# Appendix for *The Social Origins of Electoral Participation in Emerging Democracies*

**Cambridge Elements in Campaigns and Elections**

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Please note that this version of the Appendix does not contain photos. The full appendix is available here:
https://www.cambridge.org/download_file/1061864

# Contents

# Appendix I

## Overview of Survey and Administrative Data

Data for quantitative tests of our hypotheses summarized in the main text and explicated in this Appendix come from original surveys we designed and conducted during recent elections in Ghana, Kenya, Uganda, and Afghanistan. We also gathered and used quantitative administrative data to bolster descriptive analyses in text (such as census and electoral data), as well as to assist with robustness checks of quantitative results. In what follows, we briefly provide an overview of these data sources, and then present analyses (including descriptive statistics, quantitative tests, and robustness checks) in order below to reflect their ordering in the main text. Each country section ends with photographic documentation of election days by the authors, referenced in the text.

In Section 3, our analyses rely on surveys from three African countries. In Ghana, our survey data are drawn from two surveys. The first is a nationally representative household survey of registered Ghanaian voters we conducted a few weeks before its December 2008 general election (with 2,033 respondents from all ten regions), as well as an exit poll (election day survey) (with 4,022 respondents from all regions). The quantitative tests rely on the former (pre-election) survey. We conducted two separate sets of nationally representative surveys in Kenya: a three-wave telephone panel (CATI) (February-April 2013), and an election day exit poll (March 4, 2013)—quantitative analyses rely on the CATI surveys. In Uganda, we conducted two nationwide surveys: a pre-election survey fielded in late January and early February of 2011 (with 5,000 respondents), and an exit poll on February 18, 2011 (with 3,963), with quantitative tests based on the pre-election survey. In Section 4 on Afghanistan, our data come from two surveys before and after the September 2010 Parliamentary Elections: a pre-election survey conducted in August 2010 (the month before the election, with 2,904 respondents) and a post-election survey enumerated after the results were adjudicated (in November 2010, with 3,048 respondents). The quantitative analyses in Section 4 rely on the latter (post-election) survey.

# Appendix A. Ghana

## Administrative data and survey details

In Section 3.1, we employ administrative data from the Ghanaian government, and survey data from two surveys we conducted during Ghana's 2008 election. The first survey is a pre-election nation-wide household public opinion survey of registered voters that gauged opinions about the upcoming election. The second is an election day nation-wide exit poll, administered to voters directly after they voted.

*Administrative Data*
We obtained census data from the Ghana Statistical Service and data on turnout from the Electoral Commission of Ghana.

*Pre-election Survey*
We conducted a pre-election household survey in mid-November 2008, a few weeks before the December 7, 2008 elections, of registered voters. In total, we surveyed 2,033 Ghanaians in all ten regions of the country. We sampled from the final registry of voters produced by the Electoral Commission of Ghana, using multi-stage sampling with proportional distributions to regions, districts, and constituencies, including random selection of enumeration areas, households, and respondents. The survey was conducted in a variety of languages, at the respondent's choice: Twi, Ewe, Mole-Dagbani, Ga, and English. Our quantitative tests below (and referenced in the main text) rely on data from this survey.

*Exit Poll*
An exit poll is a survey of voters on election day directly after they have cast a ballot (in our cases, "exiting" the polling center location). They are typically used to understand voting behavior and voters' sentiments as close to an election as possible and contemporaneous to a respondent having cast a ballot. They are therefore restricted to those who are not only registered but have participated in the election. Exit polls are also used to assess various aspects of the process related to the administration of the election from the perspective of voters, such as average wait times, ease of casting a ballot, beliefs about ballot secrecy, etc.[1]

We sampled our exit poll in Ghana in a similar manner to the pre-election survey, although its administration was different. Using the registry of voters, we sampled from the final list of polling locations published by Ghana's Electoral Commission, using multi-stage sampling with proportional distributions to regions, districts, constituencies, and polling locations; with random selection of voters leaving voting centers (fingers marked with ink). This sampling procedure was done to allow projection to the population of Ghanaian voters, where each voter had an equal probability of selection. The exit poll ultimately included 4,022 voters, in all 110 districts and 227 parliamentary

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[1] For more information on the use of exit polls to study voting behavior and election administration in emerging democracies, see also Bjornlund (2004), Ferree and Long (2016), Gibson and Long (2009), Hoffman and Long (2013), Long and Gibson (2015), and Long et al. (2014).

constituencies, across 237 polling centers. Enumerators administered the survey by arriving at the assigned polling location in the morning of the election, and then approached every second voter exiting the polling station (who had an inked finger, proving they were a voter) only at that station. At each station we interviewed roughly ten to twenty voters, following best practices (Levy 1983). The survey was conducted in a variety of languages, at the respondent's choice: Twi, Ewe, Mole-Dagbani, Ga, and English. We employ responses to only a few questions from the exit poll in mostly descriptive analyses (Table A.2).

## Administrative and Exit Poll Descriptive Statistics

**Table A.1: Ethnic Groups in Ghana**

| Ethnic group | Share of Total Population |
|---|---|
| **Akan** | 49% |
| -- Ashanti | 15% |
| -- Akim | 6% |
| -- Fante | 10% |
| -- Others | 18% |
| **Ewe** | 13% |
| **Ga** | 8% |
| **Mole-Dagbani** | 15% |
| **Others** | 15% |

*Source: Ghana Statistical Service*

**Table A.2: Support of NPP and NDC candidates by ethnic group**

| Ethnic group | Presidential Vote | | Parliamentary Vote | |
|---|---|---|---|---|
| | NPP | NDC | NPP | NDC |
| **Akan** | 67% | 22% | 62% | 22% |
| -- Ashanti | 83% | 10% | 75% | 10% |
| -- Akim | 75% | 15% | 72% | 15% |
| -- Fante | 51% | 37% | 47% | 38% |
| -- Others | 62% | 22% | 58% | 24% |
| **Ewe** | 18% | 72% | 17% | 70% |
| **Ga** | 36% | 49% | 36% | 50% |
| **Mole-Dagbani** | 35% | 54% | 32% | 52% |
| **Others** | 37% | 48% | 36% | 44% |

*Source: Authors' Exit Poll (2008 election)*

**Table A.3 2008 Turnout in Ghana by region**

| Region | Turnout |
|---|---|
| Western | 67% |
| Central | 69% |
| Greater Accra | 67% |
| Volta | 67% |
| Eastern | 67% |
| Ashanti | 74% |
| Brong Ahafo | 69% |
| Northern | 75% |
| Upper East | 71% |
| Upper West | 69% |
| *Total* | *70%* |

*Source: Electoral Commission of Ghana*

## Measures and coding rules for quantitative analysis

We describe the measures and coding rules we use from the 2008 pre-election survey that form the basis of quantitative analysis in section 3.1.4. Descriptive statistics are in Table A.4, main tests are in Tables A.5-6, and robustness checks are in Tables A.7-9.

*Likely to Vote*

Our main dependent variable is a proxy for self-reported intention to vote, following approaches employing self-reported voting behavior from survey data (Bratton, Mattes and Gyimah-Boadi 2005, Kasara and Suryanarayan 2015). Specifically, we asked: "*How likely are you to change your mind about for whom to vote for President/ [Member of Parliament] between now and election day: are you very likely, somewhat likely, somewhat unlikely, or very unlikely to change your mind?*" The variable *Likely to Vote* takes a value of 1 if they responded "somewhat" or "very unlikely" to change their minds, and 0 otherwise.

Self-reported turnout provides empirical advantages and limitations in tests of electoral participation. Importantly, our study requires operationalizing individual turnout to examine how perceptions of social sanctioning affect a person's propensity to vote. Administrative turnout data would not allow us to explore motivations at the individual level. To know whether people intend to or have voted, it makes sense to ask them. Overall, we expect most people to report honestly and sincerely, especially since our survey enumerators were not members of any of the communities where they interviewed respondents, and they all read standardized scripts indicating that the survey was for an academic study, not to be shared with the government or any political parties.[2] But we recognize self-reported intentions to vote could also pose some inferential problems in Ghana. In the run-up to the 2008 election, it could be the case that some registered voters could have replied that they would vote regardless of their true intentions. Although the degree to which this affects our analyses depends on context (we discuss Kenya, Uganda, and Afghanistan in subsequent subsections), here we address how this concern affected our question wording in Ghana.

On the advice of our research partners and as piloted in focus groups, we leveraged the fact that Ghana has a stable two-party system to include a slightly different wording that we thought could be a proxy for intentions to vote while also more accurately reflecting real turnout. We did so based on the likelihood of whether respondents would "change their minds" about for whom to vote. In a consolidated competitive party system with previous alternations of power and only two viable parties from which to choose, expressing a likelihood of changing one's mind in advance of an election plausibly proxies for voters less engaged with the process to begin with and therefore less likely to eventually turn out relative to those who had already made up their minds (and were therefore unlikely to change for whom to vote). Given that most Ghanaians who knew they would vote had already made up their minds at least by a few weeks before the election (and likely well before that), we thought it would be extremely unlikely that registered voters with strong intentions to vote would actually change their mind about who they were planning to vote for as matter of deciding between the NDC and NPP on the presidential ballot. Instead, we thought it much more likely that respondents who

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[2] Theoretically, a researcher could verify self-reported turnout against administrative records that allow one to link a response on a survey to public records. Although accessing public voting records is a method used in studies of US voting (Gerber, Green and Larimer 2008), it violates many countries' election guidelines (including in our cases).

were more likely to change their minds would be less likely to vote. Therefore, in the main quantitative analysis we leverage responses to changing one's mind about the presidential vote in the construction of *Likely to Vote*. In the robustness checks, we rerun our main analyses using a different specification of *Likely to Vote* from a separate question with the same wording but that specified changing one's mind about which *parliamentary* candidate they intended to vote for, in case either the presidential or parliamentary races systematically drove different levels of enthusiasm for turnout (as indicated by the likelihood of changing one's mind).

Descriptive statistics suggest that our approach may have worked to elicit more accurate responses. Observed turnout in 2008 was 70%; our measure of intention to vote is not far off with 77% of respondents saying they were unlikely to change their minds about for whom to vote for president (Table A.4), and 73% for MP.

*Social Sanctioning*

Our key independent variable regarding social sanctioning is built from a question asking voters whether they think it is important for other members of their community to vote even if undesirable candidates appear on the ballot. "*Thinking about elections in Ghana, how important is it for everyone in your community to vote, even if they do not like the candidates: is it very important, somewhat important, or not very important?*" We generate the dichotomous variable *Social Sanctioning*, which carries a value of 1 if individuals respond "very important" and 0 otherwise.

The question's wording permits us to measure the extent to which voters build expectations about the behavior of other players with whom they will need to cooperate in order to succeed and avoid negative payoffs (derived from the ABM model, Appendix II). Importantly, we asked the question in relation to the potential for unpopular candidates as we thought simply asking whether respondents thought members of their community should vote would elicit nearly universally positive responses (confirmed by a similar Round 6 Afrobarometer question; see also footnote 15 in text). The question wording is intended to evoke for the respondent a neighbor who, having weighed all of the psychological and material incentives that contribute to their considerations, still prefers not to vote. It is these neighbors about whom we seek our respondents' opinions. Put differently, the phrasing establishes "baseline" conditions set to a neighbor who would not otherwise turn out to isolate the desire to vote for reasons that are *beyond* psychological or material incentives; in short, we want to locate the "tie-breaking" reason to turn out within community expectations. Doing so allows us to investigate an important aspect in how social pressures and sanctioning drive turnout: the population of "sanctioners" are those who believe members of their community should always vote regardless of candidate desirability. Respondents who do not perceive this strict expectation to vote could do so either because they do not believe community members should always vote, or because they like the candidates. The goal of the wording is to isolate the conditions under which we believe sanctioning operates: when others expect one to vote (and pay the associated costs in opportunity cost or risk) for a person who would not otherwise vote. 66% perceived social sanctioning with this measure (Table A.4).

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*Ethnic Identifier*

To create a measure for whether affective attachments to one's ethnic group and the psychic benefits voting contains drove an expressive desire to vote, we followed similar measures derived from questions on the Afrobarometer survey that measure ethnic identification (Bratton and Kimenyi 2008; Eifert, Miguel and Posner 2010; Robinson 2014). The survey first asked respondents their language/ethnic group, followed by the question "*Let us suppose you had to choose between being a Ghanaian and being a [insert name of language/ethnic group]. Which of these groups do you feel most strongly attached to?*" We create the dichotomous variable "*Ethnic Identifier*" which takes a value of 1 for ethnic identifiers who responded that they felt strongly or mostly attached to their language/ethnic group, and 0 otherwise.

Measuring the strength of ethnic attachments poses difficulties given that while ethnic identity itself is easy to report, how "close" a person feels towards their group is less clear. However, our question and similar questions are validated against each other by generating similar response frequencies across surveys in the same country. With this definition of *Ethnic Identifier*, 6% of Ghanaians (Table A.4) were ethnic identifiers. Because this coding could be considered too restrictive by placing respondents who replied that they felt equally close to their ethnic group and nationality (40%) in the excluded category (or perhaps because they actually felt closer to their group than nationality but were afraid to say so), we provide a robustness check of main tests below using a more expansive definition of ethnic identifier that bins those "equal" respondents with the positive *Ethnic Identifier*s.

