Mexico's staggered state electoral cycles to identify the effects of upcoming local elections, I find

that individuals nested in politically-engaged social networks acquire and retain significantly more *topical* political knowledge before local elections. Reinforcing the experimental findings suggesting that the least sophisticated voters acquire political information to meet a minimum standard, upcoming elections induce some voters to consume political news for the first time. Moreover, increased consumption at higher frequencies of news consumption before elections suggests that more sophisticated voters in turn seek to differentiate themselves. In contrast, political knowledge relating to information which is unlikely to be discussed around elections is unaffected.

Combined, these findings show that social group dynamics can help explain what motivates voters to become political informed. However, social approval pressures are greatest among voters nested in politically-oriented networks. This suggests that a lack of politically-engaged friends can generate political information traps among voters in networks with limited interest in politics, and thus limited incentive to become politically informed. Political information traps may thus harm political accountability and representation in general (Casey 2015; Marshall 2017; World Bank 2016), but especially the representation of disadvantaged groups with lower levels of political engagement (e.g. Adams and Ezrow 2009; Bartels 2008; Casey 2015; Iversen and Soskice 2015).

This study makes several contributions. Theoretically, the model shows how casting voters as rational *but not atomistic* can help explain why "rationally ignorant" voters may still seek out costly political information. By focusing on social approval motives, my strategic account endogenizing the acquisition of political information contrasts with the extant literature typically emphasizing incidental spillovers or predetermined consumption preferences as explanations for why voters demand political information. The signaling dimension and focus on variation by voter sophistication differentiate the model from Abrams, Iversen and Soskice (2011), who highlight the importance of political interest within groups—but not across types of individual—for turnout. Unlike decision-theoretic models assuming that voters acquire information to increase political discussion within their social group (Aldashev 2010; Iversen and Soskice 2015) or expand their network (Aldashev 2010), I show that social approval can generate incentives to acquire political information even

when voters receive no intrinsic benefit from consuming such information. Moreover, in contrast with network theories of social conformity (e.g. Baumeister and Leary 1995 or Keynesian beauty contests), information diffusion (e.g. Sokhey and McClurg 2012), or peer persuasion (e.g. Huckfeldt, Johnson and Sprague 2004), voters acquire costly information to differentiate themselves from their peers.

Empirically, this article provides the first evidence of which I am aware that social approval *causes* voters to acquire political information. Previous studies, which have focused heavily on consolidated democracies, are often vulnerable to the selection concern that certain types of network correlate with an individual's political knowledge (see McClurg 2006; Newman 2014; Sinclair 2012). My findings thus complement the growing literature using field experiments to show that social image concerns affect voter turnout (e.g. DellaVigna et al. 2017; Gerber, Green and Larimer 2008), partisanship (Sinclair 2012), and protest attendance (McClendon 2014). In contrast with these studies, I demonstrate that interactions within social networks help explain when different types of voters acquire political information in a major consolidating democracy.

More generally, the results further our understanding of the determinants of political knowledge, especially on topical issues—or what Barabas et al. (2014) call "surveillance-general facts." By illustrating how voters' social environment can resolve the paradox of rational ignorance, my findings complement the extant literature focusing primarily on access to information through party cues and the media (e.g. Gerber, Karlan and Bergan 2009; Iyengar and Kinder 1987; Lenz 2013), vocational and social spillovers (e.g. Baker, Ames and Renno 2006; Larcinese 2005; Sokhey and McClurg 2012), or voters' ability to process and retain information (e.g. Delli Carpini and Keeter 1996; Gomez and Wilson 2006). While such factors undoubtedly remain important (e.g. Barabas et al. 2014), demand-side factors such as social approval may be particularly important for understanding variation in voter political knowledge in both low-information environments like Mexico or high-information environments where consumption is defined more by access than choice (Prior 2007).

2 Voter information acquisition within social groups

This section presents a simple model of political information acquisition. I propose that voters strategically acquire political information to credibly signal their political sophistication to their social group. The model predicts that increasing the likelihood that an individual's political knowledge will be observed by peers induces the least sophisticated voters to acquire information to meet a minimum standard. This in turn induces more sophisticated voters to acquire additional information to distinguish themselves from less sophisticated voters acquiring more information than before.

2.1 Model

Voters are nested within social groups. I focus on a generic group where $w \geq 0$ captures the degree to which the group values political sophistication. The group contains a continuum of voter types $\theta \in [\underline{\theta}, \overline{\theta}] \subseteq (0, \infty)$ defining increasing levels of latent political sophistication. Sophistication represents a voter's underlying understanding of politics, and is distributed according to cumulative distribution function $F(\theta)$.[5] Although homophily drives similar individuals to form and sustain social groups, groups often exist for reasons beyond politics (e.g. Abrams, Iversen and Soskice 2011; Huckfeldt and Sprague 1995; Sinclair 2012), e.g. shared life stage, interests, or resources. Consequently, group members often differ significantly in their political attitudes and knowledge (e.g. Ahn, Huckfeldt and Ryan 2014; Huckfeldt, Johnson and Sprague 2004; Richey 2008; Sinclair 2012).

To acquire political information, voters decide to consume $n \in [0, \infty)$ units of "news." News is broadly construed as any source of political information, such as television, radio, and internet con-

[5]The model's insights do not depend on the simplifying assumption that F is invariant to w. A positive correlation between group political sophistication and w could account for differences in levels of information acquisition across group types by altering a group's minimum standard.

tent or in-person conversations.[6] However, acquiring information costs $c(n,\theta)$, where $c(0,\theta)=0$, $c(n,\theta)$ is convex-increasing in n, $c_\theta < 0$, and $c_{n\theta} < 0$ (subscripts denote partial derivatives). This cost could reflect opportunity costs, purchasing news content, or cognitive comprehension costs. The final assumption reflects the single-crossing condition that acquiring an additional unit of information is cheaper for more sophisticated voters (e.g. Delli Carpini and Keeter 1996).

With probability $p \in (0,1]$, all members of the group observe through social interaction—e.g. discussion of politics—the level of information n that each voter acquired. This probability can also be interpreted as the precision or frequency of the signal. However, an individual's type θ is only known to themselves. Individual voters can thus signal their political sophistication to their peers through the amount of political information that they accrue. In this stylized setup, information acquired equates to voters' stock of political knowledge.

Voters signal their type because acquiring costly political information allows them to distinguish themselves within their social group, and thus develop a coveted reputation as politically sophisticated. Groups may prize politically sophisticated members because group members intrinsically value engaged political discussion (Huckfeldt and Sprague 1995) or benefit from information that group leaders can provide or aggregate for their members (Ahn, Huckfeldt and Ryan 2014; Richey 2008). Alternatively, individuals may enjoy competing to demonstrate their political sophistication or to educate their peers, or conversely suffer from the shame of exhibiting their ignorance (e.g. Baumeister and Leary 1995). Although not all voters care about distinguishing themselves in practice, the model's results are robust to relaxing this simplifying assumption.[7]

Formally, when with probability p information acquisition is revealed, the group collectively bestows rewards $w\beta$, where β is the group's belief about an individual's type (based on observing n, but without observing θ). For example, Gerber et al. (2016) find that turnout and staying informed

[6] Greater consumption could also entail following their usual content more carefully.

[7] The incentive to differentiate would be weakened—but still exist—if only some voters desired a reputation for sophistication *and* this desire was private information and imperfectly correlated with θ. The results for reputation-seeking voters would be unchanged if this desire was public knowledge.

are positively evaluated and rewarded by voters' peers. When with probability $(1-p)$ information acquisition is not revealed, reputational benefits are assigned according to expected sophistication over all types. The reputational benefits accruing to type θ are thus given by:

$$\underbrace{pw\beta(n(\theta))}_{\substack{\text{Utility when information} \\ \text{acquisition is revealed}}} + \underbrace{(1-p)w\int_{\underline{\theta}}^{\overline{\theta}} \theta dF(\theta)}_{\substack{\text{Utility when information} \\ \text{acquisition is not revealed}}}. \tag{1}$$

To clearly illustrate the role of social incentives, note that neither direct consumption benefits nor partisan or policy preferences enter this voter utility function.

The game's timing can be summarized as:

1. Voters learn their type θ, which is private information.
2. All voters acquire political information n.
3. With probability p, the social group observes n.
4. The group collectively forms posterior beliefs β over voter types, and assigns reputational benefits accordingly.

2.2 Equilibrium and comparative statics

I search for separating, semi-separating, and pooling perfect Bayesian equilibria satisfying the "intuitive criterion" (Cho and Kreps 1987). The intuitive criterion applies an appealing refinement to off-equilibrium beliefs that ensures that the group would never believe that a voter type would deviate by taking a dominated action. For example, the group would not believe a voter to be unsophisticated if they deviate by acquiring a large amount of information.

I first identify the unique *fully* separating equilibrium, where the level of information acquired perfectly reveals each type. Given the single crossing condition, Mailath (1987) proves that such an equilibrium exists and that optimal information acquisition, $n^*(\theta)$, is a strictly monotonic (and

thus continuously differentiable) function of voter type. Each voter sophistication type θ is thus associated with a unique n. Incentive compatibility requires that each type $\theta \in [\underline{\theta}, \overline{\theta}]$ acquire $n = n^*(\theta)$ units of news to maximize their utility, given the group's correctly conjectured posterior belief $\beta = (n^*)^{-1}(n)$ about their type based on the equilibrium strategy $n^*(\theta)$:

$$n^*(\theta) = \underset{n=n^*(\theta)\geq 0}{\operatorname{argmax}} \left\{ pw(n^*)^{-1}(n) + (1-p)w \int_{\underline{\theta}}^{\overline{\theta}} \theta dF(\theta) - c(n,\theta) \right\}. \tag{2}$$

This incentive compatibility condition requires that, for any level of political sophistication, a voter will not deviate from the equilibrium strategy $n^*(\theta)$ by mimicking another type. This enables their social group to correctly infer each voter's underlying sophistication whenever n is revealed.

In the fully separating equilibrium, differentiation of equation (2) characterizes how information acquisition varies with political sophistication:[8]

$$\frac{dn^*(\theta)}{d\theta} = \frac{pw}{c_n(n^*(\theta),\theta)}. \tag{3}$$

To derive equilibrium information acquisition by a generic type θ, I exploit the initial value for type $\underline{\theta}$, $n^*(\underline{\theta}; p, w)$, and integrate over θ to yield:

$$n^*(\theta; p, w) = n^*(\underline{\theta}; p, w) + \int_{\underline{\theta}}^{\theta} \frac{pw}{c_n(n^*(\theta; p, w), \theta)} d\theta. \tag{4}$$

By the intuitive criterion, the lowest type $\underline{\theta}$ maximizes equation (2) by choosing $n^*(\underline{\theta}; p, w) = 0$, given that they have no incentive to acquire costly information in a fully separating equilibrium. All other types then acquire $n^*(\theta; p, w) > 0$ to differentiate themselves from the least politically sophisticated type $\underline{\theta}$.

However, if pw is not large enough to overcome the costs of acquiring information, a *semi*-separating equilibrium exists where all types $\theta < \tilde{\theta}(p, w)$ pool at $n = 0$. In such an equilibrium—

[8] Note that $\frac{d}{dx} f^{-1}(x) = \frac{1}{f'(f^{-1}(x))}$, and $n = n^*(\theta)$ implies $\theta = (n^*)^{-1}(n)$.

which is likely to be common, given that it is rare to directly observe political knowledge (i.e. low p) and politics is often not salient within social groups (i.e. low w)—a group of the least sophisticated voters acquire no political information. Type $\tilde{\theta}(p,w)$ chooses $n^*(\tilde{\theta}(p,w),p,w) > 0$ to reach the "minimum standard" required to avoid pooling with the least sophisticated types in the group (i.e. $\theta < \tilde{\theta}(p,w)$). In practice, a minimum standard in politically-oriented social groups could mean being able to identify and debate specific policies proposed by different parties, while a minimum standard in a groups placing little value on politics might mean knowing the election date. Types $\theta > \tilde{\theta}(p,w)$ also separate because the reputational benefit of signaling their political sophistication exceeds the cost of acquiring the information required to differentiate themselves.

Finally, I consider fully pooling equilibria, where *all* types acquire the same amount of information: $n(\theta;p,w) = \hat{n}, \forall\theta$. However, pooling equilibria can only exist when supported by implausible off-equilibrium beliefs. In particular, pooling equilibria require the group to believe that a deviation $\hat{n}' > \hat{n}$ comes from an *un*sophisticated type. The proof in the Appendix demonstrates this cannot hold for the most sophisticated type $\overline{\theta}$, who will always have an incentive to deviate, under the intuitive criterion. Pooling equilibria are thus unlikely to occur, and do not predict the minimum standard and differentiation motivations observed empirically.