*Vote-buying*

Measuring the extent of vote buying in a given election is hard through a survey because respondents may be unwilling to give truthful responses due to negative perceptions of explicit contingent exchanges. For that reason, we did not ask Ghanaians directly whether they had received a gift or money in exchange for voting, but rather whether they thought parties providing positive selective incentives in the form of vote buying to people was important. "*Thinking about the upcoming elections, political parties may reward their supporters with gifts and money in exchange for support. Do you think it is very important, somewhat important, or not very important that political parties reward their supporters with gifts and money in exchange for support?*" We create the dichotomous variable *Vote-Buying* to carry a value of 1 responding to positive responses to this question "very or somewhat important," and 0 otherwise. 30% of our sample expressed expectations of vote buying (Table A.4). It is important to note that this variable captures attitudes about vote buying—not the de facto level of patronage or gift-giving. We also phrased the question to read as though positive responses were not socially undesirable.

*Violence and Other Socio-Demographic & Political Controls*

To control for the potential demobilizing effects or fears of violence, our survey also asked whether respondents thought violence was likely in their communities on election day, creating the dummy *Violence* (=1 if they reported that they thought it would be very or somewhat likely). Because socio-economic covariates likely correlate with turnout, we include controls for *Education* (=1 if highest education obtained was primary school or less), *Urban* residence, *Female, Employed* (=1 if currently

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holding a job, to proxy for income), and *NDC Partisan* (=1 if they report that they feel very or somewhat close to the NDC, to proxy for election specific political dynamics likely to affect turnout). Descriptive statistics for these variables appear in Table A.4.

## Quantitative Analysis

**Table A.4 Descriptive statistics for quantitative analysis in Ghana**

| Variable | Mean & Std Dev |
|---|---|
| *Likely to Vote* | .76 (.42) |
| *Social Sanctioning* | .66 (.47) |
| *Ethnic Identifier* | .06 (.24) |
| *Vote-buying* | .30 (.46) |
| *Violence* | .14 (.35) |
| *Education* | .62 (.48) |
| *Female* | .42 (.49) |
| *Urban* | .64 (.48) |
| *Employed* | .61 (.49) |
| *NDC Partisan* | .18 (.39) |

*Source: Authors' Pre-election Survey*

The descriptive results of variables used in our quantitative analysis paint an interesting picture of the Ghanaian electorate. 76% of respondents expressed a likelihood of voting (proxied with *Likely to Vote*), which was not far off from reported turnout in 2008 of 70%. Perceptions of possible social sanctioning are somewhat large, at 66%, while expressive ethnic identification (6%) and expectations of vote buying (30%) are lower. 14% of the registered electorate feared violence in their community on election day.

To test our hypotheses more precisely, we conduct (unconditional) differences in means tests in Table A.5 by looking at the probability of *Likely to Vote* across core variables. Our measure of *Social Sanctioning* is associated with an 8 percentage point improvement in the likelihood of voting, increasing from 71% to 79% ($p<0.01$). We find no statistically significant difference in ethnic identifiers reporting

intent to vote, though those who report vote buying are slightly less likely to vote. Those who expect violence are 13 points less likely to intend to vote.

**Table A.5 Difference in means in intention to vote, Ghana**

| Social Sanctioning = 1 | Social Sanctioning = 0 | *Difference* |
|---|---|---|
| 0.79 (.011) | 0.71 (.017) | 0.083*** (.0198) |
| **Ethnic identifier = 1** | **Ethnic Identifier = 0** | *Difference* |
| 0.76 (.038) | 0.77 (.010) | -0.0052 (.039) |
| **Vote-buying = 1** | **Vote-buying = 0** | *Difference* |
| 0.72 (.018) | 0.79 (.011) | -0.070*** (.020) |
| **Violence = 1** | **Violence = 0** | *Difference* |
| 0.65 (.028) | 0.78 (.0099) | -0.13*** (.027) |

Standard errors in parenthesis p<0.01***, p<0.05**, p<0.1* *Source: Authors' Pre-election Survey*

In a second set of statistical exercises, we conduct multivariate tests in Table A.6, which reports ten linear probability estimations on the likelihood of turnout,[3] with coefficients and robust standard errors (in parentheses) clustered at the primary sampling unit level (enumeration area). Models 1-4 test the theory's basic predictions with the variables *Social Sanctioning*, *Ethnic Identifier*, and *Vote-buying*; Models 5-10 include controls.

The multivariate tests in Table A.6 support our first two hypotheses. *Social Sanctioning* is a significant and positive predictor of turnout across model specification. As voters' beliefs about the importance of their community members' voting increases, so does their own likelihood of turning out, by 4-5 percentage points. Coefficients for *Ethnic Identifier* and *Vote-buying* are not well estimated; neither is *Violence*. *Urban* voters are consistently less likely to turn out, while unsurprisingly *NDC Partisans* are significantly more likely to turn out.

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[3] Following Angrist and Pischke (2008), linear probability models provide ease of interpretation for binary outcome data; coefficients show the marginal effect of each variable moving from a mean in the control to a percentage point change indicated by the coefficient (positive coefficients indicating a greater likelihood of reporting having voted). We report alternative MLE/probit estimates (Table A.8).

**Table A.6 Intention to Vote in Presidential Race, Ghana**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.0439* | | | | 0.0439* | 0.0436* | 0.0439* | 0.0427* | 0.0428* | 0.0422* |
| | (0.0253) | | | | (0.0254) | (0.0254) | (0.0254) | (0.0253) | (0.0254) | (0.0254) |
| Ethnic Identifier | | -0.0296 | | | -0.0300 | -0.0297 | | | -0.0336 | -0.0336 |
| | | (0.0446) | | | (0.0447) | (0.0447) | | | (0.0446) | (0.0447) |
| Vote-buying | | | -0.00591 | | -0.00170 | -0.00173 | | | -0.000561 | -0.00293 |
| | | | (0.0247) | | (0.0248) | (0.0248) | | | (0.0247) | (0.0248) |
| Violence | | | | -0.0268 | | -0.0258 | | | | -0.0261 |
| | | | | (0.0308) | | (0.0308) | | | | (0.0308) |
| Female | | | | | | | -0.0147 | | | -0.0118 |
| | | | | | | | (0.0196) | | | (0.0196) |
| Urban | | | | | | | -0.123** | | | -0.122** |
| | | | | | | | (0.0518) | | | (0.0518) |
| Education | | | | | | | -0.0188 | | | -0.0162 |
| | | | | | | | (0.0229) | | | (0.0229) |
| Employed | | | | | | | -0.00447 | | | -0.00601 |
| | | | | | | | (0.0212) | | | (0.0212) |
| NDC Partisan | | | | | | | | 0.0735*** | 0.0741*** | 0.0743*** |
| | | | | | | | | (0.0262) | (0.0262) | (0.0263) |
| Constant | 0.735*** | 0.766*** | 0.766*** | 0.768*** | 0.737*** | 0.741*** | 0.833*** | 0.722*** | 0.725*** | 0.825*** |
| | (0.0187) | (0.00886) | (0.0113) | (0.00949) | (0.0208) | (0.0213) | (0.0437) | (0.0192) | (0.0212) | (0.0453) |
| | | | | | | | | | | |
| Observations | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 |
| R-squared | 0.352 | 0.351 | 0.351 | 0.351 | 0.352 | 0.352 | 0.354 | 0.355 | 0.355 | 0.358 |

Standard errors in parentheses, clustered by PSU
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

## Robustness Checks

We perform a series of robustness checks to support our quantitative tests.

*Robustness Check on Likely to Vote*

We first check the robustness of results using a different dependent variable that is a version of *Likely to Vote*, but specifying changing one's mind about for whom to vote in the parliamentary election. Presidential and parliamentary elections are held concurrently in Ghana. Candidates for parliament compete in 275 single-member simple-plurality winner-take-all (SMP) constituencies (extended from 230 after 2008). In 2008, the NPP won 107 seats and the NDC won 116. (Minor parties rounded out the rest). In Table A.7 below, we conduct a robustness check with the same variables and structure as Table A.6, but with *Likely to Vote* now referring to MP rather than president. *"How likely are you to change your mind about for whom to vote for Member of Parliament between now and election day: are you very likely, somewhat likely, somewhat unlikely, or very unlikely to change your mind?"* Likely to Vote =1 with Somewhat and very unlikely, 0 otherwise.

Results in Table A.7 with this different dependent variable echo and are substantively stronger than those in Table A.6: *Social Sanctioning* is a consistent indicator of 6-7% increase in intention to vote in the parliamentary race.

### Table A.7 Intention to vote in parliamentary race, Ghana

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.0688*** (0.0257) | | | | 0.0666*** (0.0258) | 0.0664** (0.0258) | 0.0691*** (0.0258) | 0.0674*** (0.0256) | 0.0654** (0.0257) | 0.0652** (0.0258) |
| Ethnic Identifier | | -0.0131 (0.0453) | | | -0.0101 (0.0453) | -0.00988 (0.0453) | | | -0.0142 (0.0452) | -0.0152 (0.0453) |
| Vote-buying | | | -0.0358 (0.0250) | | -0.0308 (0.0251) | -0.0308 (0.0251) | | | -0.0295 (0.0251) | -0.0300 (0.0251) |
| Violence | | | | -0.0177 (0.0313) | | -0.0164 (0.0313) | | | | -0.0197 (0.0313) |
| Female | | | | | | | -0.00958 (0.0199) | | | -0.00715 (0.0199) |
| Urban | | | | | | | -0.0400 (0.0526) | | | -0.0416 (0.0526) |
| Education | | | | | | | -0.00686 (0.0232) | | | -0.00428 (0.0232) |
| Employed | | | | | | | -0.0167 (0.0215) | | | -0.0177 (0.0215) |
| NDC Partisan | | | | | | | | 0.0847*** (0.0265) | 0.0845*** (0.0266) | 0.0853*** (0.0267) |
| Constant | 0.682*** (0.0190) | 0.729*** (0.00900) | 0.739*** (0.0114) | 0.730*** (0.00963) | 0.694*** (0.0211) | 0.696*** (0.0216) | 0.726*** (0.0444) | 0.668*** (0.0195) | 0.679*** (0.0215) | 0.725*** (0.0459) |
| Observations | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 |
| R-squared | 0.394 | 0.391 | 0.392 | 0.391 | 0.394 | 0.394 | 0.394 | 0.397 | 0.398 | 0.399 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Note: standard errors clustered at PSU.*

*Robustness Check on Model Specification*

In Table A.8 we replicate Table A.5, estimated using a probit rather than linear probability model. We see that the effect of social sanctioning remains robust and significant to the inclusion of alternate explanations as well as controls.

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**Table A.8 MLE replication of intent to vote (Table A.4.1), Ghana**

|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.0822*** | | | | 0.0727*** | 0.0672*** | 0.0810*** | 0.0815*** | 0.0719*** | 0.0656*** |
| | (0.0270) | | | | (0.0258) | (0.0254) | (0.0263) | (0.0271) | (0.0260) | (0.0251) |
| Ethnic Attachment | | -0.00430 | | | -0.00150 | -0.00509 | | | -0.00312 | -0.0145 |
| | | (0.0406) | | | (0.0411) | (0.0419) | | | (0.0412) | (0.0429) |
| Vote-buying | | | -0.0701** | | -0.0573** | -0.0498* | | | -0.0589** | -0.0494* |
| | | | (0.0298) | | (0.0290) | (0.0288) | | | (0.0291) | (0.0280) |
| Violence | | | | -0.124*** | | -0.109*** | | | | -0.105*** |
| | | | | (0.0337) | | (0.0333) | | | | (0.0321) |
| Female | | | | | | | -0.0286 | | | -0.0308 |
| | | | | | | | (0.0221) | | | (0.0220) |
| Urban | | | | | | | -0.0239 | | | -0.0222 |
| | | | | | | | (0.0295) | | | (0.0287) |
| Education | | | | | | | -0.0673*** | | | -0.0617*** |
| | | | | | | | (0.0243) | | | (0.0236) |
| Employed | | | | | | | 0.0278 | | | 0.0267 |
| | | | | | | | (0.0237) | | | (0.0233) |
| NDC Partisan | | | | | | | | 0.0465 | 0.0490 | 0.0536* |
| | | | | | | | | (0.0321) | (0.0306) | (0.0289) |
| Observations | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Note: Probit marginal effects, errors clustered by PSU.*

*Robustness Check on Ethnic Identification*

As a robustness check to the construction of *Ethnic Identifier* used in Table A.4, we expand the category (*Ethnic Identifier*) to include those who report only or mostly identifying with their tribe/language group, as well as those who report feeling equally tied to their ethnic group and identity as a Ghanaian. In Table A.8, our core findings do not change with the expanded category.