The preceding analysis is summarized in the following proposition:

Proposition 1. *(Equilibrium characterization) Under the intuitive criterion, a unique separating or semi-separating perfect Bayesian equilibrium* $\langle n^*(\theta;p,w), \beta(n^*(\theta;p,w))\rangle$ *exists, and is characterized by the following strategies and beliefs:*

$$n^*(\theta;p,w) = \begin{cases} n^*(\tilde{\theta}(p,w),p,w) + \int_{\tilde{\theta}(p,w)}^{\theta} \frac{pw}{c_n(n^*(\theta;p,w),\theta)} d\theta & \text{if } \theta > \tilde{\theta}(p,w) > \underline{\theta}, \\ 0 & \text{if } \underline{\theta} \leq \theta \leq \tilde{\theta}(p,w). \end{cases} \tag{5}$$

$$\beta(n^*(\theta;p,w)) = \begin{cases} \theta & \text{if } n^*(\theta;p,w) > n(\tilde{\theta}(p,w),p,w), \\ \frac{1}{F(\tilde{\theta}(p,w))} \int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta dF(\theta) & \text{if } n^*(\theta;p,w) \leq n(\tilde{\theta}(p,w),p,w). \end{cases} \tag{6}$$

Proof: All proofs are in the Appendix. ■

The following proposition identifies several key comparative static predictions with respect to information acquisition:

Proposition 2. *(Comparative statics) In the equilibrium described in Proposition 1:*

1. *The proportion of voters that acquire any information,* $1 - F(\tilde{\theta}(p,w))$*, is increasing in the probability p that information acquisition is observed by members of the social group, the political interest of the group w, and (if* F'' *is not too large) their interaction.*

2. *Information acquisition among those that acquire information,* $n^*(\theta; p, w)$ *for* $\theta > \tilde{\theta}(p,w)$*, is increasing in the probability p that information acquisition is observed by members of the social group, the political interest of the group w, and (if w is not too large) their interaction.*

Proposition 2 highlights two key motivations for acquiring political information. The first part establishes that individual voters *start to acquire* information when their social group is more likely to observe their political knowledge. Moreover, the effects of such a threat of revelation increases in the extent to which the social group collectively rewards political sophistication. The effect is particularly pronounced when both such factors increase.[9] This reflects an increase in the value of developing a reputation as politically sophisticated, which induces even relatively unsophisticated types to differentiate themselves from the lowest types by acquiring some political information.

The second part of proposition 2 shows that increases in p also induce more sophisticated voters to acquire more political information in order to *differentiate* themselves. By increasing the returns to developing a desirable reputation, higher values of p and w increase incentives for relatively unsophisticated voters to mimic more sophisticated voters. This, in turn, forces more sophisticated voters to further differentiate themselves until the point where no lower type is willing to pay the cost of acquiring sufficient political information to mimic them. In groups where many voters

[9]The condition that F'' is not too large is not unreasonable, given that the political sophistication distribution is likely to be positively skewed like income distributions worldwide.

already acquire considerable political information, the differentiation required to separate may be small because the convexity of the costs ensures that the marginal cost of acquiring additional news—$c_n(n^*(\theta; p, w), \theta)$ in the denominator of the second term in equation (4)—is high. I thus also expect to observe diminishing marginal effects of p on political information acquisition as group interest in politics increases.

2.3 Testable implications

Proposition 2 yields various testable implications. First, a central prediction is that political information acquisition will increase with the likelihood that an individual's political knowledge is revealed to their social group. In contrast, non-strategic explanations for information acquisition based on consumption preferences and incidental spillovers do not suggest that voters should respond to such stimuli. Averaging across all types of voter, the model predicts that:

H1. *(Knowledge revelation effect) A greater probability that an individual's political knowledge is revealed to their social group induces voters to acquire more political information.*

Empirically, I examine two situations where political knowledge is more likely to be revealed: when the results of a political knowledge quiz are sent directly to friends; and during an electoral campaign, when politics becomes a more common discussion topic.

The signaling model also suggests two motivations for information acquisition arising from increasing the likelihood that political knowledge is revealed to a voter's social group, which differentially affect different types of voter. First, relatively unsophisticated voters seek to obtain reputational benefits by meeting their group's minimum standard. Since minimum standards vary across groups and may be perceived differently by individuals within groups, they are challenging to quantify systematically. Consequently, I test a central observable implication of this motivation:

H2. *(Implication of meeting a minimum standard) A greater probability that an individual's political knowledge is revealed to their social group induces relatively unsophisticated voters*

within a given social group to acquire political information for the first time.

It is important to emphasize that voters may not literally acquire political information for the first time to meet their group's minimum standard. If the model also included consumption preferences or spillovers encouraging information acquisition, most voters would likely acquire some political information for other reasons.[10] Nevertheless, I expect to observe a significant jump at low levels of information acquisition among unsophisticated voters as the probability of knowledge revelation increases. Empirically, I proxy for voter sophistication using prior levels of political knowledge and news consumption.

Second, relatively sophisticated voters consume just enough additional information to continue differentiating themselves from less sophisticated voters. The exact information required for differentiation is also hard to observe and varies across groups and individuals, so I focus empirically on the following testable implication:

H3. *(Implication of differentiation) A greater probability that an individual's political knowledge is revealed to their social group induces relatively sophisticated voters within the group to acquire relatively more political information than before.*

This "ratchet" effect induces all types (except those that never acquire information) to slightly increase their information acquisition. This reflects the fact that increasing the benefits of reputation induces unsophisticated voters to acquire information for the first time (because the reputational gains now exceed the costs), which in turn requires more sophisticated voters to acquire more information in order to continue differentiating themselves from lower types. Consequently, I expect sophisticated voters to disproportionately increase acquisition from high levels, while unsophisticated voters slightly below $\tilde{\theta}(p,w)$ may jump from acquiring essentially no information to acquiring a small quantity. For a given reputational benefit, lower marginal costs of acquiring

[10] Although such incentives likely exist in practice, the model excludes such level effects to emphasize the core insight that social approval can endogenously generate political information acquisition.

information imply larger differentiation effects in social groups characterized by lower levels of information acquisition.

Finally, reputational benefits often differ substantially across social groups. As a result, the effect of revealing political knowledge is expected to be greater among voters embedded in social groups that collectively value politics, and accordingly assign greater reputational benefits to those possessing greater political sophistication:

H4. *(Implication of differential network effect) The effect of an individual's political knowledge being revealed to their social group is greater among among individuals nested in more politically-oriented social networks.*

Conversely, a reputation for political knowledge should be less valuable in local organizations such as neighborhood, voluntary, and sporting groups, where political knowledge is less pertinent.

3 Field experimental evidence

I first test the social approval model using a field experiment conducted around the 2015 Mexican elections. The experiment is designed to identify the effect on political information acquisition of voters expecting that their level of political knowledge will be revealed to their friends.

3.1 Experimental design

I recruited students from an elite university in Mexico City before the 7th June 2015 elections. All c.5,000 undergraduate students, all of whom are of legal voting age, were offered the opportunity to participate in the study via a mass email sent by university administrators. The experiment consisted of a baseline and endline survey.

Before beginning the baseline survey, which could be reached by clicking through from the recruitment email, students were informed of the study's structure. Student understanding of the

experiment is essential to the design. The survey preamble explained that participants would undertake one survey immediately and a second survey containing a quiz about the 2015 elections just after the election. Furthermore, participants were informed that they would list the email addresses of three friends also attending the university, and that the results of their quiz may be sent to these friends (but nobody else). A small number of friends was chosen to ensure a non-negligible social cost of peers receiving quiz performance outcomes and to avoid discouraging participation by requesting too much information. Although the prospect of a political knowledge quiz could reduce participation, the quiz avoids social desirability biases often associated with subjective reporting of political knowledge.

To incentivize participation, all students that completed the baseline survey would enter a prize draw to win one of three gift cards with sufficient value (MXN$6,600) to purchase an iPad Air 16GB. Students that also completed the second survey would enter a second (and independent) draw to win one of five such gift cards. Participants were told in advance that receiving a prize would require verification that the friend is a fellow student and knows the participant. Ultimately, 754 students completed the baseline survey, and the friends of all prize winners were validated by email within a day of the prize draws.

The baseline survey was conducted three weeks before the election. Beyond the email addresses of three friends, the survey elicited each participant's demographic details, interest in politics, friends' interest in politics, political news consumption, and knowledge of recent events and Mexican political institutions. The average participant respectively consumed 5.6, 2.5, 2.5, and 2.4 hours of political news a week through the internet, newspapers, radio, and television. The sample is thus highly informed by Mexican standards. Moreover, 69% of participants answered all three basic topical political knowledge questions correctly (see Appendix for exact questions). Although politics is clearly salient, there remains significant heterogeneity in students' political interest, interest relative to their friends, and information acquisition.

At the end of the baseline survey, students were assigned one of two conditions using simple

random assignment. Control participants received the following (translated) message explaining that their performance on the post-election quiz—the quartile of the distribution in which they fall—*would not* be sent to their three friends:[11]

> *Once you have completed the quiz in the second survey, your performance on the quiz will NOT be sent to the three friends that you listed at the beginning of this survey.*

Conversely, treated students received an identical message removing *NOT*. The treatment condition was thus designed to generate social incentives to acquire information by creating the expectation that friends would learn about treated respondents' level of political knowledge. In terms of the model, the treatment exogenously varies p, while holding political sophistication and social groups fixed. Prior to the election, participants also received two emails reminding them about the upcoming election quiz and reiterating their treatment status. The manipulation check in Table A3 demonstrates that students still correctly recalled their treatment status after taking the quiz.

The second survey was sent to students on June 9th—two days after the election. The key component was the election quiz, which contained ten multiple-choice questions each offering four possible answers. The questions varied in difficulty, and covered national and Mexico City-specific political events that occurred between the closing date of the baseline survey and the release of the election results (see Appendix for exact questions). Students had 20 seconds to answer each question to ensure that they could not search online. For the election to remain fresh in the mind of respondents, the final sample includes only students that completed the second survey within a week of the election.[12] I use the political quiz score to capture political information acquisition. The average student answered 5.6 questions correctly, suggesting that ceiling effects are not present.[13] In addition to the quiz, participants were again asked about their interest in politics,

[11] In Spanish, performance was expressed by *desempeño* and quiz as *prueba*.

[12] In total, 659 students completed the second survey. However, respondents taking the quiz more than a week after the election scored substantially less well on the political quiz and were substantially less likely to correctly identify their treatment condition. The inclusion of late respondents does not substantively alter the results, but reduces precision and induces significant differential attrition.

[13] Only 28% answered the most difficult question correctly, while 87% answered the easiest question

friends' interest in politics, and political news consumption, but also new questions probing the mechanisms underpinning their behavior.

To validate the experimental design, I examine attrition and balance across treatment conditions. Of the 754 initial participants (of which, 374 were treated and 380 were not), 70% of treated and 74% of control students completed the post-treatment survey within a week of the election. The final sample thus contains 539 respondents. There was no significant difference in attrition across conditions ($p = 0.21$), or their interaction with potential proxies—baseline political knowledge, hours of news consumption, or political interest—for how well a student may expect to perform on the quiz.[14] Furthermore, Table A1 in the Appendix confirms that differences across 50 pre-treatment characteristics are consistent with chance.[15] The lack of differential attrition or imbalance indicate that the randomization was preserved in the endline survey.

To identify the average effect of social incentives on political knowledge acquisition, and thus test H1, I estimate the following regression using OLS:[16]

$$Y_i = \beta \textit{Social treatment}_i + X_i\gamma + \varepsilon_i, \tag{7}$$

where, for the main analysis, Y_i is student i's score out of ten on the post-election quiz. The vector of covariates, X_i, controls for the five variables showing significant imbalances at the 10% level in Table A1 by including baseline interest in politics, year of birth fixed effects, and indicators for membership of a party organization, believing that acquiring information is not important, and not following the news.[17] To test H2-H4, I further estimate heterogeneous effects by measures of

correctly. Other questions were relatively uniformly distributed between these limits.

[14]Half the baseline respondents were randomly encouraged to complete the second survey through entry into a separate draw for an additional gift card. This measure increased participation by 5.6 percentage points, and could have helped to minimize differential attrition.

[15]Table A2 shows balance across respondents that completed the baseline survey.

[16]Table A5 reports similar ordered logit results.

[17]These imbalances are important to correct for because they are likely to strongly correlate with political knowledge. Table A4 reports the main results without controls.

political sophistication and group interest in politics.

3.2 Results

Column 1 of Table 1 presents the average treatment effect of the social incentive on the election quiz score, and thus tests hypothesis H1. Although the estimate is positive, as predicted by the model, it is small in magnitude and not statistically significant. In a politically-engaged sample, this result indicates that social incentives had no discernible effect on political information acquisition *on average*. However, I now demonstrate that this null finding masks important heterogeneity supporting the social approval model's key predictions.

Columns (2)-(4) test hypotheses H2 and H3—which respectively capture the implications of politically unsophisticated students acquiring information to meet a minimum standard and sophisticated students ratcheting up their information acquisition to differentiate themselves—by interacting the treatment with measures of political sophistication. Principally, I define political sophistication as an indicator for the 69% of participants that correctly answered all three political knowledge questions on the baseline survey correctly. Sophisticated students consume more than six hours of internet news—their primary source of news—a week, 2.5 hours more than non-sophisticated students report.

The results in column (2) present a different picture. Supporting H2, the significant positive coefficient on the social treatment demonstrates that the treatment increased the number of questions correctly answered by unsophisticated students by 0.6, almost one third of a standard deviation in the outcome. This result is consistent with unsophisticated students increasing their political knowledge to meet a minimum standard within their social group.