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# Table A.8 Core results (Table A.5) using expanded definition of ethnic identification

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.0439* | | | | 0.0448* | 0.0445* | 0.0439* | 0.0427* | 0.0436* | 0.0431* |
| | (0.0253) | | | | (0.0254) | (0.0254) | (0.0254) | (0.0253) | (0.0254) | (0.0254) |
| Ethnic identifier (expanded) | | 0.0282 | | | 0.0298 | 0.0300 | | | 0.0275 | 0.0323 |
| | | (0.0241) | | | (0.0241) | (0.0241) | | | (0.0240) | (0.0241) |
| Vote-buying | | | -0.00591 | | -0.00287 | -0.00289 | | | -0.00190 | -0.00438 |
| | | | (0.0247) | | (0.0247) | (0.0247) | | | (0.0247) | (0.0247) |
| Violence | | | | -0.0268 | | -0.0264 | | | | -0.0266 |
| | | | | (0.0308) | | (0.0308) | | | | (0.0308) |
| Female | | | | | | | -0.0147 | | | -0.0128 |
| | | | | | | | (0.0196) | | | (0.0196) |
| Urban | | | | | | | -0.123** | | | -0.127** |
| | | | | | | | (0.0518) | | | (0.0520) |
| Education | | | | | | | -0.0188 | | | -0.0156 |
| | | | | | | | (0.0229) | | | (0.0229) |
| Employed | | | | | | | -0.00447 | | | -0.00531 |
| | | | | | | | (0.0212) | | | (0.0211) |
| NDC Partisan | | | | | | | | 0.0735*** | 0.0725*** | 0.0725*** |
| | | | | | | | | (0.0262) | (0.0262) | (0.0263) |
| Constant | 0.735*** | 0.751*** | 0.766*** | 0.768*** | 0.722*** | 0.725*** | 0.833*** | 0.722*** | 0.710*** | 0.811*** |
| | (0.0187) | (0.0139) | (0.0113) | (0.00949) | (0.0237) | (0.0242) | (0.0437) | (0.0192) | (0.0241) | (0.0461) |
| Observations | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 | 2,013 |
| R-squared | 0.352 | 0.351 | 0.351 | 0.351 | 0.352 | 0.353 | 0.354 | 0.355 | 0.355 | 0.358 |

Standard errors in parentheses, clustered by PSU
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

# Authors' Documentation of Election Day

Please see Appendix here: [https://www.cambridge.org/download_file/1061864](https://www.cambridge.org/download_file/1061864)

# Appendix B. Kenya

## Administrative Data and Survey Details

In Section 3.2, we cite administrative data from the Kenyan electoral commission, and discuss survey data from surveys we conducted during Kenya's 2013 election. The first survey set was a three wave pre- and post-election panel survey delivered to the same sample over three waves (two before the election and one after), administered by phone via Computer-Assisted Telephonic Interviews (CATI). An additional survey was an election day nation-wide exit poll survey, administered to voters directly after they voted.

*Administrative Data*
The electoral results cited in the text regarding voter turnout come from the government's official statistics published by the Independent Election and Boundaries Commission (IEBC, formerly the Electoral Commission of Kenya, ECK).

*Computer-Assisted Telephonic Interviews (CATI) Survey Panel*
We conducted three waves of a Computer Assisted Telephone Interviews (CATI) panel during the 2013 election. The sample (of roughly 5,500 initial respondents from all of Kenya's 47 counties), drew from a baseline collection of mobile numbers whose users had consented to be contacted, a collection assembled by our implementing partner from household surveys conducted over the previous years. We sampled from these by county to create a representative frame, asking roughly 4,500 voting aged Kenyans (sampled in the first wave, there was slight attrition in the second and third waves such that our final sample size was about 4,200). The first wave was fielded from January 26 to February 1, 2013 (about one month before the election). The second wave was fielded between February 23 and March 2, 2013 (the week before the election). The third wave was fielded after the election, following the final adjudication of the result by the Supreme Court (April 6-14). The survey carried an overall response rate of 95% (in English and Swahili) with a re-contact rate of 97% in Wave 3 from the Wave 1 sample. Our primary analysis below comes from the first of three waves of a nationally representative survey.

*Exit Poll*
Our nationally representative exit poll survey was conducted on election day, March 4, 2013, in all of Kenya's 47 counties, and included 404 (out of 31,977) polling stations, with a total sample of 6,258 voters. Using the Independent Election and Boundaries Commission (IEBC)'s final registry of voters, surveys were allocated proportionate to size (registered voters). Enumerators randomly selected every second voter leaving the polling station; respondents could choose to take the survey in English or Swahili, conducted on LG Android smartphones that allowed for real-time transmission of results. The survey had a response rate of 88%.

Administrative and Exit Poll Descriptive Statistics

**Table B.1: Support of 2013 candidates by ethnic group**

| *Ethnic group* | Presidential Vote | | | | Total % |
|---|---|---|---|---|---|
| | Uhuru Kenyatta/ William Ruto | Raila Odinga/ Kalonzo Musyoka | Others | Refused to Answer | |
| **Kikuyu** | 83% | 4% | 3% | 10% | 21% |
| **Kalenjin** | 74% | 11% | 4% | 12% | 11% |
| **Luo** | 1% | 94% | 1% | 4% | 11% |
| **Kamba** | 12% | 63% | 6% | 18% | 8% |
| Luhya | 6% | 53% | 22% | 18% | 14% |
| Kisii | 15% | 72% | 4% | 9% | 6% |
| Mijikenda | 13% | 72% | 7% | 8% | 6% |
| Maasai | 29% | 60% | 2% | 9% | 2% |
| Meru | 75% | 10% | 4% | 11% | 6% |
| Somali | 41% | 48% | 8% | 2% | 3% |
| *Total* | *41%* | *41%* | *7%* | *12%* | *100%* |

*Source: Authors' Exit Poll*

## Measures and Coding Rules for Quantitative Analysis

Our main quantitative analysis discussed in text comes from the first (pre-election) wave of our CATI panel. Descriptive statistics are in Table B.2, main tests are in Tables B.2-3, and robustness checks are in Tables B.4-7.

*Likely to Vote*

Our dependent variable is by self-reported intention to vote (asked only of registered voters before the election). The first wave of the CATI asked: *"Do you plan to vote?"* creating the variable *Likely to Vote*, which =1 if Yes.

As we mention in our discussion of Ghana above, self-reported turnout is a necessary empirical measure for our quantitative tests. Unlike Ghana, we asked a question directly about voting intentions since some of the general concerns that pertain to self-reported turnout and their specific application in Ghana did not generate as much cause for concern in Kenya. Confirmed by our research partners, piloted in focus groups, and based on our previous experience observing elections in Kenya, we deemed the likelihood that Kenyans would misreport turn-out to be fairly low (and the likelihood that actual turnout would climb from 2007 a real possibility). Moreover, we believe aspects of our research design bolster this supposition. CATI surveys are done over the phone, and therefore a respondent is less likely to perceive pressure one way or the other to answer a certain way based on enumerators.[4] While Kenya's lack of a stable party system might from a certain perspective portend a lack of interest in mobilizing turnout, we note that its recent elections have seen rates higher than Ghana. Moreover, the dynamic appears to work in an opposite direction in Kenya: although the party system itself is volatile and evolving, particularly the identity and nature of the national coalitions (as we review in text), mobilization at the local level is quite strong due to a variety of factors where voters are frequently in contact with candidates directly or their agents.

Our measure of turnout in *Likely to Vote* is not far off from official turnout statistics: 95% of Wave 1 CATI respondents replied that they intended to turn out. The response dropped slightly to 94% in Wave 3 after the election. Both averages are somewhat higher than the official turnout of 86%.

*Social Sanctioning*

Our proxy for social sanctioning is a measure built from a question of whether respondents had been contacted by any political agents during the campaign, the type of community-level broker or organizer likely to galvanize turnout among area residents at the behest of candidates and the communities they represent. We asked: *"Have you been contacted by a candidate or member of a party during this campaign?"* Yes = 1. As discussed in the text, local candidates and the political machines they build to mobilize voters are an important aspect that drives turnout in Kenya specifically, given its fractionalized party system and that community norms to vote are often expressed directly through candidates or their agents to the communities they represent. Candidates and their parties, such as they are, are localized such that contact by a candidate's agents is an important mechanism through which social pressure is likely

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[4] As in Ghana, our survey enumerators were not members of the communities in which they interviewed respondents (and were all based in a call center in Nairobi), and they all read standardized scripts indicating that the survey was for an academic study, not to be shared with the government or any political parties.

realized. About a month before the election, about 20% of Kenyans reported local contact, our measure of *Social Sanctioning*. (In Table B.5 we also show an alternative measure for robustness based on whether political agents had thus far encouraged voting, with 50% replying yes).

*Ethnic Identifier*

As we did in Ghana to obtain a measure for ethnic identifiers in Kenya, the survey first asked respondents their language/ethnic group, followed by the question "*Let us suppose you had to choose between being a Kenyan and being a [insert name of language/ethnic group]. Which of these groups do you feel most strongly attached to?*" We created the dichotomous variable "*Ethnic Identifier*" which takes a value of 1 for ethnic identifiers who responded that they felt strongly or mostly attached to their language/ethnic group, and 0 otherwise. In the main analysis (Table B.3-4) we only include as *Ethnic Identifiers* those to report feeling strongly attached only to their ethnic group or more to their ethnic group than Kenyan (3%). We expand to include those who feel equally ethnic and Kenyan (19%) in Table B.7.

*Vote-buying*

Our measure of vote buying comes from the question: "*Have you been offered money or gifts to vote for a particular candidate?*" Yes = 1. Reports of *Vote-buying* are somewhat low—8% report that they had been offered money or gifts to vote for a particular candidate (Table B.2).

*Violence and Other Socio-Demographic & Political Controls*

We obtain a measure for Violence based on the question: *During this election campaign, how likely or unlikely is election related violence in your area?"* with very or somewhat likely = 1. We obtained information about whether respondents resided in an *Urban* setting, their gender (*Female* = 1), were *Employed* = 1, had more than a primary school education (*Education* = 1), and intention to be a *Kenyatta voter* (= 1). Descriptive statistics for these variables appear in Table B.2.

Quantitative Analysis

**Table B.2 Descriptive statistics, Kenya**

| Variable | Mean & Std Dev |
|---|---|
| *Likely to Vote* | .95 (.21) |
| *Social Sanctioning* | .20 (.40) |
| *Ethnic Identifier* | .03 (.17) |
| *Vote-buying* | .08 (.27) |
| *Violence* | .21 (.41) |
| *Education* | .49 (.50) |
| *Female* | .48 (.50) |
| *Urban* | .44 (.50) |
| *Employed* | .45 (.50) |
| *Kenyatta Voter* | .35 (.48) |

*Source: Authors' CATI, Wave 1*

In Table B.2, similar to Ghana, the descriptive results of variables used in our quantitative analysis from the CATI survey portray an interesting Kenyan electorate. 95% reported being likely to turn out, a bit more than the 86% reported in official statistics. Our proxy for possible perceptions of social sanctioning based on contact by political agents was 20%, with 3% identifying ethnically (19% when expanded to include "equal"), 8% reporting vote buying, and 21% predicting election violence was "very" or "somewhat" likely to occur in their community in 2013.

In (unconditional) differences in means tests in Table B.3, we examine differences in mean turnout across the four main explanatory variables. Average turnout for those who perceive *Social Sanctioning* is 2% higher than those who do not (statistically significant, but likely only a slight increase since reported levels of voting were already high). We see no statistical difference in turnout among

either *Ethnic Identifiers* or those who reported *Vote-buying*. The mean turnout among those who expect violence is likely is 3% less than those who do not, a statistically significant difference.

**Table B.3 Difference in mean turnout, Kenya**

| Social Sanctioning = 1 | Social Sanctioning = 0 | *Difference* |
|---|---|---|
| 0.97<br>(.005) | 0.95<br>(.003) | 0.02***<br>(.007) |
| **Ethnic identifier = 1** | **Ethnic Identifier = 0** | *Difference* |
| 0.95<br>(.018) | 0.95<br>(.0029) | -0.008<br>(.017) |
| **Vote-buying = 1** | **Vote-buying = 0** | *Difference* |
| 0.94<br>(.012) | 0.96<br>(.003) | -0.015*<br>(.011) |
| **Violence = 1** | **Violence = 0** | *Difference* |
| 0.93<br>(.007) | 0.96<br>(.003) | -0.027***<br>(.007) |

Standard errors in parenthesis ***p<0.01, **p< 0.05, *p<0.1 *Source: Authors' CATI wave 1*

Next, we conduct multivariate tests in Table B.4, which reports nine linear probability estimations on likelihood of turnout, with coefficients and robust standard errors (in parentheses) clustered at the county level. Our key independent variable on the importance of *Social Sanctioning* is significant and positively predicts turnout across model specifications (with and without controls). As voters' contact with local parties increases, so does their likelihood of turning out. Second, the coefficient for *Ethnic Identifier* is not significant. The coefficients for *Vote-buying* and *Violence* are negative and significant. *Kenyatta Voter* is positive and highly significant across models, suggesting strong partisans are more likely to turnout (in an election that Kenyatta won). *Education* is positive and weakly significant, while *Female* and *Urban* voters are less likely to vote.