Conversely, the significant negative coefficient on the interaction between the social treatment and politically sophisticated students—together with the test at the foot of the table—shows that the treatment did not significantly affect the information acquisition of sophisticated students. This finding provides no evidence to suggest that politically sophisticated students acquire more knowl-

Table 1: Effect of the social treatment on election quiz scores, by student political sophistication

	Political quiz score (1)	Political quiz score (2)	Political quiz score (3)	Political quiz score (4)
Social treatment	0.006	0.594**	0.853*	0.419
	(0.171)	(0.285)	(0.515)	(0.266)
Sophisticated		1.319***		
		(0.247)		
Social treatment × Sophisticated		-0.898**		
		(0.349)		
Follow national news			1.531***	
			(0.326)	
Social treatment × Follow national news			-0.969*	
			(0.545)	
Hours of internet news a week (baseline)				0.077***
				(0.028)
Social treatment × Hours of internet news a week (baseline)				-0.075**
				(0.037)
Observations	539	539	539	539
Outcome range	0 to 10	0 to 10	0 to 10	0 to 10
Control outcome mean	5.74	5.74	5.74	5.74
Control outcome standard deviation	2.11	2.11	2.11	2.11
Social treatment mean	0.48	0.48	0.48	0.48
Interaction range		{0,1}	{0,1}	[0,20]
Interaction mean		0.69	0.88	5.59
Test: Social treatment + Interaction = 0 (p value)		0.14	0.52	

Notes: All specifications control for year of birth fixed effects, baseline interest in politics, and indicators for membership of a party organization, believing that acquiring information is not important, and following no news, and are estimated using OLS. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

edge to differentiate themselves from the less well-informed students that increased their political knowledge. This lack of evidence for differentiation may reflect this sample of well-informed participants facing substantial marginal costs of acquiring additional information from already high levels. Consistent with this explanation, experimental and observational results below document evidence consistent with differentiation in student groups or a nationally representative sample where political knowledge is lower. Furthermore, Table A9 in the Appendix indicates that differentiation effects may be weaker among voters in the most politically-engaged networks, and thus suggests that there are indeed diminishing marginal effects of social pressure.

Columns (3) and (4) present similar results using alternative measures of political sophistication based on pre-treatment news consumption. Column (3) shows that the treatment only significantly increased quiz scores, by around 0.85 correct answers, among the 12% of students not following the national news. Furthermore, demonstrating that the treatment had greatest impact among students with lower levels of prior news consumption, column (4) shows a significant negative interaction between treatment and the number of hours of internet news consumed a week.[18]

3.3 Mechanisms and alternative interpretations

To further support the signaling interpretation, I test additional implications of the theory. First, if social approval drives information acquisition, unsophisticated students should have learned more about politics in preparation for the quiz. Examining an indicator for students claiming to have learned more about politics than normal before the election, column (1) of Table 2 suggests that the social treatment indeed increased the likelihood that politically unsophisticated students learned more by 12 percentage points ($p = 0.12$). Again, politically sophisticated students were unaffected.

Second, if signaling motivates the findings, the social treatment's effect should be most pronounced among the students concerned with establishing a reputation as politically sophisticated. Although the estimate is noisy, due to the small size of the subgroup, column (2) shows that the 7% of students openly stating in the baseline survey that they acquire political information to demonstrate their political knowledge to friends answered almost an entire question more correctly ($p = 0.28$).

Third, hypothesis H4 predicts that the effect of revealing political knowledge will be greatest among unsophisticated students whose social groups value political sophistication. To examine how the treatment's effect varies with social group political orientation, I define an indicator for respondents that rated the political interest of their three friends listed in the baseline survey at 5

[18] A negative but insignificant interaction also holds for television.

Table 2: Mechanisms underpinning the effect of the social treatment on election quiz scores

	Learned more than normal (1)	Political quiz score (2)	Political quiz score (3)
Social treatment	0.118	-0.058	-0.082
	(0.075)	(0.174)	(0.548)
Sophisticated	0.167***		-0.679
	(0.064)		(0.817)
Social treatment × Sophisticated	-0.128		1.501
	(0.089)		(0.969)
Demonstrate knowledge		-0.197	
		(0.600)	
Social treatment × Demonstrate knowledge		0.863	
		(0.753)	
High interest friends			-0.685
			(0.449)
Social treatment × High interest friends			0.926
			(0.645)
Sophisticated × High interest friends			2.218***
			(0.855)
Social treatment × Sophisticated × High interest friends			-2.782***
			(1.050)
Observations	533	539	529
Outcome range	{0,1}	0 to 10	0 to 10
Control outcome mean	0.61	5.74	5.74
Control outcome standard deviation	0.49	2.11	2.12
Social treatment mean	0.48	0.48	0.48
Sophisticated mean	0.69		0.69
Other interaction range		{0,1}	{0,1}
Other interaction mean		0.07	0.88
Test: Social treatment + Interaction = 0 (p value)		0.28	
Test: Social treatment + Social treatment × High interest friends = 0 (p value)			0.01
Test: Social treatment + Social treatment × Sophisticated = 0 (p value)			0.08

Notes: See Table 1. The smaller sample size in column (3) reflects missingness on the high interest friends variable.

or more on a scale from 0 to 10.[19] The estimates in column (3) are consistent with H4: while the social treatment does not affect unsophisticated students with low-interest friends, the test at the foot of the table demonstrates that combining the social treatment with high-interest friends significantly increased quiz scores at the 1% level. Twinned with the negative triple interaction, this indicates that only unsophisticated students in politically-oriented social groups were induced by social incentives to acquire political knowledge. The second test at the foot of column (3) also

[19]The results are robust to using a cutoff of 4 or 6 instead.

tentatively supports H3, showing that treated sophisticated students with low-interest friends—i.e. groups where the costs of differentiation may be lower—also score significantly higher (at the 10% level) on the quiz.

An alternative mechanism is that unsophisticated treated students did not acquire political information for themselves—whether through the media or in-person political discussion—but instead asked their friends about the questions on the quiz. Given that students are unlikely to report such "cheating," I use a list experiment to examine this possibility. After completing the quiz, respondents were asked to list the total number of the following activities that they had engaged in during recent weeks: attended a campaign activity; watched the news on television; written an article about politics on the internet; and, for a random subset of students, talked about the quiz questions with a friend. The average student that did not receive the additional option engaged in 1.5 of these activities. Comparing the number of items listed by students that did and did not receive the additional option, column (1) of Table 3 indicates that 35% of students consulted their friends about the quiz questions. However, interacting the additional option with the social treatment and the indicator for political sophistication, the results in column (2) provide no evidence that unsophisticated treated students were more likely to cheat. While the substantial proportion of students discussing the questions should downwardly bias estimates of the social treatment's effects, these interactions demonstrate that the effect among unsophisticated students is not driven by such cheating. Column (3) similarly shows that the social treatment did not affect the probability of discussing the study with other students. Although the discussion of questions is not driving the results, its prevalence suggests that students regarded performing well on the quiz as important.

A similar issue relates to whether social incentives encouraged students to learn more in advance or just try harder on the quiz. Indicating that the results likely reflect advanced preparation, columns (4) and (5) show that unsophisticated treated voters do not take significantly longer to answer quiz questions or click more times when answering questions.

There is also little evidence for the alternative interpretation that the treatment affected the role

Table 3: Alternative interpretations

	Items listed	Items listed	Discussed study with other students	Time per question	Clicks per question	Interest in politics	Acquire information to choose best candidate	Acquire information due to interest	Acquire information as a duty	Estimated friend score	Political interest of friends
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
List experiment treatment	0.351***	0.469***									
	(0.065)	(0.178)									
Social treatment		0.071	-0.009	-0.290	-0.119	0.078	-0.039	-0.066	-0.013	-0.388	0.031
		(0.139)	(0.078)	(0.480)	(0.096)	(0.174)	(0.042)	(0.070)	(0.068)	(0.316)	(0.273)
Sophisticated		-0.086	0.014	-0.574	-0.080	0.375**	-0.066*	0.093	-0.019	0.216	0.423*
		(0.125)	(0.067)	(0.421)	(0.070)	(0.152)	(0.036)	(0.062)	(0.059)	(0.263)	(0.227)
Social treatment × Sophisticated		-0.034	0.051	0.473	0.098	-0.330	0.056	0.064	0.016	0.471	0.052
		(0.161)	(0.094)	(0.576)	(0.101)	(0.209)	(0.052)	(0.084)	(0.082)	(0.373)	(0.332)
Social treatment × List experiment treatment		-0.162									
		(0.227)									
Sophisticated × List experiment treatment		-0.102									
		(0.207)									
Social treatment × Sophisticated × List experiment treatment		0.180									
		(0.275)									
Observations	529	529	529	539	539	538	539	539	539	488	522
Outcome range	0 to 4	0 to 4	{0,1}	0 to 26	0 to 7.8	0 to 10	{0,1}	{0,1}	{0,1}	0 to 10	0 to 10
Control outcome mean	1.69	1.69	0.59	11.05	1.26	7.85	0.90	0.57	0.74	5.78	6.80
Control outcome standard deviation	0.81	0.81		2.93	0.53	1.91	0.30	0.50	0.44	1.88	1.89
List experiment treatment mean	0.48	0.48									
Social treatment mean		0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.47	0.48
Sophisticated mean		0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69

Notes: See Table 1. Sample size differences reflect missingness on non-common variables.

of political information in students' lives. First, column (6) indicates that treated respondents—whether politically sophisticated or not—do not register greater interest in politics in the post-treatment survey. Second, columns (7)-(9) show that the treatment did not persuade unsophisticated students to acquire information about politics for non-social reasons (measured at endline before the quiz). In particular, the treatment did not increase the likelihood that respondents reported acquiring political information to cast an informed ballot, due to interest in politics, or to fulfill a civic duty. Third, the social treatment did not affect student appraisals of their friends' political knowledge and interest: columns (10) and (11) respectively report no difference in the number of correct answers students expected their friends would provide on the quiz or their friends' level of political interest.

Together, these results further support the signaling model. Rather than by causing students to cheat on the quiz or alter their view of acquiring political information, I find that politically unsophisticated students were induced to perform better on the quiz by social expectations. To assess the generality of these findings, and better examine the differentiation effect in less politically engaged social networks, I now test the theory in a nationally representative sample.

4 Observational evidence

The experimental findings illustrate the importance of social incentives to acquire political information among relatively unsophisticated students in social networks defined by high levels of political interest. However, the sample is not representative of the Mexican electorate. To examine the role of social approval in the broader population, I now identify how upcoming local elections affect the information acquisition of voters embedded in different types of social networks. Such elections—which generate political engagement and discussion, both in Mexico (Marshall 2017) and other contexts (e.g. Baker, Ames and Renno 2006; Sinclair 2012)—also increase the probability that a voter's political knowledge is revealed to their peers. Using a difference-in-differences

design, I leverage this variation in p to examine the generality of the field experiment's findings.

4.1 Data

I use four waves of the government-run and nationally representative National Survey of Political Culture and Civil Practices (ENCUP) conducted in November 2001, February 2003, December 2005, and August 2012.[20] Each wave draws random samples of around 4,000 eligible Mexican voters for face-to-face interviews from within urban and rural strata defined by the electoral register. The pooled sample includes 17,213 respondents from all 31 states and the federal district of Mexico City.

My analysis uses four main types of variable. First, like the field experiment, political knowledge is the main outcome. Political knowledge is defined as the first (standardized) factor from a set of indicators coding correct responses to factual questions within each survey. I distinguish *topical* questions asking about contemporary political debates and movements or the state governor's partisanship from *institutional* questions eliciting knowledge of constitutional rules (see Appendix for details).[21] The average respondent answered around 60% of topical questions and 40% of institutional questions correctly. Topical issues are more likely to be covered in the news and discussed among peers than institutional issues. If social approval is driving information acquisition, the effects of upcoming local elections may be most apparent in topical knowledge. Based on focus groups conducted in the field, the institutional knowledge considered here is unlikely to be a prerequisite for discussion.

Second, I also measure political information acquisition by the frequency with which voters watch or listen to the news, programs about politics, or programs about public affairs.[22] Given that no suitable pre-treatment measure of voter political sophistication is available,[23] I use two

[20] The 2008 survey was not used because it lacks municipal identifiers and comparable questions.

[21] In 2001, 2003, 2005, and 2012 respectively, there were 3, 2, 2, and 2 topical questions, and 4, 1, 1, and 2 questions about political institutions.

[22] Radio and television are the most prevalent sources of political information in Mexico at large.

[23] Self-reported political interest increases before elections, so is susceptible to post-treatment bias.

measures of news consumption to help separate meeting a minimum standard effects from differentiation effects. To capture meeting a minimum standard, I use an indicator for the 87% of respondents that report ever consuming political news—a relevant minimum standard for many voters in Mexico's low-information environment. For differentiation, I use a five-point consumption intensity scale ranging through never, at some point, at least monthly, at least weekly, and daily.[24] News consumption was not elicited in the 2001 survey.

Third, the treatment variable—an upcoming local election—captures an increase in the likelihood that a voter's political knowledge is revealed to their peers. I code an indicator for respondents facing a municipal, and typically a simultaneous state legislative election, within the five months following the survey. Five months approximates the length of a typical election campaign.[25] Mexican states have traditionally followed distinct electoral cycles, both in terms of the month and year in which elections are held, although the months when elections are held within a given year were homogenized in 2007. Unlike federal elections, a key advantage of using state-level elections is the ability to isolate plausibly exogenous variation in the likelihood that peers learn about an individual's political sophistication through the heightened salience of politics. Turnout in Mexican municipal and state elections generally exceeds 50%.

Finally, to test the hypothesis that the prospect of a voter's political knowledge being revealed to their peers has a bigger effect on pre-election political information acquisition in politically-oriented social networks (H4), I use a respondent's participation in political groups to proxy for the reputational benefits of political sophistication in their social network. Specifically, I created a summative rating scale containing three (standardized) variables: the number of politically-oriented organizations an individual is a member of;[26] the number of such organizations at which the respondent attended a meeting in the last year;[27] and a three-point scale capturing the extent to

[24]Table A8 in the Appendix shows similar results when examining these intensities separately.

[25]Table A10 reports similar results using a continuous measure of months until a local election or defining an upcoming local election as any number of months between 1 and 10 before the election.

[26]This includes political, party, and cooperative organizations.

[27]I sum the following two indicators: attended a meeting at a political or party organization, and attended

which the community discusses local problems. Since the final component of the scale and cooperative organizations were included in the 2012 survey, and party organizations were not asked about in 2001, responses were multiply imputed over ten datasets using pre-treatment covariates. The scale has a Cronbach's alpha of 0.59. Moreover, Table A6 in the Appendix shows that politically-engaged networks are not affected by upcoming local elections.

4.2 Empirical design

I exploit a difference-in-differences (DD) design to identify how the effect of upcoming local elections on political information acquisition varies across individuals from different social groups. I first leverage state-specific election cycles to compare changes in information acquisition in states facing an upcoming local election with changes in states that are not. The ENCUP surveys do not track federal elections like the Mexico Panel Studies, and each wave was conducted in a different month of the year. Given that at least one survey from virtually all states was conducted in the same year as an election, there is little reason to believe that the surveys were strategically timed. Supporting this claim, Table A6 in the Appendix shows that upcoming local elections are well-balanced across 22 individual, municipal, and state characteristics, while Table A7 shows that neither upcoming local elections nor recent violence predict the inclusion of a municipality in a given survey wave.

However, upcoming local elections are a compound treatment. While such elections may increase the probability that a voter's political knowledge is revealed to peers, elections could also increase political knowledge via media coverage of politics, greater interest in politics, or elite mobilization. Therefore, rather than identify the effect of upcoming elections, I also leverage variation in voter networks by comparing voters in more or less politically-engaged social networks. A positive interaction between upcoming elections and politically-engaged networks would suggest that—consistent with H4—upcoming elections differentially induce voters to acquire political

a community or cooperative meeting.

information in social groups where establishing a reputation for political sophistication is most important. Such individual-level heterogeneity in response to upcoming local elections is unlikely to reflect changes in access to political information affecting all voters in the state. Furthermore, the robustness tests below offer little support for alternative mechanisms through which upcoming elections could drive the results.

To assess the signaling model's implications, I estimate the following interactive DD specification for respondent i in state s during survey year t:

$$\begin{aligned} Y_{ist} &= \beta_1 \textit{Upcoming local election}_{st} + \beta_2 \textit{Political network scale}_{ist} \\ &\quad + \beta_3 \Big(\textit{Upcoming local election}_{st} \times \textit{Political network scale}_{ist} \Big) + \eta_s + \mu_t + \varepsilon_{ist}, \quad (8) \end{aligned}$$

where Y_{ist} is a measure of political news consumption or political knowledge. State and survey fixed effects, η_s and μ_t, respectively absorb all time-invariant state features and common period effects such as the availability of news or national trends in political behavior. The effect of an upcoming local election is identified under the parallel trends assumption that without an upcoming local election trends in Y_{ist} would not have differed between states with and without upcoming local elections. The main coefficient of interest, β_3, examines how this effect varies by the political engagement of a voter's network. Standard errors are clustered by state.

4.3 Results

Before examining political knowledge, columns (1) and (2) of Table 4 first estimate the differential effects of upcoming local elections on different intensities of political news consumption. The positive but insignificant (lower-order) coefficients for upcoming local elections suggest that a voter with the mean political network scale score generally consumes more news just before elections. However, the key test relates to the interaction. Supporting hypothesis H4, the significant positive interactions between upcoming local elections and the index of politically-oriented

Table 4: Difference-in-differences estimates of the effect of upcoming local elections on information acquisition, by political network engagement

	Watch and listen to news ever (1)	Watch and listen to news scale (2)	Topical political knowledge (3)	Institutional political knowledge (4)
Upcoming local election	0.011	0.187	0.182	-0.132
	(0.025)	(0.114)	(0.136)	(0.104)
Political network scale	0.021*	0.127*	0.119**	0.089**
	(0.009)	(0.048)	(0.039)	(0.029)
Upcoming local election	0.034**	0.186***	0.139**	0.030
× Political network scale	(0.015)	(0.060)	(0.050)	(0.039)
Observations	13,030	13,030	17,213	17,213
Outcome range	{0,1}	0 to 4	[-3.51,2.49]	[-1.81,2.74]
Outcome mean	0.87	2.58	0.00	0.00
Outcome std. dev.	0.34	1.47	1.00	1.00
Upcoming local election mean	0.19	0.19	0.16	0.16
Political network scale range	[-0.99,4.02]	[-0.99,4.02]	[-0.82,4.63]	[-0.82,4.63]
Political network scale mean	0.00	0.00	0.00	0.00
Political network scale std. dev.	1.00	1.00	1.00	1.00
Survey year outcome was not asked	2001	2001		

Notes: All specifications include survey fixed effects, and are estimated across ten multiply imputed datasets using OLS. Several underlying elements of the political network scale were imputed in 2012 (see Appendix for details). Standard errors clustered by state are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

social networks—in both columns (1) and (2)—indicate that the effect of increasing the salience of politics on active news consumption is pronounced among respondents in such networks. In both cases, a standard deviation increase in politically-oriented social networks from its mean of zero more than doubles the average effect of upcoming local elections. Figure 1 illustrates these marginal effects over the range of political network scale values in the sample.

These results suggest that news consumption is an important means through which voters in more politically-engaged social networks acquire political information in response to an increased likelihood that their political knowledge will be revealed to their peers. Beyond increasing news consumption for the first time, the results suggest that voters nested in politically-engaged networks

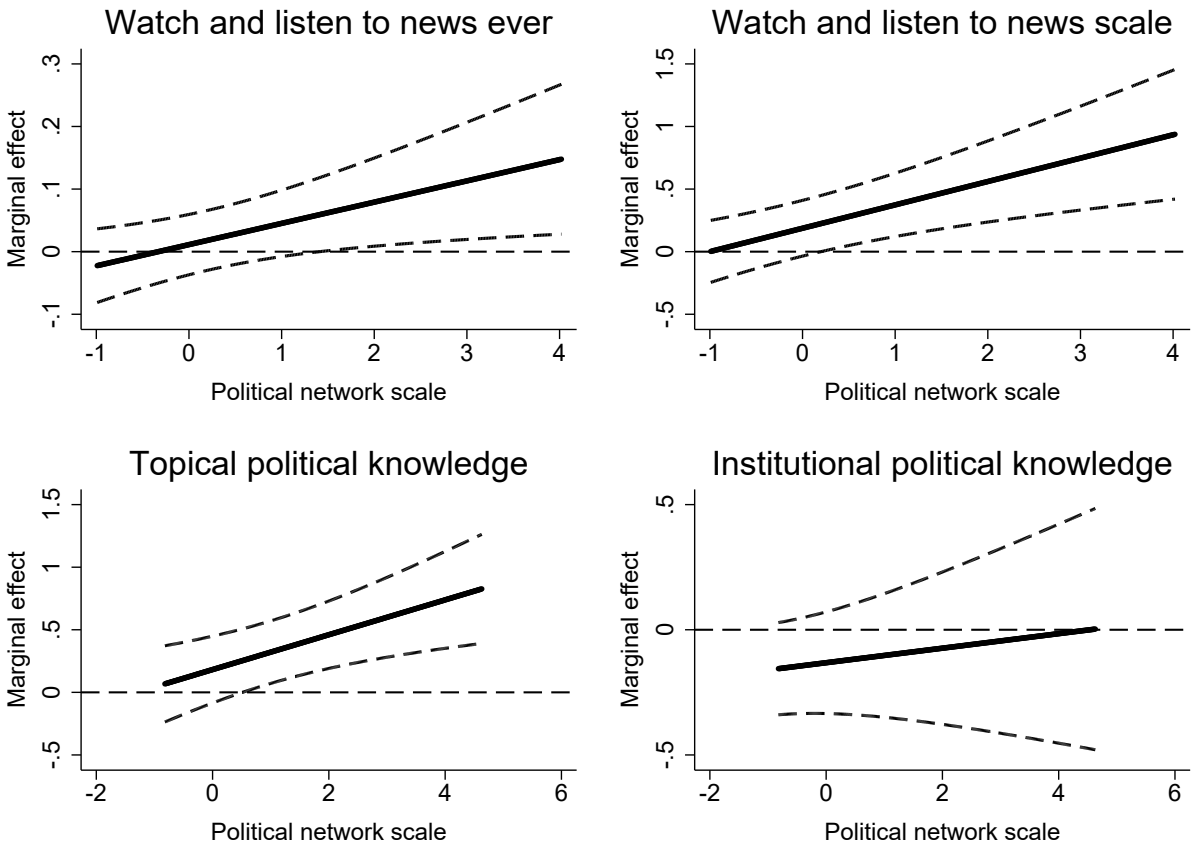

Figure 1: Marginal effect of upcoming local elections on information acquisition, by political network engagement

Notes: Marginal effects are computed using the coefficients from Table 4, over the support of the political network scale for each outcome. Dotted lines denote 95% confidence intervals.

and starting from higher levels of political news consumption ratchet up their news consumption before local elections. While the former finding reinforces the experimental evidence suggesting that social incentives induce less sophisticated voters to acquire political information to meet a minimum standard (H2), the latter result for the consumption scale—which holds even for daily news consumption (see Table A8 in the Appendix)—is consistent with the differentiation effect (H3). As noted above, Table A9 shows that there are diminishing marginal effects of politically-engaged networks.

Column (3) confirms that increased political news consumption translates into greater topical

political knowledge. Further supporting H4, column (3) shows that a standard deviation increase in the political network scale almost doubles the mean effect of an upcoming local election on a voter's topical political knowledge. In contrast, if voters are acquiring information about current affairs for conversations with their peers, they are less likely to acquire or retain institutional knowledge of the political system—which is less likely to be covered in the news or discussed with friends. Consistent with this argument, column (4) shows that there is no significant interaction between upcoming local elections and having politically-oriented social networks for institutional knowledge questions. This also suggests that the findings are not driven by politically-engaged voters—who are also likely to score highly in terms of institutional knowledge—both consuming more news before elections and selecting into generally knowledgeable social groups.

4.4 Robustness checks and alternative interpretations

I first assess the parallel trends concern that voters in states experiencing upcoming local elections started consuming more political news for other reasons. To show that differential trends across states do not explain my findings, panel A in Table 5 first demonstrates that the results are robust to including state-specific election year trends. Furthermore, at the cost of substantially increasing standard errors, panel B shows similar points estimates when such trends are interacted with the political network scale. This more demanding check further indicates that differential trends across those in more and less politically-oriented networks within states are not driving the findings.

Another key concern is that voter sorting, or the characteristics correlated with membership of politically engaged networks, can account for increased political information acquisition before elections. Sorting could explain the results if voters with a taste for news about elections (Hamilton 2004), or a greater sense of civic duty to cast an informed ballot (Feddersen and Sandroni 2006), are also more likely to enter certain social networks. In addition to finding no effect on institutional knowledge above, I now present evidence contrary to such sorting concerns.