# Table B.4 Drivers of turnout in Kenya

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.0196*** (0.00720) | | | | 0.0221*** (0.00728) | 0.0211*** (0.00730) | 0.0218*** (0.00727) | 0.0221*** (0.00728) | 0.0208*** (0.00730) |
| Ethnic Identifier | | -0.00935 (0.0173) | | | -0.00722 (0.0173) | -0.00856 (0.0173) | -0.00810 (0.0173) | -0.00767 (0.0173) | -0.00964 (0.0173) |
| Vote-buying | | | -0.0147 (0.0109) | | -0.0159 (0.0110) | -0.0164 (0.0110) | -0.0149 (0.0110) | -0.0160 (0.0110) | -0.0154 (0.0110) |
| Violence | | | | -0.0264*** (0.00711) | -0.0259*** (0.00715) | -0.0250*** (0.00715) | -0.0251*** (0.00714) | -0.0255*** (0.00715) | -0.0239*** (0.00716) |
| Female | | | | | | -0.00979* (0.00585) | | | -0.00969* (0.00586) |
| Education | | | | | | 0.0112* (0.00606) | | | 0.0103* (0.00610) |
| Employment | | | | | | 0.00220 (0.00595) | | | 0.00229 (0.00595) |
| Kenyatta Voter | | | | | | | 0.0245*** (0.00712) | | 0.0243*** (0.00713) |
| Urban | | | | | | | | -0.00828 (0.00694) | -0.00567 (0.00700) |
| Constant | 0.950*** (0.00323) | 0.955*** (0.00292) | 0.956*** (0.00300) | 0.960*** (0.00325) | 0.957*** (0.00360) | 0.955*** (0.00595) | 0.948*** (0.00440) | 0.961*** (0.00470) | 0.949*** (0.00722) |
| Observations | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 |
| R-squared | 0.011 | 0.009 | 0.010 | 0.012 | 0.014 | 0.015 | 0.016 | 0.014 | 0.017 |

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

## Robustness Checks

*Robustness Check on an Alternate Measure of Social Sanctioning*

As a robustness check, we also estimate the main results using a different proxy variable for social sanctioning, which we call *Encourage.* Respondents were asked, *"Have candidates or their agents actively encouraged you to vote?"* = 1 if Yes (50%).

### Table B.5 Main results replicated with alternate measure of *Social Sanctioning* (encourage)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Encourage | 0.0203*** | | | | 0.0216*** | 0.0221*** | 0.0218*** | 0.0217*** | 0.0222*** |
| | (0.00580) | | | | (0.00581) | (0.00582) | (0.00581) | (0.00581) | (0.00582) |
| Ethnic Identifier | | -0.00935 | | | -0.00500 | -0.00645 | -0.00588 | -0.00545 | -0.00753 |
| | | (0.0173) | | | (0.0173) | (0.0173) | (0.0173) | (0.0173) | (0.0173) |
| Vote-buying | | | -0.0147 | | -0.0139 | -0.0146 | -0.0129 | -0.0139 | -0.0137 |
| | | | (0.0109) | | (0.0109) | (0.0109) | (0.0109) | (0.0109) | (0.0109) |
| Violence | | | | -0.0264*** | -0.0263*** | -0.0254*** | -0.0255*** | -0.0259*** | -0.0243*** |
| | | | | (0.00711) | (0.00715) | (0.00715) | (0.00714) | (0.00715) | (0.00715) |
| Female | | | | | | -0.0106* | | | -0.0105* |
| | | | | | | (0.00583) | | | (0.00583) |
| Education | | | | | | 0.0122** | | | 0.0114* |
| | | | | | | (0.00606) | | | (0.00610) |
| Employment | | | | | | 0.00315 | | | 0.00324 |
| | | | | | | (0.00595) | | | (0.00595) |
| Kenyatta Voter | | | | | | | 0.0249*** | | 0.0247*** |
| | | | | | | | (0.00712) | | (0.00712) |
| Urban | | | | | | | | -0.00846 | -0.00566 |
| | | | | | | | | (0.00694) | (0.00699) |
| Constant | 0.944*** | 0.955*** | 0.956*** | 0.960*** | 0.950*** | 0.948*** | 0.941*** | 0.954*** | 0.942*** |
| | (0.00409) | (0.00292) | (0.00300) | (0.00325) | (0.00438) | (0.00654) | (0.00507) | (0.00531) | (0.00773) |
| Observations | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 |
| R-squared | 0.012 | 0.009 | 0.010 | 0.012 | 0.015 | 0.016 | 0.017 | 0.015 | 0.018 |

Standard errors clustered at County in parentheses
*** p<0.01, ** p<0.05, * p<0.1

*Robustness Check on Model Specification*

In Table B.6 we replicate our main results using MLE, reporting marginal effects of probit estimates, otherwise identically specified, and clustered at the county level.

## Table B.6 MLE replication, Kenya

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.0206*** | | | | 0.0223*** | 0.0216*** | 0.0217*** | 0.0222*** | 0.0210*** |
| | (0.00621) | | | | (0.00619) | (0.00628) | (0.00608) | (0.00622) | (0.00616) |
| Ethnic Identifier | | -0.00800 | | | -0.00500 | -0.00614 | -0.00534 | -0.00551 | -0.00669 |
| | | (0.0191) | | | (0.0178) | (0.0180) | (0.0174) | (0.0182) | (0.0178) |
| Vote-buying | | | -0.0148 | | -0.0179 | -0.0184 | -0.0168 | -0.0180 | -0.0174 |
| | | | (0.0139) | | (0.0145) | (0.0144) | (0.0141) | (0.0146) | (0.0142) |
| Violence | | | | -0.0272*** | -0.0260*** | -0.0248*** | -0.0236*** | -0.0253*** | -0.0221*** |
| | | | | (0.00790) | (0.00741) | (0.00722) | (0.00717) | (0.00732) | (0.00685) |
| Female | | | | | | -0.00893* | | | -0.00892* |
| | | | | | | (0.00516) | | | (0.00508) |
| Education | | | | | | 0.00814 | | | 0.00806 |
| | | | | | | (0.00540) | | | (0.00544) |
| Employment | | | | | | 0.00302 | | | 0.00270 |
| | | | | | | (0.00603) | | | (0.00594) |
| Kenyatta Voter | | | | | | | 0.0189*** | | 0.0188*** |
| | | | | | | | (0.00571) | | (0.00576) |
| Urban | | | | | | | | -0.00493 | -0.00240 |
| | | | | | | | | (0.00483) | (0.00485) |
| Observations | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In Tables B.3-4, we use a construction of *Ethnic Identifier* as described above. In Table B.7, we replicate B.4 using those who identify only as their tribe/ethnic group, or mostly as their tribe/ethnic group in *Ethnic Identifier*. 19% of Kenyans in our survey fall into this restricted definition, which matches other surveys from Kenya where research shows that 17-26% of respondents identify closely with their ethnic group (depending on how the question is asked) (Bratton and Kimenyi 2008; Long 2012). We find the core results remain substantively similar in Table B.7 with this expanded definition of *Ethnic Identifier*.

## Table B.7 Main results, expanded definition of ethnic identifier

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.0196*** | | | | 0.0222*** | 0.0212*** | 0.0219*** | 0.0222*** | 0.0210*** |
| | (0.00720) | | | | (0.00728) | (0.00730) | (0.00727) | (0.00728) | (0.00729) |
| Ethnic Identifier (expanded) | | -0.0169** | | | -0.0165** | -0.0165** | -0.0167** | -0.0168** | -0.0169** |
| | | (0.00736) | | | (0.00735) | (0.00735) | (0.00734) | (0.00735) | (0.00734) |
| Vote-buying | | | -0.0147 | | -0.0151 | -0.0156 | -0.0141 | -0.0152 | -0.0146 |
| | | | (0.0109) | | (0.0110) | (0.0110) | (0.0110) | (0.0110) | (0.0110) |
| Violence | | | | -0.0264*** | -0.0258*** | -0.0249*** | -0.0250*** | -0.0254*** | -0.0239*** |
| | | | | (0.00711) | (0.00714) | (0.00715) | (0.00714) | (0.00715) | (0.00715) |
| Female | | | | | | -0.00989* | | | -0.00977* |
| | | | | | | (0.00585) | | | (0.00585) |
| Education | | | | | | 0.0110* | | | 0.0101* |
| | | | | | | (0.00605) | | | (0.00609) |
| Employment | | | | | | 0.00197 | | | 0.00205 |
| | | | | | | (0.00595) | | | (0.00595) |
| Kenyatta Voter | | | | | | | 0.0246*** | | 0.0243*** |
| | | | | | | | (0.00712) | | (0.00712) |
| Urban | | | | | | | | -0.00862 | -0.00601 |
| | | | | | | | | (0.00694) | (0.00700) |
| Constant | 0.950*** | 0.958*** | 0.956*** | 0.960*** | 0.960*** | 0.958*** | 0.951*** | 0.964*** | 0.953*** |
| | (0.00323) | (0.00320) | (0.00300) | (0.00325) | (0.00382) | (0.00610) | (0.00457) | (0.00489) | (0.00736) |
| | | | | | | | | | |
| Observations | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 | 5,246 |
| R-squared | 0.011 | 0.010 | 0.010 | 0.012 | 0.015 | 0.016 | 0.017 | 0.015 | 0.018 |
| Standard errors in parentheses, clustered at the County | | | | | | | | | |
| *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | | | |

*Note: standard errors clustered at the county level.*

## Authors' documentation of Election Day

Please see Appendix here: [https://www.cambridge.org/download_file/1061864](https://www.cambridge.org/download_file/1061864)

# Appendix C. Uganda

## Administrative Data and Survey Details

In Section 3.3, we employ administrative data from the Ugandan government, and data from three surveys we conducted during Uganda's 2011 election (which could be taken in English or a variety of Ugandan languages). We conducted two nationwide surveys—a pre-election survey fielded in late January and early February 2011, and an exit poll conducted on election day. We also draw descriptively from a constituency-wide pre- and post-election panel survey conducted in the constituency of Kawempe South in Kampala.

### Administrative Data

We obtained census data from the Ugandan Statistical Service and electoral data from the Ugandan Electoral Commission.

### Pre-election survey

Our nationwide pre-election survey was fielded in late January and early February of 2011 (2-3 weeks prior to the election). The pre-election survey sample included 5,005 respondents from 1,001 polling centers (5 respondents per polling center), a nation-wide, representative household survey of registered Ugandan voters. We sampled polling centers for this project using two separate protocols.[5] In the Eastern, Central, and Western regions, we sampled using a multi-stage cluster design. In the first stage, we selected 25 counties, stratified by presidential margin of victory in the previous 2006 election. In the Northern region, to include more centers which had experienced violence in the war with the Lord's Resistance Army, we included more centers in subcounties that had recorded a violent event (in ACLED) or shared a border with a subcounty that had a violent event. Within those eligible subcounties, we randomly selected centers.

### Exit poll

The exit poll was conducted on election day, February 18, 2011. It was sampled proportionate to the registered voters at each polling station as gazetted by the Electoral Commission, surveying a total of 3,963 voters in all regions (randomly sampled at 283 polling stations). Every second voter was surveyed, and the response rate was about 90%.

### Constituency-wide post-election survey

In addition to the nationwide surveys, we conducted a smaller, constituency-wide household survey in urban Kampala (Kawempe South constituency).[6] We draw from the post-election survey data, which included 1,143 respondents contacted in the few days after the election. Surveys were allocated to parishes proportionate to the number of registered voters. Within each parish, enumerators

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[5] Because the Central, West, and East were sampled slightly differently than was the North, we include robustness checks below that show the North separately and the Central, West, and East separately.

[6] See Ferree et al. (2020), parishes that included few registered voters—because they contained Makerere University—were excluded, in total 10 parishes were included.

conducted a random walk, surveying one house in a block of four, then skipping two houses before identifying the next block of four houses. Respondents could take the survey in English or Lugada.

Administrative and Exit Poll Descriptive Statistics

**Table C.1 Turnout in presidential elections in Uganda, 1996-2021**

|  | Nationwide Turnout (percent of registered voters) | Museveni Vote (percent of votes) |
|---|---|---|
| 1996 | 72.9% | 74% |
| 2001 | 69.7% | 69% |
| 2006 | 69.9% | 60% |
| 2011 | 59.3% | 68% |
| 2016 | 67.6% | 61% |
| 2021 | 59.4% | 58% |

*Source: Electoral Commission of Uganda*

**Table C.2 Distribution of ethnic groups in Uganda**

| Ethnic group | Percentage (2014 census) | Museveni Vote Total (2011) |
|---|---|---|
| Baganda | 16.5% | 44% |
| Banyankole | 9.6% | 73% |
| Basoga | 8.8% | 72% |
| Bakiga | 7.1% | 69% |
| Iteso | 7.0% | 54% |
| Langi | 6.3% | 67% |
| Bagisu | 4.9% | 66% |
| Acholi | 4.4% | 39% |
| Lugbara | 3.3% | 70% |
| Other Ethnic Group | 32.1% | 70% |

*Sources: Column 1: Uganda Bureau of Statistics, 2014 Census; Column 2: Authors' exit poll (2011)*

**Table C.3 Presidential vote choice by region 2011**

| | Presidential Vote | | Parliamentary Vote | |
|---|---|---|---|---|
| | **Museveni** | **Other** | **NRM** | **Other** |
| *Northern* | 59.59% | 40.41% | 57.31% | 42.69% |
| *Eastern* | 66.22% | 37.78% | 63.71% | 36.29% |
| *Western* | 71.55% | 28.45% | 70.82% | 29.18% |
| *Central* | 53.93% | 46.07% | 52.78% | 47.22% |

*Source: Authors' Exit Poll*

**Table C.4 Turnout by region, Uganda**

| | **Turnout among registered voters 2006** |
|---|---|
| *Northern* | 66% |
| *Eastern* | 71% |
| *Western* | 75% |
| *Central* | 65% |

*Source: Uganda Electoral Commission*

## Measures and Coding Rules for Quantitative Analysis

We describe the measures and coding rules we use from the 2011 pre-election survey that form the basis of quantitative analysis in text. Descriptive statistics are in Table C.6, main tests are in Table C.6-7, and robustness checks are in Tables C.8-11.