First, I conduct a second placebo exercise using neighbor-oriented, as opposed to politically-

Table 5: Robustness and alternative interpretation checks of difference-in-differences estimates

	Watch and listen to news ever (1)	Watch and listen to news scale (2)	Topical political knowledge (3)
Panel A: State-specific election year trends			
Upcoming local election × Political	0.035**	0.187**	0.140**
network scale	(0.015)	(0.060)	(0.049)
Observations	13,030	13,030	17,213
Panel B: State-specific election year trends interacted with political network scale			
Upcoming local election × Political	0.034	0.103	0.115
network scale	(0.021)	(0.064)	(0.110)
Observations	13,030	13,030	17,213
Panel C: Neighborhood network scale placebo test			
Upcoming local election	0.009	0.174*	0.209***
	(0.018)	(0.098)	(0.076)
Upcoming local election × Neighborhood	0.005	0.015	-0.025
network scale	(0.007)	(0.033)	(0.039)
Observations	13,030	13,030	17,213
Panel D: Control for upcoming local election-incumbent victory margin interaction			
Upcoming local election × Political	0.033**	0.190**	0.134**
network scale	(0.015)	(0.061)	(0.055)
Upcoming local election × Municipal	0.078	0.794	0.001
incumbent win margin (last election)	(0.121)	(0.544)	(0.572)
Observations	13,030	13,030	17,213
Panel E: Control for upcoming local election-ENPV interaction			
Upcoming local election × Political	0.032*	0.184**	0.134**
network scale	(0.016)	(0.063)	(0.052)
Upcoming local election × Municipal	0.008	-0.046	0.198
ENPV (last election)	(0.026)	(0.129)	(0.154)
Observations	13,030	13,030	17,213
Panel F: Control for upcoming local election-education interaction			
Upcoming local election × Political	0.047***	0.239***	0.142**
network scale	(0.014)	(0.066)	(0.048)
Upcoming local election × Education	-0.008	0.029	0.046
	(0.011)	(0.061)	(0.029)
Observations	8,330	8,330	12,513
Panel G: Control for upcoming local election-prior turnout interaction			
Upcoming local election × Political	0.033**	0.180***	0.127**
network scale	(0.014)	(0.057)	(0.047)
Upcoming local election × Voted	0.003	-0.000	0.073
for mayor since 2000	(0.024)	(0.085)	(0.086)
Observations	13,030	13,030	13,030
Panel H: Control for upcoming local election-media interaction			
Upcoming local election × Political	0.034**	0.196***	0.143**
network scale	(0.015)	(0.062)	(0.054)
Upcoming local election × Media	-0.000	0.004	0.000
stations within municipality	(0.001)	(0.005)	(0.007)
Observations	13,030	13,030	17,213
Panel I: Exclude members of political and party organizations			
Upcoming local election × Political	0.060***	0.234***	0.196**
network scale	(0.019)	(0.069)	(0.084)
Observations	11,436	11,436	11,436

Notes: See Table 4. Lower-order terms are omitted to save space or when the interpretation is changed by the inclusion of interactive controls.

oriented, social networks. Panel C shows that the effects of upcoming local elections on political information acquisition do not vary with a neighborhood network scale combining the number of neighborhood organizations a respondent has been a member of and the number of meetings they attended in the last year.[28] This indicates that it is only participation in groups likely to value political knowledge, rather than local social groups, that drives information acquisition around elections.

Second, to address the concern that voters interested in following elections sort into more politically-oriented social groups, I simultaneously control for the interaction of indicators of political interest and civic duty with upcoming local elections. Given that individual political interest is itself a function of upcoming local elections, I proxy for interest in local elections using two pre-treatment measures of political competition—the municipal incumbent's victory margin and the effective number of parties (ENPV) at the previous municipal election—and a five-point scale registering an individual's educational attainment. Panels D-F show that the interaction for no indicator of political interest differentially increases political news consumption or political knowledge just before municipal elections. Conversely, the significant interactive effect of politically-oriented networks is highly robust to controlling for these proxies for political interest. Testing the duty-based explanation, panel G similarly demonstrates that citizens that have voted in at least one mayoral election since 2000 are no more likely to acquire information before an election. Again, the estimates for politically-oriented networks are unaffected. Together, these checks provide no evidence to suggest that the larger effect of upcoming local elections among individuals in more politically-oriented networks reflects the individual-level characteristics that could most plausibly explain sorting into such groups.

Another possibility is that individuals in politically-oriented social groups are more likely to passively consume news if it is in greater supply around elections. First, I examine whether the ef-

[28]Neighborhood organizations include pensioner, professional, social, voluntary, religious, neighbor, cultural, sporting and parental organizations.

fect of upcoming local elections is especially large where voters have greater media access. Panel H includes the interaction of an upcoming local election with the number of AM radio stations, FM radio stations, and television antennae located in the municipality. The lack of a significant interaction with such media access, combined with the continuing significant interaction with politically-engaged networks, suggests that the results do not reflect differences in access to news. Second, voters' increased political knowledge before elections could reflect elite mobilization in political networks, rather than greater information acquisition. Panel I assesses this concern by excluding the respondents most likely to be exposed to mobilization: members of political and party organizations. Complementing the finding that upcoming elections increase news consumption—a change that elite mobilization would struggle to induce—the differential effects of upcoming elections, if anything, increase when members of politically-engaged groups are excluded.

5 Conclusion

This paper endogenizes voters' political information, showing that social approval plays a key role in inducing voters to acquire political information. The signaling model highlights how, especially within groups that collectively value knowledge about politics, the prospect of an individual's political knowledge being revealed induces politically unsophisticated voters to acquire information to meet a minimum standard of knowledge within their group, while politically sophisticated voters differentiate themselves by acquiring more information than before. Exploiting experimental and observational empirical strategies, I present a range of tests suggesting that such reputational concerns indeed increase voter information acquisition in Mexico.

The results contribute to the nascent literature showing how social interactions play an important causal role in explaining political behavior. While previous studies have shown that social incentives increase turnout, I find that increasing the likelihood that a voter's political knowledge will be revealed to their peers increases political information acquisition. Such socially-induced

informed participation chimes with recent work similarly showing that political concerns are transmitted through social networks, and can alter political preferences (Jennings, Stoker and Bowers 2009; McClurg 2006; Newman 2014; Sinclair 2012). A deeper understanding of group dynamics would benefit from studies identifying how incentives to acquire political information vary with within-group heterogeneity and the extent to which political discussion is factually or ideologically oriented, how voters source the information they acquire, and why groups value certain issues and how much information is required to meet minimum standards across different types of social group in the population.

My findings similarly highlight how social approval incentives bias political information acquisition toward topical news that can efficaciously establish individual reputations through group discussion. As with media coverage, this is likely to result in voters becoming better informed about recent general-interest news rather than civic understanding (Barabas et al. 2014). This feature also suggests that the social signaling model may generalize to explain information acquisition and communication in groups valuing non-political issues, such as celebrity gossip, film, music, parenting, and sports.

The results also have implications for policy-makers seeking to increase informed political participation and democratic representation. First, the findings highlight the importance of timing: information dissemination is likely to be most effective when, e.g. just before elections, voters face strong social pressures to actively acquire political information. Second, effective information campaigns will likely revolve around accessible and topical information that could form the basis of everyday discussion. Third, the theory highlights "information traps" where differences in political information are perpetuated because the reputational benefits of being informed are most pronounced within social groups that are already most politically-engaged. This represents a trap to the extent that poorly-informed voters consequently fail to support parties representing their interests (e.g. Bartels 2008; Casey 2015; Iversen and Soskice 2015), which may be compounded by political parties in turn becoming less responsive to their interests (e.g. Adams and Ezrow 2009;

Casey 2015). To increase political knowledge across the electorate, my findings suggest the need for targeted public outreach and civic education programs better-suited to instilling institutional understanding (Barabas et al. 2014) and generating interest in politics, although a deeper understanding of differences in political engagement *across* groups remains a key question for future research.

References

Abrams, Samuel, Torben Iversen and David Soskice. 2011. "Informal social networks and rational voting." *British Journal of Political Science* 41(2):229–257.

Adams, James and Lawrence Ezrow. 2009. "Who do European parties represent? How Western European parties represent the policy preferences of opinion leaders." *Journal of Politics* 71(1):206–223.

Ahn, T.K., Robert Huckfeldt and John Barry Ryan. 2014. *Experts, Activists, and Democratic Politics: Are Electorates Self-Educating?* Cambridge University Press.

Aldashev, Gani. 2010. "Political Information Acquisition for Social Exchange." *Quarterly Journal of Political Science* 5(1):1–25.

Baker, Andy, Barry Ames and Lucio R. Renno. 2006. "Social context and campaign volatility in new democracies: networks and neighborhoods in Brazil's 2002 Elections." *American Journal of Political Science* 50(2):382–399.

Barabas, Jason, Jennifer Jerit, William Pollock and Carlisle Rainey. 2014. "The question (s) of political knowledge." *American Political Science Review* 108(4):840–855.

Bartels, Larry M. 2008. *Unequal democracy: The political economy of the New Gilded Age*. Princeton University Press.

Baumeister, Roy F. and Mark R. Leary. 1995. "The need to belong: desire for interpersonal attachments as a fundamental human motivation." *Psychological Bulletin* 117(3):497–529.

Bénabou, Roland and Jean Tirole. 2006. "Incentives and Prosocial Behavior." *American Economic Review* 96(5):1652–1678.

Casey, Katherine. 2015. "Crossing Party Lines: The Effects of Information on Redistributive Politics." *American Economic Review* 105(8):2410–2428.

Cho, Inkoo and David Kreps. 1987. "Signaling Games and Stable Equilibria." *Quarterly Journal of Economics* 102(2):179–221.

DellaVigna, Stefano, John A. List, Ulrike Malmendier and Gautam Rao. 2017. "Voting to Tell Others." 84(1):143–181.

Delli Carpini, Michael X. and Scott Keeter. 1996. *What Americans Know about Politics and Why It Matters*. Yale University Press.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. Addison Wesley.

Eifert, Benn, Edward Miguel and Daniel N. Posner. 2010. "Political Competition and Ethnic Identification in Africa." *American Journal of Political Science* 54(2):494–510.

Feddersen, Timothy and Alvaro Sandroni. 2006. "Ethical voters and costly information acquisition." *Quarterly Journal of Political Science* 1(3):287–311.

Gerber, Alan S., Dean S. Karlan and Daniel Bergan. 2009. "Does the Media Matter? A Field Experiment Measuring the Effect of Newspapers on Voting Behavior and Political Opinions." *American Economic Journal: Applied Economics* 1(2):35–52.

Gerber, Alan S., Donald P. Green and Christopher W. Larimer. 2008. "Social pressure and voter turnout: Evidence from a large-scale field experiment." *American Political Science Review* 102(1):33–48.

Gerber, Alan S., Gregory A. Huber, David Doherty and Conor M. Dowling. 2016. "Why people vote: Estimating the social returns to voting." *British Journal of Political Science* 46(2):241–264.

Gidengil, Elisabeth, Rachel Meneguello, Carlos Shenga and Elizabeth Zechmeister. 2016. "Political Knowledge Sub-Committee Report." Comparative Study of Electoral Systems Report.

Gomez, Brad T. and J. Matthew Wilson. 2006. "Cognitive heterogeneity and economic voting: A comparative analysis of four democratic electorates." *American Journal of Political Science* 50(1):127–145.

Hamilton, James. 2004. *All the news that's fit to sell: How the market transforms information into news*. Princeton University Press.

Huckfeldt, R. Robert and John Sprague. 1995. *Citizens, politics and social communication: Information and influence in an election campaign*. Cambridge University Press.

Huckfeldt, Robert, Paul E. Johnson and John Sprague. 2004. *Political Disagreement: The Survival of Diverse Opinions within Communication Networks*. Cambridge University Press.

Iversen, Torben and David Soskice. 2015. "Information, Inequality, and Mass Polarization: Ideology in Advanced Democracies." *Comparative Political Studies* 48(13):1781–1813.

Iyengar, Shanto and Donald R. Kinder. 1987. *News That Matters: Television and American Opinion*. University of Chicago Press.

Jennings, M. Kent, Laura Stoker and Jake Bowers. 2009. "Politics across generations: Family transmission reexamined." *Journal of Politics* 71(3):782–799.

Jerit, Jennifer, Jason Barabas and Toby Bolsen. 2006. "Citizens, knowledge, and the information environment." *American Journal of Political Science* 50(2):266–282.

Kuran, Timur. 1991. "Now out of never: The element of surprise in the East European revolution of 1989." *World Politics* 44(1):7–48.

Larcinese, Valentino. 2005. "Electoral Competition and Redistribution with Rationally Informed Voters." *BE Journal of Economic Analysis and Policy* 4(1):1–28.

Larcinese, Valentino. 2007. "The instrumental voter goes to the newsagent: Demand for information, marginality and the media." *Journal of Theoretical Politics* 19(3):249–276.

Lawson, Chappell and James A. McCann. 2005. "Television News, Mexico's 2000 Elections and Media Effects in Emerging Democracies." *British Journal of Political Science* 35(1):1–30.

Lenz, Gabriel S. 2013. *Follow the leader? How voters respond to politicians' policies and performance*. University of Chicago Press.

Mailath, George J. 1987. "Incentive Compatibility in Signaling Games with a Continuum of Types." *Econometrica* 55(6):1349–65.

Marshall, John. 2017. "Political information cycles: When do voters sanction incumbent parties for high homicide rates?" Working paper.

McClendon, Gwyneth H. 2014. "Social Esteem and Participation in Contentious Politics: A Field Experiment at an LGBT Pride Rally." *American Journal of Political Science* 58(2):279–290.

McClurg, Scott D. 2006. "The electoral relevance of political talk: Examining disagreement and expertise effects in social networks on political participation." *American Journal of Political Science* 50(3):737–754.

Newman, Benjamin J. 2014. "My Poor Friend: Financial Distress in One's Social Network, the Perceived Power of the Rich, and Support for Redistribution." *Journal of Politics* 76(1):126–138.

Pande, Rohini. 2011. "Can informed voters enforce better governance? Experiments in low-income democracies." *Annual Review of Economics* 3(1):215–237.

Prior, Markus. 2007. *Post-broadcast democracy: How media choice increases inequality in political involvement and polarizes elections*. Cambridge University Press.

Richey, Sean. 2008. "The autoregressive influence of social network political knowledge on voting behaviour." *British Journal of Political Science* 38(3):527–542.

Sinclair, Betsy. 2012. *The Social Citizen: Peer Networks and Political Behavior*. University of Chicago Press.

Sokhey, Anand Edward and Scott D. McClurg. 2012. "Social networks and correct voting." *Journal of Politics* 74(3):751–764.

Walsh, Katherine Cramer. 2004. *Talking about politics: Informal groups and social identity in American life*. University of Chicago Press.

World Bank. 2016. "Making politics work for development: Harnessing transparency and citizen engagement." World Bank Working Paper 106337.

A Appendix

Contents

A.1 Proofs A1

A.2 Variable definitions A5

A.2.1 Experimental data A5

A.2.2 ENCUP survey data A8

A.3 Additional experimental results A11

A.4 Additional observational results A17

A.1 Proofs

Proof of Proposition 1. First, consider the case of a fully separating equilibrium, where $\beta(n^*(\theta)) = \theta, \forall\theta$ given the equilibrium strategy $n^*(\theta)$. Given the maximand in equation (2), call it $u(\theta,\beta,n)$, is twice-differentiable on $[\underline{\theta},\overline{\theta}]^2 \times [0,\infty)$, $u_\beta > 0$, $u_{\theta n} < 0$, the convexity of $c(n,\theta)$ ensures a unique (bounded) maximizer solving $u_n(\theta,\theta,n) = 0$, and $u_\beta > 0$ implies that $\underline{\theta}$ freely maximizes under the intuitive criterion (akin to a Riley equilibrium), I invoke Theorems 1 and 2 of Mailath (1987). Consequently, equation (3)—which follows from the derivative of an inverse function and $n = n^*(\theta)$—defines the incentive compatibility constraint for all types θ, which is continuously differentiable on $[\underline{\theta},\overline{\theta}]$. Integrating over θ yields equilibrium information acquisition, as shown in equation (4). Incentive compatibility and the existence of a unique solution for $\underline{\theta}$ (namely, $n^*(\underline{\theta};p,w) = 0$) imply the existence of a separating equilibrium, and its uniqueness among separating equilibria.

Second, consider the case of a semi-separating equilibria where there exist some low θ types that do not acquire information because $pw\beta(n) - c(n,\theta) < 0, \forall n$ (i.e. a corner solution, given $n \in [0,\infty)$). For such types, $n^*(\theta;p,w) = 0$. Given that u is monotonically increasing in θ, and

provided that $n^*(\overline{\theta};p,w) > 0$ (a necessary condition for a semi-separating equilibrium), the intermediate value theorem implies that there exists an $\tilde{\theta}(p,w)$ and $n^*(\tilde{\theta}(p,w);p,w)$ where type $\tilde{\theta}$ is indifferent between acquiring information to separate from low types and pooling with low types:

$$pw\tilde{\theta} - c(n^*(\tilde{\theta};p,w),\tilde{\theta}) = \frac{pw}{F(\tilde{\theta})}\int_{\underline{\theta}}^{\tilde{\theta}} \theta dF(\theta). \tag{A1}$$

Monotonicity of the maximization problem in θ implies that all types $\theta \leq \tilde{\theta}(p,w)$ will prefer to acquire $n^* = 0$ news rather than $n^*(\tilde{\theta}(p,w);p,w)$. For such types, $\beta(n^* = 0) = \frac{1}{F(\tilde{\theta}(p,w))}\int_{\theta}^{\tilde{\theta}(p,w)} \theta dF(\theta), \forall n < n^*(\tilde{\theta}(p,w);p,w)$, because they cannot be differentiated in equilibrium. For $\theta > \tilde{\theta}(p,w)$, exactly the characteristics of the fully separating equilibrium apply where $n^*(\underline{\theta}) = 0$ and they integrate from $\tilde{\theta}(p,w)$ to θ in order to calculate $n^*(\theta;p,w)$.

Third, consider the case of a fully pooling equilibrium where $n(\theta;p,w) = \hat{n}, \forall\theta$. Such an equilibrium requires that: (1) the least sophisticated type is willing to pool, i.e. $w\mathbb{E}[\theta] - c(\hat{n}) \geq pw\underline{\theta} + (1-p)w\mathbb{E}[\theta,\underline{\theta}]$, and thus $\hat{n} \in [0, c^{-1}(pw(\mathbb{E}[\theta] - \underline{\theta}))]$; and (2) off-equilibrium beliefs $\beta(n \neq \hat{n})$ discourage deviations. (Note that $\mathbb{E}[\theta] = \int_{\underline{\theta}}^{\overline{\theta}} \theta dF(\theta)$.) Henceforth, focus on the parameter space where (1) holds. Now consider a deviation by the most sophisticated type $\overline{\theta}$ to $n' + e$, where $e > 0$. This would be profitable for $\overline{\theta}$ and no other types (as $\varepsilon \downarrow 0$) where n' is implicitly defined by

$$\begin{aligned} pw(\overline{\theta} - \varepsilon) + (1-p)w\mathbb{E}[\theta] - c(n', \overline{\theta} - \varepsilon) &= w\mathbb{E}[\theta] - c(\hat{n}, \overline{\theta} - \varepsilon) && \text{(A2)} \\ \implies c(n', \overline{\theta} - \varepsilon) &= c(\hat{n}, \overline{\theta} - \varepsilon) + pw(\overline{\theta} - \varepsilon - \mathbb{E}[\theta]). && \text{(A3)} \end{aligned}$$

The single-crossing assumption on $c(n,\theta)$ ensures that such a deviation exists. By the intuitive criterion, $\beta(n' + e) = \overline{\theta}$, because the deviation $n' + e$ is dominated for all other types. (This argument extends to other sufficiently sophisticated types.) Hence, no fully pooling equilibrium that satisfies the intuitive criterion exists. The same logic applies to incomplete pooling where

all types $\theta \geq \tilde{\theta}$ pool at $\hat{n} > 0$ and p and w are insufficiently large that types $\theta < \tilde{\theta}$ would never strategically acquire information. ■

Proof of Proposition 2. I examine the comparative static predictions in order, differentiating the equilibrium outcomes by the respective parameters. First, the results at the extensive margin follow by differentiating $S := 1 - F(\tilde{\theta}(p,w))$. I first use the implicit function theorem to derive:

$$\frac{d\tilde{\theta}(p,w)}{dp} = -\frac{w\left[\tilde{\theta}(p,w) - \frac{\int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta dF(\theta)}{F(\tilde{\theta}(p,w))}\right]}{D} < 0, \tag{A4}$$

$$\frac{d\tilde{\theta}(p,w)}{dw} = -\frac{p\left[\tilde{\theta}(p,w) - \frac{\int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta dF(\theta)}{F(\tilde{\theta}(p,w))}\right]}{D} < 0, \tag{A5}$$

$$\begin{aligned}\frac{d\tilde{\theta}(p,w)\partial\tilde{\theta}(p,w)}{dp\partial w} &= \frac{d\tilde{\theta}(p,w)\partial\tilde{\theta}(p,w)}{dw\partial p} \\ &= \frac{c_\theta(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))\left[\tilde{\theta}(p,w) - \frac{\int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta dF(\theta)}{F(\tilde{\theta}(p,w))}\right]}{D^2} < 0,\end{aligned} \tag{A6}$$

where the signs follow from noting that $c_\theta < 0$ and $\tilde{\theta}(p,w) > [F(\theta)]^{-1}\int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta dF(\theta)$ (which follows because $[F(\theta)]^{-1}\int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta dF(\theta)$ is the expectation of θ within $[\underline{\theta},\tilde{\theta}]$), and given that the denominator is positive:

$$\begin{aligned}D := {} & pw\left[1 - \frac{F(\tilde{\theta}(p,w))F'(\tilde{\theta}(p,w))\tilde{\theta}(p,w) - F'(\tilde{\theta}(p,w))\int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta dF(\theta)}{[F(\tilde{\theta}(p,w))]^2}\right] \\ & -c_\theta(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w)) > 0,\end{aligned} \tag{A7}$$

given $F' > 0$, $F(\tilde{\theta}(p,w)) < 1$ (provided $\tilde{\theta}(p,w)) \neq \overline{\theta}$), $\int_{\underline{\theta}}^{\tilde{\theta}(p,w)} \theta F'(\theta)d\theta > \tilde{\theta}(p,w)F'(\tilde{\theta}(p,w))$, and the envelope theorem implies that $\frac{\partial n^*(\tilde{\theta}(p,w))}{\partial\tilde{\theta}(p,w)} = 0$ because the indifference condition is evalu-

ated at the value function maximized at $n^*(\tilde{\theta}(p,w),p,w)$. Then,

$$\frac{\partial S}{\partial p} = -F'(\tilde{\theta}(p,w))\frac{d\tilde{\theta}(p,w)}{dp} > 0, \tag{A8}$$

$$\frac{\partial S}{\partial w} = -F'(\tilde{\theta}(p,w))\frac{d\tilde{\theta}(p,w)}{dw} > 0, \tag{A9}$$

$$\frac{\partial^2 S}{\partial p \partial w} = -\left[F''(\tilde{\theta}(p,w))\frac{d\tilde{\theta}(p,w)}{dp}\frac{d\tilde{\theta}(p,w)}{dw} + F'(\tilde{\theta}(p,w))\frac{d^2\tilde{\theta}(p,w)}{dpdw}\right] > 0. \tag{A10}$$

The final condition holds provided that F'' is not too large.

Second, I examine the effects of p and w on $n^*(\theta;p,w)$. First note that equation (3) in the main text demonstrates that $n^*(\theta;p,w)$ is increasing in θ. Given this, for $\theta \geq \tilde{\theta}(p,w) > \underline{\theta}$, the implicit function theorem yields:

$$\frac{dn^*(\theta;p,w)}{dp} = \int_{\tilde{\theta}(p,w)}^{\theta} \frac{w}{c_n(n^*(\theta;p,w),\theta)}d\theta - \frac{pw}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}\frac{\partial\tilde{\theta}(p,w)}{\partial p} + \frac{\partial n^*(\tilde{\theta}(p,w));p,w)}{\partial p}, \tag{A11}$$

$$\frac{dn^*(\theta;p,w)}{dw} = \int_{\tilde{\theta}(p,w)}^{\theta} \frac{p}{c_n(n^*(\theta;p,w),\theta)}d\theta - \frac{pw}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}\frac{\partial\tilde{\theta}(p,w)}{\partial w} + \frac{\partial n^*(\tilde{\theta}(p,w));p,w)}{\partial w}, \tag{A12}$$

where the first two terms for each expression reflect the differentiation effect, while the third term reflects the level effect coming from a shift in $n^*(\tilde{\theta}(p,w);p,w)$. The proposition focuses only on the former effect, which is clearly positive given that $\frac{\partial\tilde{\theta}(p,w)}{\partial w} < 0$, $\frac{\partial\tilde{\theta}(p,w)}{\partial w} < 0$, and $c_n > 0$. The level effect is also positive from inspection of equation (A8).

Furthermore,

$$\frac{dn^*(\theta;p,w)\partial n^*(\theta;p,w)}{dp\partial w} = \int_{\tilde{\theta}(n,W)}^{\theta} \frac{1}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))} d\theta$$
$$-\frac{\tilde{\theta}(p,w)}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}\left[\frac{\partial\tilde{\theta}(p,w)}{\partial p}\left(1-\frac{wc_{nn}(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}\right)\right.$$
$$\frac{\partial\tilde{\theta}(p,w)}{\partial w}\left(1-\frac{wc_{n\theta}(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}\right)$$
$$\left.+w\frac{\partial^2\tilde{\theta}(p,w)}{\partial p\partial w}\right]+\frac{\partial^2 n^*(\tilde{\theta}(p,w));p,w)}{\partial w\partial p}, \tag{A13}$$

which is positive given the differentials for $\tilde{\theta}(p,w)$ above, and a sufficient condition that:

$$w < \max\left\{\frac{c_{nn}(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}, \frac{c_{n\theta}(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}{c_n(n^*(\tilde{\theta}(p,w);p,w),\tilde{\theta}(p,w))}\right\}.\blacksquare \tag{A14}$$

A.2 Variable definitions

A.2.1 Experimental data

Political quiz score. Number of political quiz questions, out of 10, that the respondent correctly answered. The quiz included the following questions (where the order of answers but not questions was randomized):

1. What party obtained the fourth largest vote share in the elections for Federal Deputy? [A: MC; **B: MORENA**; C: PRD; D: PVEM]

2. On the 29th May 2015, the Tribunal Electoral del Poder Judicial de la Federación revoked the 3-day suspension of campaign advertising on radio and television of which party? [A: MORENA; B: PAN; C: PRD; **D: PVEM**]

3. According to the National Electoral Institute, how many polling stations in Chiapas, Guerrero and Oaxaca were not installed due to social conflict? [A: 36; **B: 88**; C: 125; D: 200]

4. The candidate from which party won the Governor's election in Queretaro? [**A: PAN**; B: PRD; C: PRI; D: Independent]

5. Which of the following states did no hold an election for Governor on the 7th June 2015? [A: Colima; **B: Morelos**; C: Nueva León; D: San Luis Potosí]

6. Who has responsible for setting fire to ballots in Oaxaca? [**A: the CNTE**; B: people from the PRD; C: people from the PRI; the SNTE]

7. On 3rd June 2015, the candidate for Federal Deputy, Ángel Luna Munguía, was assassinated in his campaign office. From what party was he? [A: MORENA: B: PAN; **C: PRD**; D: PRI]

8. The candidate from which party won the election to become delegational head of Álvaro Obregón? [A: MORENA: **B: PAN**; C: PRD; D: PRI]

9. What institution is responsible for verifying the Programa de Resultados Electorales Preliminares (PREP) information system used to verify the Federal Deputy elections in 2015? [A: the U.S. government; B: the federal government; C: Tribunal Electoral del Poder Judicial de la Federación (TEPJF); **D: Universidad Nacional Autnoma de México (UNAM)**]

10. For which party was ex-footballer Cuauhtémoc Blanco a mayoral candidate in Cuernavaca, Morelos? [A: MC; B: MORENA; C: PRD; **D: PSD**]

The ordering of multiple choices was randomized.