*Likely to Vote*

We construct voting intentions in response to the question: "*Do you plan to turn out in the upcoming presidential and parliamentary elections?*" Yes = 1. 88% of respondents replied that they intended to vote, compared to the official rate of just below 60%. As a check that the drop-off was not systematic, we conducted a brief validation check vis-a-vis support for the president. In our pre-election survey, 59% of respondents reported intending to vote for Museveni, in our exit poll, 62% report having voted for Museveni. Recall, Museveni's vote share in 2011 was 59%. While self-reports of intent to participate, turnout, and vote choice are vulnerable to response bias, we were less concerned considering how close our sample hewed to the official record.

*Social Sanctioning*

Our primary social sanctioning measure in Uganda is in response to the question: "*Regardless of whether you will actually vote, do you think your neighbors will know whether you turned out or stayed home, or will they not know?*" "Yes, they will know if I turned out or stayed home" = 1, others = 0. Following our theory, beyond expectations to vote, individuals must also perceive the ability of community members to retain monitoring capacity and observe their participation, captured in this question, which we also label *Social Sanctioning (Neighbors Know)*. We pose the question regarding "your neighbors" to probe directly at the social and local act of voting also following our sampling procedure of gaining respondents clustered near polling centers—at least partially visible to community members regardless of the benefits conferred to individuals privately. 63% responded that their neighbors knew their turnout decision. While this construction places weight on the perceptions of observability (*Neighbors Expect)*, something we add to in Section 4, we think it is a good precursor to establishing the effect of one necessary component of social sanctioning.

*Ethnic Identification*

As described above in Ghana and Kenya, we first asked Ugandan respondents their ethnic group,[7] followed by: "*Let us suppose that you had to choose between being a Ugandan and being a [respondent's tribe]. Which of the two groups do you feel most strongly attached to?*" *Ethnic Identifier* =1 for respondents who feel more attached to their ethnic identity relative to their national identity as Ugandans. 12% of respondents reported feeling more strongly attached (or only) attached to their ethnic group, relative to their national identity as Ugandans (Table C.5), 45% felt equally Ugandan and their ethnic group (an expanded definition of *Ethnic Identifier* that we employ for robustness checks below includes those responding "equally" with those who respond closer to their ethnic group).

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[7] Table C.4 expands this definition, but does not alter our findings.

*Vote-buying:*

As a proxy for perceptions regarding politicians' proclivity to engage in contingent exchanges for electoral support, we asked: *"In your opinion, which of the following is the most important reason you do not get more services from the central government: misuse of funds, favouritism, or not enough money?"* We obtain a measure of vote buying based =1 if "Misuse of funds" is the reason given. 48% of our respondents believed misuse of funds was the reason why they didn't get more services from the central government. While not a direct measure of vote-buying, this measure probes beliefs about corruption.

*Violence and Other Socio-Demographic & Political Controls*

For violence, when asked about the likelihood on the upcoming election day of *"Violence in your area: do you think this is very likely, somewhat likely, somewhat unlikely, or very unlikely?"* 37% of respondents believed it to be very or somewhat likely. Like our other cases, we include control dummy variables for *Female*, *Urban*, *Income*, *Education*, and for contextual political dynamics, *Museveni Voter* (=1 if they expressed intention to vote for Museveni for president). Table C.5 reports the descriptive statistics used in analysis below.

## Quantitative Analysis

**Table C.5 Descriptive statistics, Uganda**

|  | Mean/sd |
|---|---|
| *Likely to Vote* | 0.88 (0.32) |
| *Ethnic Identifier* | 0.12 (0.32) |
| *Vote-buying (Misuse of Funds)* | 0.48 (0.50) |
| *Social Sanctioning (Neighbors Know)* | 0.63 (0.48) |
| *Violence* | 0.37 (0.48) |
| *Education* | 0.39 (0.49) |
| *Household Income* | 3.74 (4.03) |
| *Female* | 0.44 (0.50) |
| *Museveni Voter* | 0.59 (0.49) |

*Source: Authors' pre-election survey*

Table C.5 presents the descriptive statistics for our pre-election survey that underlies our quantitative analysis in text. 88% of respondents say they will vote. Our proxy for possible perceptions of social sanctioning was 63%, with 12% ethnic identifiers, and 48% perceptions of possible vote buying. 37% predicted election *Violence* was "very" or "somewhat" likely to occur in their community.

  Looking at unconditional differences in means tests in Table C.6, in support of our theory, among those who report that their neighbors will know whether or not they voted, intent to turn out was 91%, among those who reported their neighbors would not know, turnout was 84%, this difference is statistically significant. We find no statistically significant difference in means across psychic and extrinsic drivers of turnout: ethnic identifiers, those who expect violence, or misuse of funds.

**Table C.6 Difference in mean turnout**

| Social Sanctioning (Neighbors Know) = 1 | Social Sanctioning (Neighbors Know) = 0 | *Difference* |
|---|---|---|
| 0.91 (.005) | 0.84 (.0086) | -0.065*** (.010) |
| **Ethnic identifier = 1** | **Ethnic Identifier = 0** | *Difference* |
| 0.89 (.013) | 0.88 (.005) | -0.010 (.014) |
| **Misuse of Funds = 1** | **Misuse of Funds = 0** | *Difference* |
| 0.88 (.007) | 0.88 (.006) | -0.004 (.0092) |
| **Violence = 1** | **Violence = 0** | *Difference* |
| .88 (.008) | .89 (.0059) | - .012 (.010) |

Standard errors in parenthesis ***p<0.01, **p< 0.05, *p<0.1

Next, we turn to a multivariate analysis to account for the conditional effects of these relationships. Linear probability estimates are reported in Table C.7. In Models 1-4 we look at unconditional relationships, observing a strong, positive association between *Social Sanctioning (Neighbors Know)* and *Likely to Vote*, and no statistically significant relationships between *Ethnic Identifier, Misuse of Funds,* or *Violence* and *Voting.* Controlling for psychic and material drivers of voting—we see community observation of turnout decisions remains (strengthens) as a driver of turnout. Results remain robust to inclusion of controls that may affect turnout decisions (Model 6-9).[8]

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[8] Table C.10 replicates this analysis using MLE; results remain robust.

## Table C.7 Drivers of turnout in Uganda

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Neighbors Know | 0.0433*** | | | | 0.0481*** | 0.0479*** | 0.0482*** | 0.0384*** | 0.0389*** |
| | (0.0106) | | | | (0.0113) | (0.0113) | (0.0113) | (0.0105) | (0.0105) |
| Ethnic identifier | | 0.0160 | | | 0.0129 | 0.0126 | 0.0132 | 0.0215* | 0.0214* |
| (expanded) | | (0.0114) | | | (0.0121) | (0.0121) | (0.0121) | (0.0112) | (0.0112) |
| Violence Expected | | | 0.0136 | | 0.0141 | 0.0145 | 0.0134 | 0.0265** | 0.0264** |
| | | | (0.0110) | | (0.0111) | (0.0111) | (0.0111) | (0.0104) | (0.0104) |
| Misuse of Funds | | | | -0.00319 | -0.000595 | -0.000822 | -0.000401 | 0.00272 | 0.00231 |
| | | | | (0.00979) | (0.0105) | (0.0105) | (0.0105) | (0.00978) | (0.00978) |
| Income | | | | | | 0.00190 | | | 0.00210* |
| | | | | | | (0.00136) | | | (0.00127) |
| Female | | | | | | 0.00111 | | | -0.00985 |
| | | | | | | (0.00920) | | | (0.00858) |
| Urban | | | | | | | -0.111** | | -0.0799** |
| | | | | | | | (0.0434) | | (0.0404) |
| Museveni Voter | | | | | | | | 0.221*** | 0.221*** |
| | | | | | | | | (0.00976) | (0.00977) |
| Constant | 0.854*** | 0.873*** | 0.881*** | 0.884*** | 0.843*** | 0.836*** | 0.857*** | 0.707*** | 0.714*** |
| | (0.00766) | (0.00747) | (0.00564) | (0.00601) | (0.0125) | (0.0140) | (0.0138) | (0.0131) | (0.0153) |
| | | | | | | | | | |
| Observations | 4,916 | 4,936 | 4,471 | 4,952 | 4,358 | 4,358 | 4,358 | 4,358 | 4,358 |
| R-squared | 0.478 | 0.477 | 0.483 | 0.477 | 0.495 | 0.496 | 0.496 | 0.562 | 0.563 |

Standard errors in parentheses, clustered by PSU
*** p<0.01, ** p<0.05, * p<0.1

# Robustness Checks

*Regional robustness checks of main models*

Due to the sampling procedure for the pre-election survey as described above, Tables C.8 and C.9 replicate Table C.7, but for the Non-Northern regions (C.8) and for the Northern region (C.9). All core results hold.

## Table C.8 Non-North drivers of voting

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Neighbors Know | 0.0358*** | | | | 0.0383*** | 0.0376*** | 0.0383*** | 0.0329** | 0.0328** |
| | (0.0135) | | | | (0.0142) | (0.0143) | (0.0142) | (0.0128) | (0.0128) |
| Ethnic identifier | | 0.0261 | | | 0.0190 | 0.0188 | 0.0194 | 0.0444** | 0.0431** |
| | | (0.0202) | | | (0.0212) | (0.0213) | (0.0212) | (0.0191) | (0.0191) |
| Violence Expected | | | -0.00161 | | -0.00465 | -0.00390 | -0.00634 | 0.00926 | 0.00910 |
| | | | (0.0138) | | (0.0140) | (0.0140) | (0.0140) | (0.0126) | (0.0126) |
| Misuse of Funds | | | | -0.0182 | -0.0128 | -0.0127 | -0.0124 | -0.00869 | -0.00878 |
| | | | | (0.0124) | (0.0131) | (0.0131) | (0.0131) | (0.0118) | (0.0118) |
| Income | | | | | | 0.00173 | | | 0.00182 |
| | | | | | | (0.00160) | | | (0.00143) |
| Female | | | | | | 0.00817 | | | -0.00657 |
| | | | | | | (0.0116) | | | (0.0104) |
| County | | | | | | 0.0265 | | | |
| | | | | | | (0.199) | | | |
| Urban | | | | | | | -0.139*** | | -0.0761* |
| | | | | | | | (0.0474) | | (0.0427) |
| Museveni Voter | | | | | | | | 0.264*** | 0.263*** |
| | | | | | | | | (0.0120) | (0.0120) |
| Constant | 0.868*** | 0.888*** | 0.900*** | 0.900*** | 0.879*** | 0.487 | 0.898*** | 0.694*** | 0.701*** |
| | (0.00977) | (0.00509) | (0.00689) | (0.00776) | (0.0133) | (2.868) | (0.0148) | (0.0146) | (0.0175) |
| | | | | | | | | | |
| Observations | 2,946 | 2,944 | 2,695 | 2,964 | 2,621 | 2,621 | 2,621 | 2,621 | 2,621 |
| R-squared | 0.456 | 0.456 | 0.461 | 0.457 | 0.472 | 0.473 | 0.475 | 0.575 | 0.576 |

Standard errors in parentheses, clustered at PSU

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

## Table C.9 North drivers of voting

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Neighbors Know | 0.0547*** | | | | 0.0621*** | 0.0638*** | 0.0621*** | 0.0490*** | 0.0503*** |
| | (0.0172) | | | | (0.0186) | (0.0186) | (0.0186) | (0.0180) | (0.0180) |
| Ethnic identifier | | 0.0183 | | | 0.0135 | 0.0120 | 0.0134 | 0.0243 | 0.0246 |
| | | (0.0216) | | | (0.0232) | (0.0232) | (0.0232) | (0.0224) | (0.0224) |
| Violence Expected | | | 0.0363** | | 0.0425** | 0.0421** | 0.0425** | 0.0521*** | 0.0520*** |
| | | | (0.0182) | | (0.0182) | (0.0182) | (0.0182) | (0.0176) | (0.0176) |
| Misuse of Funds | | | | -0.0182 | 0.0170 | 0.0153 | 0.0170 | 0.0188 | 0.0178 |
| | | | | (0.0124) | (0.0174) | (0.0174) | (0.0174) | (0.0168) | (0.0168) |
| Income | | | | | | 0.00205 | | | 0.00246 |
| | | | | | | (0.00256) | | | (0.00248) |
| Female | | | | | | -0.00929 | | | -0.0147 |
| | | | | | | (0.0151) | | | (0.0146) |
| County | | | | | | -0.187** | | | |
| | | | | | | (0.0860) | | | |
| Urban | | | | | | | -0.0118 | | -0.0501 |
| | | | | | | | (0.0993) | | (0.0962) |
| Museveni Voter | | | | | | | | 0.160*** | 0.162*** |
| | | | | | | | | (0.0164) | (0.0164) |
| Constant | 0.834*** | 0.866*** | 0.853*** | 0.900*** | 0.803*** | 7.067** | 0.804*** | 0.729*** | 0.734*** |
| | (0.0123) | (0.00693) | (0.00963) | (0.00776) | (0.0172) | (2.885) | (0.0215) | (0.0183) | (0.0237) |
| | | | | | | | | | |
| Observations | 1,970 | 1,992 | 1,776 | 2,964 | 1,737 | 1,737 | 1,737 | 1,737 | 1,737 |
| R-squared | 0.504 | 0.502 | 0.507 | 0.457 | 0.523 | 0.525 | 0.523 | 0.555 | 0.556 |

Standard errors in parentheses, clustered at PSU

*** p<0.01, ** p<0.05, * p<0.1

*Robustness Check on Model Specification*

We replicate the analysis using MLE. Table C.10 reports marginal effects from an identically specified probit estimation.