Social treatment. Indicator coded 1 for respondents that were randomly assigned to receive the social treatment informing voters that their performance on the quiz will be sent to the email addresses of the three friends that they enumerated earlier in the baseline survey.

Sophisticated. Indicator coded 1 for respondents that answered all three questions on the baseline survey correctly. The baseline survey asked the following questions (where the order of answers but not questions was randomized):

1. Which party was fined MXN$180 million for violating the electoral law in April 2015? [A: PRI; B: PAN; C: PRD; **D: Partido Verde (PVEM)**; E: Partido Nueva Alianza (PANAL); F: Don't know]

2. For how long do federal deputies serve in office? [A: 1 year; B: 2 years; **C: 3 years**; D: 4 years; E: Don't know]. (three years)

3. From which party was José Luis Abarca Velázquez, the mayor of Iguala? [A: PRI; B: PAN; **C: PRD**; D: Partido Verde (PVEM); E: Partido Nueva Alianza (PANAL); F: Don't know]

Learned more than normal. Indicator coded 1 for respondents that indicated on the endline survey (before the quiz) that they learned more than normal about the election campaign.

Hours of internet news a week (baseline). The number of hours of news consumed on the internet week, according to the baseline survey.

Follow national news. Indicator coded 1 for respondents that report following the national news, according to the baseline survey.

Demonstrate knowledge. Indicator coded 1 for respondents that stated on the baseline survey that they acquire information in order to demonstrate to their friends and family that they are informed about politics.

High interest friends. Indicator coded 1 for respondents that in the baseline survey rated their three friends' political interest at 5 or greater on a scale from 0 to 10.

Year of birth. Year of birth in years.

Political interest. A scale ranging from 0 to 10 rating an individual's self-reported interest in politics in the baseline survey.

No news. Indicator coded 1 for respondents that report not following any particular type of news.

Party organization. Indicator coded 1 for respondents that report being a member of a party organization.

Items listed. Count of the number of items that respondents say that they engaged in during recent weeks: attend a campaign activity; watch the news on television; write an article about politics on the internet; and, in the case of a random subset of respondents, talk about the questions on the quiz with a friend.

List experiment treatment. Indicator coded 1 for respondents that were randomly assigned to receive the final item listed in the previous variable.

Discussed study with other students. Indicator coded 1 for respondents that said that spoke with (one, some, or many) fellow students about the study.

Time per question. Average amount of time taken to answer each question.

Clicks per question. Average number of clicks on the screen when answering each question.

Interest in politics. Eleven-point scale ranging from 0 to 10 denoting the respondent's stated level of interest in politics in the second survey (before the quiz).

Acquire information to choose best candidate/due to interest/as a duty/to speak with friends/for work/not important. Indicator coded 1 for respondents that, in the second survey, report acquiring political information for these respective reasons.

Estimated friend score. The respondent's estimate of the number of questions that they believe that the three friends they listed on the first survey would have answered correctly.

Political interest of friends. A scale ranging from 0 to 10 rating an individual's perceived interest in politics of their friends in the second survey (after the quiz).

Quiz results sent to 3 friends. Indicator coded 1 for respondents that stated that they believed their quiz results would be sent to 3 of their friends. The other answers were 0 or all students.

A.2.2 ENCUP survey data

Upcoming local election. Indicator coded 1 for respondents living in a state/municipality with an upcoming local election occurring within the year of the survey. States/municipalities where an election has already occurred within the year of the survey are coded 0.

Months until local election. Number of months until the next local election.

Watch and listen to news and political programs ever/monthly/weekly/daily. Indicator coded 1 for a respondent that answers that they watch political programs or listen to news at least ever/once a month/at least once a week/daily. ("¿Qué tan seguido escucha noticias o ve programas sobre política?")

Watch and listen to news and political programs scale. 5-point scale from 0 to 4, with values corresponding to levels of watching and listening to new and political programs (in ascending order).

Topical political knowledge. First factor from a factor analysis containing the following topical questions: What is the name of the youth movement that recently started in Mexico? (2012) Where was the plan to build an airport that was subsequently abandoned due to local pressure? (2003, 2005) Which political party intends to charge VAT on medicines, food, and tuition? (2001) Which party holds your state governorship? (2001, 2003, 2005, 2012) What is the name of your state governor? (2001)

Institutional political knowledge. First factor from a factor analysis containing the following topical questions: How many years do federal representatives serve for? (2001, 2003, 2005, 2012) What are the three separated powers of government? (2012) Who has the authority to approve changes to the constitution? (2001)

Political network scale. A standardized summative rating scale combining the following three variables: the number of political organizations (general political, party, or cooperative) that a respondent reports being a member of, or previously being a member of; the number of political organizations at which an individual has attended a meeting during the last year; and a scale measuring the regularity with which respondents discuss problems in the community with friends and neighbors, ranging through never (coded 0), occasionally (coded 1) and frequently (coded 2). The final component of the scale and the cooperative organization indicator were not asked about in the 2012 survey, and party organizations were not asked about in 2001; accordingly, I multiply

imputed these responses over ten datasets using the following pre-treatment variables: survey and municipality fixed effects, gender, age, indigenous language speaker, and Catholic. As noted in the main text, the scale has a Cronbach's alpha of 0.59.

Neighborhood network scale. A standardized summative rating scale combining the following three variables: the number of civic organizations (pensioner, professional, social, voluntary, religious, neighbor, cultural, sporting and parental organizations) that a respondent reports being a member of, or previously being a member of; and the number of neighborhood organizations at which an individual has attended a meeting during the last year. The scale has a Cronbach's alpha of 0.58.

Municipal incumbent win margin (last election). The difference in vote share between the incumbent and second-placed finisher at the previous municipal mayoral election. In *Usos y Custombres* in Oaxaca, the incumbent win margin is set to the maximum of 1.

Municipal ENPV (last election). The effective number of political parties (by vote share) at the previous municipal mayoral election. In *Usos y Custombres* in Oaxaca, ENPV is set to the minimum of 1.

Education. 5-point scale, where 0 is less than completed primary education, 1 is a maximum education level of completing high school, 2 is a maximum level of completing lower secondary education, 3 is a maximum level of complete secondary education (*preparatoria*), and 4 is at least a university degree.

Voted for mayor since 2000. Indicator coded 1 for individuals that have reported voting in their municipal election in 2000.

Media stations within municipality. Total number of AM, FM, and television stations with antennae located within the municipality.

A.3 Additional experimental results

Tables A1 and A2 respectively show balance across 50 pre-treatment variables in the final sample and the initial assignment.[29] The control mean provides the baseline summary statistics for the sample, while the treatment effect column and associated standard error examine differences between treatment and control participants. Consistent with chance, only 5 of the variables show a significant difference (at the 10% level) in the final sample, while only 4 differ significantly in the entire sample. The fact that these are the same variables lends further suggests that there is no differential attrition.

Table A3 reports the results of a manipulation check, asking respondents how many of their friends they believe will receive the results of the political knowledge quiz. The results clearly demonstrate that treated respondents were substantially more likely to correctly recall that the results of the quiz would be sent to 3 of their friends at the time of the endline. Moreover, column (2) shows that sophisticated voters were no more likely to correctly recall their treatment assignment.

Table A4 re-estimates the main experimental results without including controls to address imbalances across treatment status. Unsurprisingly, given that the treatment is negatively correlated with baseline political interest and positively correlated with believing that acquiring political information is unimportant and not following the news, the level effect of the treatment declines. However, the main experimental findings with respect to the heterogeneous effects are not substantively unaffected.

Table A5 re-estimates the main experimental results using an ordered logit specification. The estimates are qualitatively similar, and if anything more precisely estimated.

[29] I use the final sample of 539 respondents used for the main analysis, although the results are unchanged if the single dropped observation with a missing value for interest in politics is included.

Table A1: Balance tests for the final sample

Pre-treatment variable	Control mean	Treatment effect	Standard error	Pre-treatment variable	Control mean	Treatment effect	Standard error
Latitude	19.995	0.061	(0.312)	Hours of internet news a week	5.655	-0.140	(0.405)
Longitude	-98.720	-0.395	(0.433)	Hours of radio news a week	2.558	-0.136	(0.270)
Year of birth	1992.935	0.322*	(0.176)	Hours of television news a week	2.462	-0.047	(0.269)
Male	0.695	-0.061	(0.041)	Follow local news	0.315	-0.062	(0.039)
Politics or international relations student	0.201	0.026	(0.035)	Follow national news	0.882	-0.009	(0.028)
Total correct answers	2.477	-0.011	(0.136)	Follow international news	0.713	0.029	(0.038)
Sophisticated	0.688	0.000	(0.040)	Follow state news	0.527	-0.035	(0.043)
Interest in politics	7.832	-0.358*	(0.191)	Follow no news	0.000	0.012*	(0.007)
Political interest of friends	7.051	-0.126	(0.175)	Don't know if follow news	0.004	-0.004	(0.004)
High interest friends	0.891	-0.024	(0.028)	Student organization	0.595	0.043	(0.042)
Frequency of political discussion with friends	3.358	-0.058	(0.082)	Voluntary organization	0.491	0.020	(0.043)
Know more than friends	3.713	0.021	(0.099)	Syndicate	0.004	-0.004	(0.004)
Respect for knowledge about politics	8.100	-0.218	(0.183)	Religious organization	0.179	0.036	(0.034)
Participate in political conversations	3.466	-0.054	(0.057)	Citizen organization	0.133	-0.025	(0.028)
Comfortable when don't know about politics	3.018	-0.030	(0.090)	Neighbor organization	0.168	-0.045	(0.030)
Acquire information to choose best candidate	0.824	-0.021	(0.034)	Cultural organization	0.240	0.029	(0.038)
Acquire information to speak with friends	0.258	-0.016	(0.037)	Party organization	0.154	-0.066**	(0.028)
Acquire information due to interest	0.595	-0.057	(0.043)	Sports organization	0.477	0.000	(0.043)
Acquire information for work	0.204	0.057	(0.036)	Other organization	0.036	-0.001	(0.016)
Acquire information as a civic duty	0.713	0.006	(0.039)	Total organizations	2.584	0.008	(0.060)
Demonstrate knowledge	0.061	0.016	(0.022)	PAN partisan	0.437	-0.010	(0.043)
Acquiring information not important	0.011	0.024*	(0.013)	PRI partisan	0.140	-0.009	(0.030)
Don't know why acquire	0.000	0.008	(0.005)	PRD partisan	0.039	-0.009	(0.016)
Attrition incentive	0.516	0.011	(0.043)	MORENA partisan	0.007	0.012	(0.010)
Hours of newspaper news a week	2.401	0.207	(0.260)	Non-partisan	0.323	-0.019	(0.040)

Notes: All specifications are difference in means between the respondents treated by the social treatment and those that were not. Each regression includes 539 observations, with the exception of missingness on know more than friends, respect for knowledge about politics, and comfortable when don't know about politics. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A2: Balance tests from the initial assignment in the baseline survey

Pre-treatment variable	Control mean	Treatment effect	Standard error	Pre-treatment variable	Control mean	Treatment effect	Standard error
Latitude	19.868	0.262	(0.266)	Hours of internet news a week	5.555	-0.148	(0.329)
Longitude	-98.539	-0.396	(0.500)	Hours of radio news a week	2.561	-0.145	(0.221)
Year of birth	1993.055	0.193	(0.015)	Hours of television news a week	2.563	-0.109	(0.023)
Male	0.679	-0.045	(0.035)	Follow local news	0.305	-0.041	(0.033)
Politics or international relations student	0.182	0.027	(0.029)	Follow national news	0.892	-0.031	(0.024)
Total correct answers	2.495	-0.035	(0.115)	Follow international news	0.697	0.062*	(0.032)
Sophisticated	0.647	0.021	(0.035)	Follow state news	0.508	-0.005	(0.036)
Interest in politics	7.778	-0.299*	(0.158)	Follow no news	0.003	0.008	(0.006)
Political interest of friends	7.032	-0.214	(0.148)	Don't know if follow news	0.003	-0.003	(0.003)
High interest friends	0.889	-0.033	(0.025)	Student organization	0.587	0.05	(0.035)
Frequency of political discussion with friends	3.350	-0.059	(0.069)	Voluntary organization	0.513	-0.002	(0.036)
Know more than friends	3.691	0.087	(0.084)	Syndicate	0.003	-0.003	(0.003)
Respect for knowledge about politics	8.079	-0.122	(0.151)	Religious organization	0.184	0.024	(0.029)
Participate in political conversations	3.453	-0.061	(0.048)	Citizen organization	0.124	-0.03	(0.023)
Comfortable when don't know about politics	3.019	-0.043	(0.075)	Neighbor organization	0.166	-0.035	(0.026)
Acquire information to choose best candidate	0.826	-0.035	(0.029)	Cultural organization	0.266	0.023	(0.033)
Acquire information to speak with friends	0.284	-0.03	(0.032)	Party organization	0.137	-0.051**	(0.023)
Acquire information due to interest	0.587	-0.017	(0.036)	Sports organization	0.476	-0.003	(0.036)
Acquire information for work	0.203	0.062**	(0.031)	Other organization	0.039	-0.007	(0.014)
Acquire information as a civic duty	0.711	-0.013	(0.033)	Total organizations	2.542	-0.01	(0.054)
Demonstrate knowledge	0.068	0.001	(0.018)	PAN partisan	0.413	0.012	(0.036)
Acquiring information not important	0.011	0.014	(0.010)	PRI partisan	0.142	-0.032	(0.024)
Don't know why acquire	0.000	0.005	(0.004)	PRD partisan	0.039	-0.007	(0.014)
Attrition incentive	0.497	0.005	(0.036)	MORENA partisan	0.008	0.013	(0.009)
Hours of newspaper news a week	2.502	0.074	(0.222)	Non-partisan	0.326	-0.008	(0.034)

Notes: All specifications are difference in means between the respondents treated by the social treatment and those that were not. Numbers of observations vary with non-responses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A3: Social treatment manipulation check

	Quiz results sent to 3 friends	
	(1)	(2)
Social treatment	0.583***	0.586***
	(0.035)	(0.061)
Sophisticated		0.026
		(0.039)
Social treatment × Sophisticated		-0.005
		(0.074)
Observations	539	539
Outcome range	{0,1}	{0,1}
Control outcome mean	0.09	0.09
Social treatment mean	0.48	0.48
Sophisticated range		{0,1}
Sophisticated mean		0.69
Test: Social treatment + Social treatment × Sophisticated = 0 (p value)		0.00

Notes: All specifications control for year of birth fixed effects, baseline interest in politics, and indicators for membership of a party organization, believing that acquiring information is not important, and following no news, and are estimated using ordered logit. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A4: Main experimental results without controls for imbalances

	Political quiz score (1)	Political quiz score (2)	Political quiz score (3)
Social treatment	-0.192	0.445	-0.078
	(0.178)	(0.294)	(0.570)
Sophisticated		1.796***	0.511
		(0.244)	(0.796)
Social treatment × Sophisticated		-0.926**	0.771
		(0.359)	(0.987)
High interest friends			0.132
			(0.450)
Social treatment × High interest friends			0.776
			(0.665)
Sophisticated × High interest friends			1.331
			(0.842)
Social treatment × Sophisticated			-2.045*
× High interest friends			(1.067)
Observations	539	539	529
Outcome range	0 to 10	0 to 10	0 to 10
Control outcome mean	5.74	5.74	5.74
Control outcome standard deviation	2.11	2.11	2.12
Social treatment mean	0.48	0.48	0.48
Sophisticated range		{0,1}	{0,1}
Sophisticated mean		0.69	0.69
Other interaction mean			0.88
Test: Social treatment + Social treatment × High interest friends = 0 (p value)			0.04
Test: Social treatment + Social treatment × Sophisticated = 0 (p value)			0.39

Notes: The smaller sample size in column (3) reflects missingness on friends' interest in politics. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A5: Main experimental results using ordered logit estimation

	Political quiz score (1)	Political quiz score (2)	Political quiz score (3)
Social treatment	0.011	0.590**	-0.074
	(0.157)	(0.258)	(0.501)
Sophisticated		1.309***	-0.407
		(0.236)	(0.725)
Social treatment × Sophisticated		-0.917***	1.251
		(0.323)	(0.875)
High interest social group			-0.601
			(0.390)
Social treatment × High interest friends			0.942
			(0.594)
Sophisticated × High interest friends			1.927**
			(0.759)
Social treatment × Sophisticated			-2.573***
× High interest friends			(0.958)
Observations	539	539	529
Outcome range	0 to 10	0 to 10	0 to 10
Control outcome mean	5.74	5.74	5.74
Control outcome standard deviation	2.11	2.11	2.12
Social treatment mean	0.48	0.48	0.48
Sophisticated range		{0,1}	{0,1}
Sophisticated mean		0.69	0.69
Other interaction mean			0.88
Test: Social treatment + Social treatment			0.00
× High interest friends = 0 (p value)			
Test: Social treatment + Social treatment			0.10
× Sophisticated = 0 (p value)			

Notes: All specifications control for year of birth fixed effects, baseline interest in politics, and indicators for membership of a party organization, believing that acquiring information is not important, and following no news, and are estimated using ordered logit. The smaller sample size in column (3) reflects missingness on friends' interest in politics. Robust standard errors are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

A.4 Additional observational results

Table A6 shows that upcoming local elections are relatively well-balanced across 22 individual and municipal level characteristics in the ENCUP surveys. Sample size differences reflect the unavailability of some questions in particular survey waves. Moreover, Table A7 demonstrates that neither changes in upcoming local elections nor changes in measures of local violence predict whether a municipality is included in any given survey wave. The sample includes only municipalities where surveys are conducted during at least one survey wave.

Table A8 shows how the effect of local election by politically-oriented networks varies by intensity of political news consumption. The results show that news consumption prior to elections is significantly greater among voters in politically engaged networks at every news consumption intensity.

Table A9 allows the effect of upcoming local elections to vary nonlinearly with the political network scale. The results indicate that there are diminishing marginal effects of upcoming local elections as networks become more politically-engaged. The results are especially stark in the case of the news consumption scale. Although the quadratic term is not statistically significant for topical political knowledge, the negative coefficient is nevertheless somewhat suggestive of diminishing returns.

Table A10 examines how the effects of an upcoming local election vary with the definition of such an election. For the three main outcomes, column (1) first shows similar results when I use months until the upcoming local election instead of the upcoming local election indicator employed above. Furthermore, columns (2)-(9) show that the results are robust to using any number of months between 1 and 10 to define an upcoming local election. Categories are groups in some cases because the coefficients are identical. Together, these results indicate that the findings are not sensitive to the definition of an upcoming local election.

Table A6: Balance tests for upcoming local elections over 22 individual and municipal-level variables

	Female	Speaks Indigenous language	Catholic	Age	Education	Voted for mayor since 2000	Political network scale	Media stations within municipality	PAN governor	PRI governor	PRD governor
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Upcoming local election	0.009	-0.017	-0.032*	-0.009	0.045	0.037	-0.073	-0.330	-0.017	0.000	-0.006
	(0.011)	(0.021)	(0.018)	(0.387)	(0.034)	(0.024)	(0.075)	(0.408)	(0.075)	(0.080)	(0.033)
Observations	17,213	13,030	13,030	17,213	12,513	13,030	17, 213	17,213	17,133	17,133	17,133
Outcome mean	0.55	0.08	0.81	40.70	1.74	0.73	0.00	10.13	0.27	0.56	0.14
	PAN municipal incumbent	PRI municipal incumbent	PRD municipal incumbent	Municipal incumbent win margin (last election)	Municipal incumbent win indicator (last election)	Municipal incumbent vote share (last election)	Municipal ENPV (last election)	Municipal registered voters (last election)	Total municipal spending (last year)	Municipal police per voter	Homicides per month (last year)
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
Upcoming local election	0.099**	-0.049	-0.019	0.026*	0.114*	0.025	-0.226**	11,082.835	96.866	-0.123	0.902
	(0.040)	(0.069)	(0.036)	(0.014)	(0.059)	(0.015)	(0.103)	(15,468.125)	(91.616)	(0.157)	(0.954)
Observations	16,925	16,925	16,925	15,976	15,833	15,778	15,976	15,778	10,530	14,016	17,178
Outcome mean	0.36	0.45	0.16	0.15	0.54	0.48	2.57	252422.12	841.91	2.24	4.73
Local election mean	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.19	0.16	0.16

Notes: All specifications include state and survey fixed effects, and are estimated using OLS. Several underlying elements of the political network scale were imputed in 2012 (see Appendix for details), and the estimates in column (7) are across ten multiply imputed datasets. Standard errors clustered by state are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A7: Predictors of municipalities included in each survey wave

	Surveyed municipality indicator			
	(1)	(2)	(3)	(4)
Local election	0.024			
	(0.046)			
Homicide in last month		-0.023		
		(0.046)		
Homicides per month (last year)			-0.001	
			(0.001)	
Homicides per month (last 3 years)				-0.000
				(0.001)
Observations	2,156	2,152	2,152	2,152
Surveyed municipality mean	0.48	0.48	0.48	0.48

Notes: All specifications include municipality and survey-year fixed effects, and are estimated using OLS. Standard errors clustered by state are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A8: Difference-in-differences estimates of the effect of upcoming local elections on news consumption intensity, by political network engagement

	Watch and listen to news and political programs...				
	...ever	...monthly	...weekly	...daily	...scale
	(1)	(2)	(3)	(4)	(5)
Upcoming local election	0.011	0.056*	0.067*	0.053	0.187
	(0.025)	(0.032)	(0.034)	(0.033)	(0.114)
Political network scale	0.021*	0.032*	0.039*	0.035**	0.127*
	(0.009)	(0.013)	(0.014)	(0.013)	(0.048)
Upcoming local election × Political network scale	0.034**	0.053**	0.052**	0.048**	0.186**
	(0.015)	(0.019)	(0.018)	(0.016)	(0.060)
Observations	13,030	13,030	13,030	13,030	13,030
Outcome mean	0.87	0.69	0.63	0.39	2.58
Outcome std. dev.	0.34	0.46	0.48	0.49	1.47
Upcoming local election mean	0.19	0.19	0.19	0.19	0.19
Political network scale mean	-0.00	-0.00	-0.00	-0.00	-0.00
Political network scale std. dev.	1.00	1.00	1.00	1.00	1.00
Survey year not asked	2001	2001	2001	2001	2001

Notes: All specifications include survey fixed effects, and are estimated across ten multiply imputed datasets using OLS. Several underlying elements of the political network scale were imputed in 2012 (see Appendix for details). Standard errors clustered by state are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A9: Difference-in-differences estimates of the effect of upcoming local elections on information acquisition, by quadratic political network engagement

	Watch and listen to news scale (1)	Topical political knowledge (2)
Upcoming local election	0.240*	0.206
	(0.119)	(0.128)
Upcoming local election × Political network scale	0.244***	0.192***
	(0.062)	(0.088)
Upcoming local election × Political network scale^2	-0.048***	-0.032
	(0.016)	(0.032)
Observations	13,030	17,213
Outcome mean	2.58	0.00
Outcome std. dev.	1.47	1.00
Upcoming local election mean	0.19	0.16
Political network scale mean	0.00	0.00
Political network scale std. dev.	1.00	1.00
Survey year not asked	2001	

Notes: All specifications include survey fixed effects, and are estimated across ten multiply imputed datasets using OLS. Several underlying elements of the political network scale were imputed in 2012 (see Appendix for details). Standard errors clustered by state are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A10: Sensitivity of difference-in-differences estimates to definition of upcoming local election

Panel A: Watch and listen to news ever	Months until election (1)	Upcoming local election defined as an indicator elections within ... of survey: 1/2 months (2)	3/4 months (3)	5/6 months (4)	7 months (5)	8/9 months (6)	10 months (7)	(8)	(9)
Upcoming local election measure	-0.002*	0.052***	0.025	0.011	0.062**	0.057**	0.056**		
	(0.001)	(0.018)	(0.018)	(0.025)	(0.028)	(0.026)	(0.027)		
Upcoming local election measure	-0.001*	0.014	0.002	0.034**	0.027*	0.024*	0.025*		
× Political network scale	(0.000)	(0.009)	(0.010)	(0.015)	(0.012)	(0.012)	(0.012)		
Panel B: Watch and listen to news scale	Months until election	Upcoming local election defined as an indicator elections within ... of survey: 1/2 months	3/4 months	5/6 months	7 months	8/9 months	10 months		
Upcoming local election measure	-0.012***	0.200**	0.222*	0.187	0.515***	0.460***	0.476***		
	(0.004)	(0.082)	(0.116)	(0.114)	(0.157)	(0.142)	(0.146)		
Upcoming local election measure	-0.003*	0.184**	0.097	0.186**	0.152**	0.138**	0.143**		
× Political network scale	(0.002)	(0.048)	(0.049)	(0.060)	(0.055)	(0.055)	(0.055)		
Panel C: Topical political knowledge	Months until election	Upcoming local election defined as an indicator elections within ... of survey: 1 month	2 months	3/4 months	5/6 months	7 months	8 months	9 months	10 months
Upcoming local election measure	-0.002	0.207***	0.008	0.352	0.183	0.100	0.111	0.085	0.075
	(0.005)	(0.070)	(0.190)	(0.234)	(0.136)	(0.145)	(0.139)	(0.128)	(0.126)
Upcoming local election measure	-0.003	0.055	0.116	0.066	0.138**	0.111*	0.115*	0.116*	0.116**
× Political network scale	(0.002)	(0.039)	(0.083)	(0.043)	(0.050)	(0.058)	(0.056)	(0.056)	(0.056)

Notes: All specifications include state and survey fixed effects, and are estimated using OLS. Several underlying elements of the political network scale were imputed in 2012 (see Appendix for details), and the estimates in column (7) are across ten multiply imputed datasets. Standard errors clustered by state are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.