**Table C.10 MLE replication**

| | (1) vote | (2) vote | (3) vote | (4) vote | (5) vote | (6) vote | (7) vote | (8) Turnout |
|---|---|---|---|---|---|---|---|---|
| Neighbors Know | 0.0654*** (0.0128) | | | | 0.0613*** (0.0131) | 0.0873*** (0.0253) | 0.0872*** (0.0263) | 0.0880*** (0.0267) |
| Ethnic identifier | | 0.0103 (0.0169) | | | 0.00208 (0.0176) | | 0.0763** (0.0329) | 0.0842** (0.0330) |
| Violence Expected | | | | -0.0123 (0.0121) | -0.00774 (0.0122) | | 0.0367 (0.0256) | 0.0308 (0.0260) |
| Misuse of Funds | | | 0.00401 (0.0110) | | -0.00297 (0.0116) | | -0.00653 (0.0254) | -0.0242 (0.0259) |
| Income | | | | | | -0.00178 (0.00292) | | 5.21e-05 (0.00322) |
| Education | | | | | | 0.103*** (0.0229) | | 0.132*** (0.0243) |
| Urban | | | | | | | | -0.125*** (0.0473) |
| Female | | | | | | -0.0303 (0.0229) | | -0.0121 (0.0241) |
| Observations | 4,916 | 4,936 | 4,952 | 4,471 | 4,358 | 1,979 | 1,771 | 1,721 |
| Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | | |

*Note: Estimates are probit estimations.*

*Robustness Check on Ethnic Identification*

As a robustness check, we also examine whether restricting our definition of who is an "ethnic identifier" is consequential; in short, it is not. In Table C.11 we report estimates that include those captured by our prior ethnic identifier construction but not those who identify equally with their tribe and as Ugandan in *Ethnic identifier*. 12% of respondents are identified by this narrower definition, but it does not affect our core results.

### Table C.11: Restricted definition of *Ethnic Identifier*

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| Neighbors Know | 0.0433*** | | | | 0.0477*** | 0.0342*** | 0.0337*** | 0.0378*** | 0.0383*** |
| | (0.0106) | | | | (0.0113) | (0.00998) | (0.00986) | (0.0105) | (0.0107) |
| Ethnic identifier | | 0.0223 | | | 0.0161 | | | 0.0342** | 0.0355** |
| | | (0.0147) | | | (0.0156) | | | (0.0145) | (0.0147) |
| Misuse of Funds | | | -0.00319 | | -0.000961 | | | 0.00210 | -0.00234 |
| | | | (0.00979) | | (0.0105) | | | (0.00977) | (0.00991) |
| Violence Expected | | | | 0.0136 | 0.0142 | | | 0.0266** | 0.0260** |
| | | | | (0.0110) | (0.0111) | | | (0.0103) | (0.0105) |
| Income | | | | | | 0.00128 | | | 0.00130 |
| | | | | | | (0.00119) | | | (0.00131) |
| Urban | | | | | | | | | -0.0831** |
| | | | | | | | | | (0.0410) |
| Education | | | | | | 0.0317*** | | | 0.0264*** |
| | | | | | | (0.00887) | | | (0.00949) |
| Female | | | | | | -0.0131 | | | -0.00688 |
| | | | | | | (0.00821) | | | (0.00879) |
| Museveni Voter | | | | | | 0.231*** | 0.228*** | 0.222*** | 0.225*** |
| | | | | | | (0.00921) | (0.00913) | (0.00976) | (0.00989) |
| Constant | 0.854*** | 0.879*** | 0.884*** | 0.881*** | 0.849*** | 0.712*** | 0.727*** | 0.715*** | 0.712*** |
| | (0.00766) | (0.00411) | (0.00601) | (0.00564) | (0.0105) | (0.0111) | (0.00876) | (0.0114) | (0.0146) |
| | | | | | | | | | |
| Observations | 4,916 | 4,936 | 4,952 | 4,471 | 4,358 | 4,799 | 4,916 | 4,358 | 4,247 |
| R-squared | 0.478 | 0.477 | 0.477 | 0.483 | 0.495 | 0.562 | 0.549 | 0.562 | 0.574 |

Standard errors in parentheses, clustered at PSU
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

## Authors' Documentation of Election Day

Please see Appendix here: https://www.cambridge.org/download_file/1061864

# Appendix D. Afghanistan

## Surveys

While our analysis in Section 4 primarily leverages our post-election survey, we ran two surveys in Afghanistan during the 2010 election: the post-election survey and a pre-election survey. Several challenges affected the ability to draw a sample for our surveys. Afghanistan has not conducted a recent census and has no voter registry, making any proportional distribution of the sample difficult and based on poor estimates. Security problems related to the ongoing insurgency and other violence made it dangerous to conduct surveys in many districts, as well as administratively and financially difficult. Therefore, a nationally representative survey of Afghanistan was impossible at the time. As a result, we focused enumeration on areas within provincial centers across 19 (of 34) provinces, in all regions of the country, including all ISAF military commands and the capital city Kabul.[9]

*Pre-election survey*

One month before the election (August 2010), we fielded a baseline survey of households living in the immediate vicinity of 450 polling centers. The survey contained 2,904 respondents. To obtain a representative sample of respondents living near polling centers, enumerators employed a random walk pattern starting at the polling center, with random selection of every fourth house or structure. Respondents within households are randomly selected using a Kish grid. The survey had 50 percent male and female respondents each and enumerators conducted interviews in either Dari or Pashto.

*Post-election survey*

We fielded the survey directly after the government finished adjudicating electoral disputes and certified winning candidates for parliament. Within provincial centers, we used the same polling centers as the pre-election survey as primary sampling units (adding 18 for a total of 468) and instituted random walk patterns for selection of households and random selection of respondents (yielding a 50 percent female sample) via a Kish grid. Afghanistan's Independent Election Commission (IEC) gazetted 5,548 polling centers in 2010; our sample represents 8.5% of the total number of planned centers projected to open on election day. Enumerators conducted surveys with individuals separately from other household members to guarantee respondent privacy. Although our sample shows a bias towards more urban and safer areas under government control, we note that half of the polling centers in our sample reside in locations deemed rural. While our results are not representative of the country as a whole, they are to the 19 provincial centers sampled, with 3,048 total respondents.

## Measures and Coding Rules

*Turnout*

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[9] In addition to Kabul, in RC-East, sampled provinces included Paktia, Parwan, Kapisa, Panjshir, Bamyan, and Nangarhar; in RC-North, Balkh, Faryab, Jowzjan, Samangan, Badakhshan, and Takhar; in RC-West, Herat and Ghor; in RC-South, Kandahar, Helmand, Oruzgan, and Dai Kundi.

*"Did you turn out and vote in the Wolesi Jirga elections in September 2010?"* Coding: "Yes"=1 & "No"=0. Using self-reported turnout presents both opportunities and challenges in Afghanistan, similar to our discussion in Appendix A. Trying to employ actual turnout figures in this case also faces a number of constraints. Lacking a recent census and a voter registry linking individual voters to a particular polling center, it is impossible to know within any center how many eligible voters *could* have voted relative to how many ballots are cast.[10] Nonetheless, we perform validation checks with official statistics (Table D.4), providing evidence that our reported turnout figure hews quite closely to actual turnout in our sample and accords with other approximations recorded by election observers. We believe this is the most appropriate, most direct available measure.

*Neighbors Expect*

*"In your opinion, do you think your neighbors expect you to vote even if you do not like the candidates?"* Coding: "Yes"= 1 & "No"= 0.

*Neighbors Know*

*"Regardless of whether you actually voted: In your opinion, do your neighbors know if you voted or if you did not vote?"* Coding: "Yes" = 1 & "No" = 0.

*Social Sanctioning*

"Yes" = 1 if Neighbors Expect = 1 & Neighbors Know= 1, & =0 otherwise.

*Ethnic Identifier*

*"Let us suppose you had to choose between being an Afghan and being a [insert name of language/ethnic group]. Which of these groups do you feel most strongly attached to?"* Coding: "Mostly or Strongly [ name of language/ethnic group]"

*Vote-buying*

*"Thinking about the elections, candidates may have rewarded their supporters with gifts and money in exchange for support. Do you think it is very important, somewhat important, or not very important that political parties reward their supporters with gifts and money in exchange for support?"* Coding: "Very & Somewhat important" = 1 & "Not very important" =0.

*Community Violence*

*"Have you lived in a neighborhood that has experienced attacks in the last 5 years?"*. Coding: "Yes" = 1 & "No and Don't know" = 0.

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[10] Per our discussion in Appendix A, it is impossible to obtain public records of individuals' turnout in Afghanistan. Threats against polling centers and voters with marked fingers by the Taliban prevented us from conducting an exit poll. We could not enumerate a survey until the conclusion of the election process.

*Wolesi Jirga Important*

> "*Now I want you to think about the role of the Wolesi Jirga in Afghanistan's government. Is the Wolesi Jirga very important, somewhat important, somewhat not important, or not at all important in helping to improve life in your neighborhood?*" Coding: "Very and somewhat important"= 1 & "Somewhat not important or not at all important"= 0.

*Services*

> "*In your opinion, does the opportunity to vote in the Wolesi Jirga elections increase the quality of services in your neighborhood?*" "Yes" = 1 & "No and Don't know"= 0.

*Male*

> Male" = 1 & "Female" = 0.

*Literate*

> "*What is the highest level of education that you have completed?*" Coding: "Literate"= 1 for any amount of formal schooling &"Not gone to school / Illiterate"=0.

*Electricity*

> "*Are you able to use electricity in your house most of the day, only part of the day, only a few days a week, or not at all?*" Coding: "Most and only part of the day"=1 & "Only a few days a week and not at all"=0.

*Pashtun*

> Coding=1 if respondent identifies as a Pashtun & =0 otherwise.

*Trust Sample*

> "*How much do you trust your neighbors?*" Coded 1 if "very much" or "somewhat" & 0 otherwise.

## Descriptive Statistics

### Table D.1 Survey summary statistics, Afghanistan

| Variable | N | Mean | SD |
|---|---|---|---|
| Turnout | 3048 | 0.669 | 0.471 |
| Social Sanctioning | 3048 | 0.279 | 0.449 |
| Neighbors Know | 3048 | 0.470 | 0.449 |
| Neighbors Expect | 3048 | 0.432 | 0.495 |
| Vote-buying | 3048 | 0.246 | 0.431 |
| Ethnic Attachment | 3048 | 0.056 | 0.230 |
| Community Violence | 3048 | 0.261 | 0.439 |
| Wolesi Jirga Important | 3048 | 0.776 | 0.417 |
| Services | 3048 | 0.555 | 0.497 |
| Male | 3048 | 0.500 | 0.500 |
| Urban | 3048 | 0.495 | 0.500 |
| Literate | 3048 | 0.653 | 0.476 |
| Electricity | 3048 | 0.603 | 0.489 |
| Pashtun | 3048 | 0.325 | 0.469 |
| Trust Sample (=1) | 3048 | 0.635 | 0.481 |

## Validation and Robustness Checks

We provide a number of validation and robustness checks here that correspond to the main analysis in Section 4. For ease of exposition, we first briefly summarize these additional results, with fuller explications and tables that follow.

First, given that parliamentary races occur at the provincial level, we re-estimated all models from Tables 4.1 and 4.2 using province fixed effects to account for unobserved heterogeneity that could affect turnout from provincial factors (Tables D.7 and D.8), such as the slate of candidates or ethnic composition or fractionalization. Province fixed effects do not change the significance or substantive impact of our core variables of interest, adding confidence in our predictions and suggesting the dynamics of social sanctioning work in addition to local political features and ethnic demography (see also footnote 10 in text). We believe that these results are not surprising given that, like many developing countries, Afghanistan is multi-ethnic at the national level but much less so at the provincial level. Moreover, even in provinces that are diverse, people still live in local mono-ethnic neighborhoods. Qualitative discussions of ethnic geography in Afghanistan confirm these dynamics (e.g., Barfield 2010 ).

Next, we consider systematic measurement bias in our dependent variable, which would occur if some respondents incorrectly report for reasons of social desirability that they had turned out when they had not, creating unidirectional bias potentially artificially inflating the number of voters. If this

bias exists, we think it is small and orthogonal to our core theoretical measures driving turnout. Our question on voting came at the very beginning of the survey, before any of the questions for independent variables and covariates, and respondents had no way to predict subsequent questions. Therefore, any bias would not account for the differences between the potential effects of these variables; and question order can help alleviate endogeneity problems (Ferree 2010). Additionally, while 67% could overestimate the likely national turnout figures, our survey was limited to areas that were more urban and safer, making voting easier than rural and more violent areas (Democracy-International 2011). We are skeptical that response bias significantly inflates reported turnout 3 months after the election. In a pre-election survey directly before the election, 76% of respondents reported an intention to vote. This declines nine points to 67% in our post-election survey regarding actual turnout. If response bias systematically drives responses, intended and reported turnout should match with no drop-off between survey rounds, which is not observed. Finally, response bias would need to be unreasonably high to account fully or mostly for the large significant effect of our treatment variable, rendering the actual probability of turnout significantly below both reported and certified levels. Therefore, while we cannot completely exclude the possibility that some respondents misreported turnout, it is unlikely the true turnout was dramatically lower in our sampled areas or response bias accounts for our results.

Last, we provide additional robustness checks of core results using alternative measures and specifications and administrative data. Because measuring the strength of ethnic attachments poses difficulties, we use a more expansive definition in Table D.12; results are consistent with our main results by including all who felt they identified as being just as Afghan as a member of their ethnic group as well as more or all with their ethnic group. Regarding our measure of vote-buying as explained in text, while it avoids the degree of desirability bias compared to other measures that probe an individual's actual receipt of gifts in exchange for votes, it could reasonably potentially under count expectations of vote-buying. If so, we expect our results would be more stable and well-estimated, although we do not think the magnitude of the effect would grow significantly. Regarding self-reported exposure to violence for our violence measure, perhaps because our survey question on violence asked about attacks within the last five years, prior exposure to violence may lose salience over time and explain the null results of this variable in our main tests. As a check on respondents' reported experience of violence, we also used event data on local (to the polling center) attacks in the pre-election period; Table D.5 reports results. Using micro-level conflict event data, we find similar substantive (and much better estimated) results as reported violence (small to no effect).

Potential Response Bias

One potential criticism of survey data is that some respondents could lack true opinions (or fail to express them) regarding the questions probed on the survey, and therefore provide responses where an answer to one question biases their responses to others or an unobserved factor drives responses across questions. Related to observational data more generally, this bias is similar to endogeneity or an unmeasured/unobserved variable systematically driving responses to observables, such that the errors of the responses to these questions are correlated and therefore provide systematically biased estimates. For example, if an unobserved variable X captures a person's level of happiness, an "angry"

respondent who is not happy with the government could consistently provide negative responses to questions about support for the government (variable A) and the perception of the quality of service provision (variable B), regardless of how they actually perceive these separate from being angry because the respondent is merely expressing anger and frustration, as opposed to a "real" opinion of A or B unrelated to X. This is equivalent to an unobserved spurious factor driving covariation between variables. A separate, but related concern, is that the answer on one question could drive the answer to another and be endogenous. Importantly for our purposes, this would mean that our dependent variable (voting) drives responses to our key explanatory variable. For either case to be true, responses across these questions must be highly and systematically correlated.

To examine these potentials in our survey data from Afghanistan, Table D.3 shows $r$ coefficients between survey measures (pairwise correlations) used in analysis. As Table D.3 shows, across any of our measures, we do not see a high correlation. Additionally, the $r$ coefficient between variables is usually less then 0.10, and there is no systematic relationship between our key measures of *Social Sanctioning* and all other measures. Therefore, while we cannot definitively rule out that there could be some biased responses or unobserved factors driving certain responses, we do not see evidence to cause us to worry about systematic response bias driving our results. Moreover, below, we provide controls for province to account for unobserved heterogeneity at the local provincial level.

Last, we do not believe *Social Sanctioning*, our core independent variable, is endogenous to our dependent variable on turnout. First, the question on turnout came at the beginning of the survey before any other questions and expectations that we would ask anything with respect to social sanctioning, ethnic attachments, or vote-buying. Second, *Social Sanctioning* is generated from combining two seemingly unrelated measures, *Neighbors Expect* and *Neighbors Know*. Accordingly, in Table D.2, we show the off-diagonal cross-tabulation of both measures, which are all well-populated, suggesting a lack of systematic correlation or endogeneity. Third, as we mention in the book and explore further in the next section, the self-reported turnout in the survey hews closely to administrative estimates, suggesting that responses on reported turnout reflect actual behavior, as opposed to responses endogenous to other seemingly unrelated survey questions that would also have to correlate almost perfectly with observed turnout recorded in administrative data that was generated without respect to our survey.

**Table D.2: Cross Tabulation of *Social Sanctioning* components**

|  | Neighbors do not expect | Neighbors expect | Total |
|---|---|---|---|
| **Neighbors Don't Know** | 1150 (71%) (66%) | 465 (29%) (35%) | 1615 (53%) |
| **Neighbors Know** | 582 (41%) (34%) | 851 (59%) (65%) | 1433 (47%) |
| Total | 1732 (57%) | 1316 (33%) | 3048 (100%) (100%) |

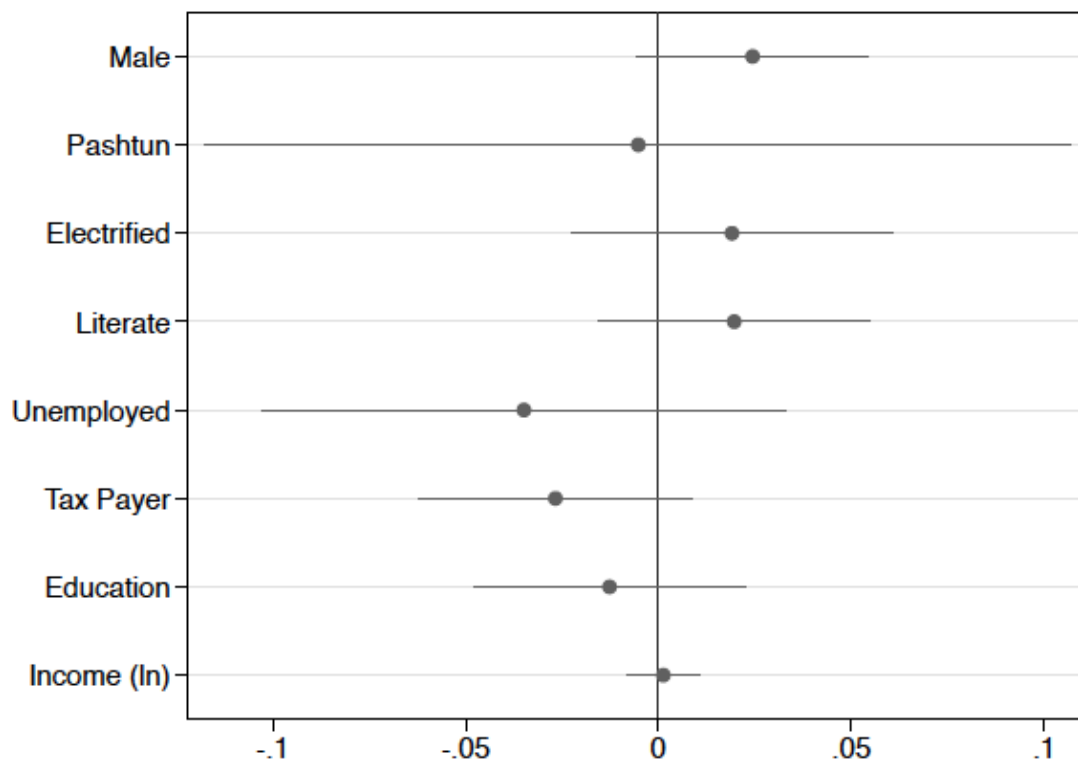**Figure D.1: Demographic correlates of *Social Sanctioning***

**Table D.3 Pairwise Correlations**

| | Social Sanctioning | Vote Buying | Ethnic Attachment | Community Violence | Pashtun | Services | WJ Importance | Urban | Literate | Electricity |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 1.0000 | | | | | | | | | |
| Vote Buying | 0.0158 | 1.0000 | | | | | | | | |
| Ethnic Attachment | 0.0431 | 0.0468 | 1.0000 | | | | | | | |
| Community Violence | -0.0949 | 0.0019 | 0.0282 | 1.0000 | | | | | | |
| Pashtun | -0.1619 | 0.1037 | 0.0297 | 0.2465 | 1.0000 | | | | | |
| Services | 0.1823 | 0.0021 | -0.0383 | -0.0046 | -0.1561 | 1.0000 | | | | |
| Wolesi Jirga Importance | 0.0661 | 0.0407 | -0.0923 | 0.0182 | -0.0503 | 0.3735 | 1.0000 | | | |
| Urban | -0.0937 | 0.0920 | -0.0661 | 0.0802 | 0.1677 | -0.0391 | 0.0471 | 1.0000 | | |
| Literate | 0.0186 | -0.0153 | -0.1053 | 0.0136 | -0.0564 | 0.1254 | 0.1176 | 0.1764 | 1.0000 | |
| Electricity | 0.0237 | -0.0792 | -0.0862 | -0.0144 | -0.2127 | 0.0598 | 0.0641 | 0.1632 | 0.1020 | 1.0000 |

Table A-3: Pairwise correlations

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One challenge to studies of voting behavior in Afghanistan involves estimating turnout without an appropriate measure of voting eligible population (as discussed in the book). While in Afghanistan it is impossible to construct the denominator of turnout given the lack of official registration rolls or a census to calculate the voting eligible population, we have done additional "back of the envelope" calculations given knowledge of the process and available data.[11] This measure gives us additional confidence in using our self-reported turnout measure from the survey.

The IEC gazetted centers prior to election day using their estimates of where voters were likely to turn out. Each polling center (such as a school) was allocated at least one stream within it (such as a classroom), and some centers were allocated multiple streams. By law, the cap on the number of ballots cast at a single stream was 600. Provisions were made to add streams should the number of voters exceed 600. Using the actual number of streams at centers, rather than the gazetted number, as well as the number of votes recorded at that center, we are able to estimate a non-traditional measure of turnout (lacking a total number of registered voters per stream or center). We use the number of streams multiplied by 600 to give a measure of the maximum theoretical turnout projected by the IEC. Next, we divided the total number of votes cast at the polling center by the calculated maximum theoretical turnout. If that turnout estimate was greater than one, we know that streams were added in increments of 600, giving us an estimate for the number of streams, in addition to those gazetted that were added in that center. If the turnout estimate was below one, we know that no streams were added.

Using this updated number of streams and the total number of votes, we calculate a new turnout estimate. Table D.4 shows the IEC certified vote count, the number of votes cast at polling centers that were open on election day, as well as the final number of streams. We calculate an estimated maximum turnout rate of 75% nationwide, and 73% in Kabul based on the IEC's certified results. However, these numbers represent an unlikely upper-bound. On election day, the IEC reported initial and only partial turnout figures of 40 percent from 3,642,444 ballots cast (although it remained unclear how the IEC calculated a denominator). Eventually, the IEC certified a total turnout of about 5,600,000 votes once all opened stations had reported. This increased the turnout rate to about 62% nation-wide calculated from their original projections. The IEC would eventually overturn vote totals for some candidates or polling stations after its own adjudication process of allegations of fraud and those of the Electoral Complaints Commission. Any candidate or polling center deemed to have any fraudulent votes tended to have all of their or its ballots erased, so that final turnout numbers most likely under-report the actual turnout rate. Observers and media consistently reported higher turnout in urban compared to rural areas (Democracy-International 2011), suggesting that the reported turnout in our sample (67%) from provincial centers hews closely within the range of the

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[11]Author 2 served as an accredited election observer for the 2009, 2010, and 2014 Afghan elections working with the largest international election observation mission. Our calculations are therefore based on intuitions presented here, and reflect direct on-the-ground experience working with electoral administrators, civil society groups, media, and independent observers who worked to validate turnout.

IEC's figures, and gives us confidence that our self-reported numbers from our survey are not driven by response bias.

Additionally, we note that given the layout of polling stations and inking, monitoring capacity is possible, even if somewhat limited compared to our African cases, although it too is likely complicated by the logistical challenges of voting and an environment of heightened political tensions between formal politicians and non-state insurgents who seek to undermine the vote. At the same time, directly observing *how* individual Afghans vote is complicated by secret ballot procedures in place. While ballot secrecy violations occasionally occur in Afghanistan, voters' privacy is usually maintained where voters cast ballots behind cardboard screens (Democracy International 2011). In our pre-election survey, 66% of Afghan respondents reported they believed their ballot to be secret, 24% not secret, and 11% did not know. Of the people who said not secret, only 38% (9% of the total sample) cited a candidate or political agent as the source of the violation; others were more likely to mention family members, consistent with our theory that members of a community have incentives for all of them to vote and therefore understandably probably share with close intimates for whom they voted.

**Table D.4 Number of votes by Province (2010)**

| Province | IEC Certified | IEC Adjusted Count Open Streams | Streams Open |
|---|---|---|---|
| Badakhshan | 252410 | 209429 | 446 |
| Badghis | 128256 | 118452 | 237 |
| Baghlan | 230671 | 222818 | 475 |
| Balkh | 274642 | 248030 | 574 |
| Bamyan | 124212 | 117602 | 259 |
| Daikondi | 158981 | 134662 | 282 |
| Farah | 96581 | 18329 | 67 |
| Faryab | 246815 | 237257 | 469 |
| Ghazni | 247862 | 212084 | 470 |
| Ghor | 284481 | 205191 | 370 |
| Helmand | 40899 | 32535 | 112 |
| Herat | 498301 | 188552 | 401 |
| Juzjan | 106697 | 104812 | 242 |
| Kabul | 512842 | 511138 | 1111 |
| Kandahar | 235592 | 191169 | 417 |
| Kapisa | 60056 | 74750 | 170 |
| Khost | 68762 | 32122 | 87 |
| Kunarha | 96561 | 96561 | 200 |
| Kunduz | 137864 | 121076 | 326 |
| Laghman | 90007 | 74552 | 181 |
| Logar | 68559 | 25898 | 70 |
| Nangerhar | 360140 | 284405 | 694 |
| Nimroz | 19208 | | |
| Nooristan | 50937 | 24699 | 54 |
| Paktia | 186521 | 146929 | 278 |
| Paktika | 172190 | 105067 | 230 |
| Panjshir | 22918 | 21971 | 80 |
| Parwan | 127680 | 113727 | 252 |
| Samangan | 117536 | 104940 | 210 |
| Sar-i-Pul | 141564 | 134037 | 279 |
| Takhar | 232489 | 161616 | 337 |
| Urozgan | 19269 | 19269 | 67 |
| Wardak | 174884 | 129409 | 255 |
| Zabul | 16303 | 15093 | 44 |
| Total | 5602690 | 4438181 | 9726 |

*Source: IEC*

As a robustness check to using self-reported exposure to violence, which for the reasons discussed in the main text we believe is the correct measure of the concept, we also conducted a robustness check using more recent attacks data, referred to as "SIGACTS" (for "significant activity").[12] SIGACTs are declassified reports on violent activity between insurgents and US/ISAF forces. We use SIGACTS data that are geo-coded to the nearest polling center, our primary sampling unit, to measure highly local attacks within the six months prior to the election.

Table D.5 reports these results. Model 1 is specified identically to Table 2, model 10. Model 2 here is identical to Table 3, model 3, estimated on the non-trusting subsample. Model 3 is specified as Table 3, model 6, on the trusting subsample. We note that SIGACTs data are not available for all of the polling centers, so our samples are slightly smaller than in Tables 4.1 and 4.2 above. There are no substantive changes using this alternative to violence compared to self-reported violence.

**Table D.5 Probit estimates on Likelihood of Voting (=1), Violence Robustness check**

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[12] See Shaver and Wright (2017).

|  | (1) vote | (2) vote | (3) vote |
|---|---|---|---|
| Social Sanctioning | 0.216*** | 0.314*** | 0.165*** |
|  | (0.0203) | (0.0372) | (0.0225) |
| Vote Buying | 0.00804 | 0.0735* | -0.0301 |
|  | (0.0237) | (0.0418) | (0.0280) |
| Ethnic Attachment | 0.0392 | -0.0284 | 0.0783* |
|  | (0.0379) | (0.0687) | (0.0435) |
| SIGACTS | -1.77e-05*** | -1.39e-05*** | -1.85e-05*** |
|  | (3.04e-06) | (4.73e-06) | (3.99e-06) |
| WJ Important | 0.146*** | 0.110*** | 0.163*** |
|  | (0.0255) | (0.0406) | (0.0312) |
| Services | 0.256*** | 0.277*** | 0.238*** |
|  | (0.0220) | (0.0360) | (0.0257) |
| Male | 0.0771*** | 0.107*** | 0.0478** |
|  | (0.0199) | (0.0366) | (0.0238) |
| Urban | 0.0755*** | 0.0733* | 0.0672** |
|  | (0.0244) | (0.0406) | (0.0273) |
| literacy | 0.124*** | 0.0994*** | 0.138*** |
|  | (0.0222) | (0.0380) | (0.0265) |
| electricity | -0.0123 | 0.0463 | -0.0444* |
|  | (0.0210) | (0.0373) | (0.0237) |
| pashtun | -0.137*** | -0.176*** | -0.0887*** |
|  | (0.0265) | (0.0388) | (0.0318) |
| Sample | Full | Trust = 0 | Trust = 1 |
| Observations | 2,790 | 1,028 | 1,762 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

This accords with qualitative accounts as well. In 2009, "the Taliban has conducted a series of calibrated attacks aimed at using the minimum amount of violence to reduce voting as much as possible" (Kagan, 2009). Semple (2014) notes that while issuing instructions to commanders to disrupt the 2014 election, Taliban leadership gave field commanders discretion over their choice of tactics and targets, in part reflecting concern regarding potential harm to noncombatants. Some observers even argued that the Taliban used election violence not to directly inflict harm on civilians, but rather to intimidate and deter voters (DI, 2010, 36)—"to give citizens the sense that they are unsafe and can become victims at any moment" (Coburn and Larson, 2014, 171). The primary goal of violence in this context "is not the number of casualties, but the impact that it has on the wider population" (Coburn and Larson, 2014, 171).

## Additional Models and Analyses

### Component Parts to *Social Sanctioning* Measure

Our theory asserts that perceptions of social sanctioning contain two important component parts. First, neighbors must expect a person to vote, corresponding to variable *Neighbors Expect*. Recall that we specify this in cases where voters do not like the candidates on offer, as we discuss in the main text. Second, communities must also be able to monitor potential voting, corresponding to the variable *Neighbors Know*. Our theory does not preclude the possibility that these individual components can increase turnout on their own. We argue that their joint effect is larger than either on its own. In Table D.6, we recreate our main analysis from Table 2 in the book and show the component parts across individual models and including controls. *Neighbors Expect* and *Neighbors Know* increase the likelihood of turning out, but there is a larger effect of the variable *Social Sanctioning*, combining *Neighbors Expect* and *Neighbors Know*, across models in Table 2.

**Table D.6: Likelihood of Voting (=1), *Social Sanctioning* components separated**

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Neighbors Know | 0.180*** | | 0.179*** | | 0.144*** | |
| | (0.02) | | (0.02) | | (0.02) | |
| Neighbors Expect | | 0.169*** | | 0.168*** | | 0.106*** |
| | | (0.02) | | (0.02) | | (0.02) |
| Vote-buying | | | 0.028 | 0.028 | 0.013 | 0.014 |
| | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Ethnic Attachment | | | -0.019 | -0.026 | 0.016 | 0.010 |
| | | | (0.04) | (0.04) | (0.04) | (0.04) |
| Community Violence | | | | | -0.003 | -0.009 |
| | | | | | (0.02) | (0.02) |
| WJ Importance | | | | | 0.133*** | 0.139*** |
| | | | | | (0.02) | (0.02) |
| Services | | | | | 0.215*** | 0.214*** |
| | | | | | (0.02) | (0.02) |
| Male | | | | | 0.074*** | 0.064*** |
| | | | | | (0.02) | (0.02) |
| Urban | | | | | 0.000 | 0.000 |
| | | | | | (.) | (.) |
| Literacy | | | | | 0.099*** | 0.099*** |
| | | | | | (0.02) | (0.02) |
| Electricity | | | | | 0.031 | 0.036 |
| | | | | | (0.02) | (0.02) |
| Pashtun | | | | | 0.015 | 0.014 |
| | | | | | (0.03) | (0.03) |
| Constant | 0.584*** | 0.596*** | 0.578*** | 0.590*** | 0.249*** | 0.272*** |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.03) | (0.03) |
| N | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 |
| r2 | 0.315 | 0.310 | 0.315 | 0.310 | 0.398 | 0.389 |

Because parliamentary races occur at the provincial level in Afghanistan, some of the variation in turnout could plausibly result from province-level factors. In particular, we note the slate of candidates and ethnic composition at the province level forming two important factors that could shape participation. To address this, we rerun all models from Tables 2 and 3 using province fixed effects (see Tables D.7 and D.8, respectively). The inclusion of fixed effects (Tables D.7 and D.8) does not change the significance of our core variables of interest. Therefore, we have confidence in our results are not driven by unobserved heterogeneity at the provincial level, or more specifically, the local slate of candidates or degree of ethnic diversity. We believe that these results are not surprising given points we raise in the main text. First, like many developing democracies, Afghanistan is multi-ethnic at the national level, but much less so at the provincial level. Moreover, even in provinces that are diverse, people still live in local mono-ethnic neighborhoods. In the capital city of urban Kabul, for example, sectarian divisions between neighborhoods going back to the civil war divide the main ethnic groups between areas, so people's neighbors are almost always their co-ethnics. Qualitative discussions of ethnic geography in Afghanistan confirm these dynamics (e.g., Barfield 2010).

*Robustness Check for Province Fixed Effects*
Tables D.7 and D.8 replicate the main tables but include province fixed effects.

**Table D.7: Province Fixed Effects**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctions | 0.217*** | | | 0.216*** | 0.216*** | 0.217*** | 0.171*** | 0.190*** | 0.166*** | 0.166*** |
| | (0.02) | | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Vote-buying | | 0.035 | | 0.031 | 0.031 | 0.031 | 0.022 | 0.025 | 0.016 | 0.016 |
| | | (0.02) | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Ethnic Attachment | | | -0.024 | -0.028 | -0.028 | -0.028 | 0.005 | 0.007 | 0.009 | 0.009 |
| | | | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Community Violence | | | | | -0.002 | | -0.010 | -0.001 | -0.007 | -0.008 |
| | | | | | (0.02) | | (0.02) | (0.02) | (0.02) | (0.02) |
| Pashtun | | | | | | 0.009 | 0.017 | | | 0.020 |
| | | | | | | (0.03) | (0.03) | | | (0.03) |
| Services | | | | | | | 0.243*** | | 0.211*** | 0.210*** |
| | | | | | | | (0.02) | | (0.02) | (0.02) |
| Male | | | | | | | 0.070*** | 0.074*** | 0.069*** | 0.068*** |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Urban | | | | | | | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | (0.00) | (0.00) | (0.00) | (0.00) |
| Literacy | | | | | | | 0.105*** | 0.116*** | 0.098*** | 0.099*** |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Electricity | | | | | | | 0.036 | 0.037 | 0.034 | 0.035 |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| WJ Important | | | | | | | | 0.205*** | 0.138*** | 0.138*** |
| | | | | | | | | (0.02) | (0.02) | (0.02) |
| Constant | 0.608*** | 0.660*** | 0.670*** | 0.602*** | 0.603*** | 0.599*** | 0.353*** | 0.315*** | 0.277*** | 0.270*** |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.02) | (0.03) | (0.03) | (0.03) |
| N | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 |
| r2 | 0.317 | 0.290 | 0.289 | 0.318 | 0.318 | 0.318 | 0.388 | 0.368 | 0.398 | 0.398 |

Table A-7: With Province Fixed Effects

## Table D.8: Trust Model with Province Fixed Effects

|  | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Social Sanctions | 0.267*** | 0.237*** | 0.220*** | 0.226*** | 0.181*** | 0.179*** |
|  | (0.04) | (0.04) | (0.04) | (0.03) | (0.03) | (0.03) |
| Vote-buying | 0.077 | 0.034 | 0.052 | 0.005 | -0.006 | -0.004 |
|  | (0.04) | (0.04) | (0.04) | (0.03) | (0.03) | (0.03) |
| Ethnic Attachment | -0.109 | -0.097 | -0.090 | 0.036 | 0.050 | 0.072 |
|  | (0.07) | (0.07) | (0.07) | (0.05) | (0.05) | (0.05) |
| Community Violencee |  | 0.006 | 0.005 |  | 0.008 | 0.006 |
|  |  | (0.04) | (0.04) |  | (0.03) | (0.03) |
| WJ Important |  | 0.122** | 0.119** |  | 0.160*** | 0.148*** |
|  |  | (0.04) | (0.04) |  | (0.03) | (0.03) |
| Services |  | 0.203*** | 0.190*** |  | 0.246*** | 0.233*** |
|  |  | (0.04) | (0.04) |  | (0.02) | (0.02) |
| Male |  |  | 0.087** |  |  | 0.032 |
|  |  |  | (0.03) |  |  | (0.02) |
| Urban |  |  | 0.000 |  |  | 0.000 |
|  |  |  | (0.00) |  |  | (0.00) |
| Literacy |  |  | 0.072* |  |  | 0.112*** |
|  |  |  | (0.03) |  |  | (0.02) |
| Electricity |  |  | 0.117** |  |  | -0.035 |
|  |  |  | (0.04) |  |  | (0.03) |
| Pashtun |  |  | 0.032 |  |  | 0.016 |
|  |  |  | (0.06) |  |  | (0.04) |
| Constant | 0.506*** | 0.339*** | 0.189*** | 0.647*** | 0.382*** | 0.325*** |
|  | (0.02) | (0.03) | (0.05) | (0.01) | (0.03) | (0.04) |
| N | 1111.000 | 1111.000 | 1111.000 | 1937.000 | 1937.000 | 1937.000 |
| r2 | 0.515 | 0.548 | 0.564 | 0.355 | 0.422 | 0.434 |

Table A-8: Trust model with Province Fixed Effects

## Interactions for Trust

In Table 3 we break apart the total survey sample by respondents who report that they trust their neighbors ("Trust Sample") and those who do not. In Table D.9, we re-run the models from Table 3 on the full sample but including an interaction variable for Social Sanctioning and Trust, Social Sanctions*Trust. As the coefficients show, the effect of social sanctioning declines for people who trust their neighbors, consistent with our results in Table 3 and Figure 2. The interaction term demonstrates a reducing effect of trust on social sanctioning, although the interaction term falls just below standard levels of significance. Because we think the theoretical concept most important to capture here is the effect of social sanctioning in the trusting context, we report those results in Table 3.

**Table D.9 Trust Interactions**

|  | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Social Sanctions | 0.258*** | 0.257*** | 0.221*** | 0.213*** |
|  | (0.03) | (0.03) | (0.03) | (0.03) |
| Trust | 0.086*** | 0.085*** | 0.067** | 0.045* |
|  | (0.02) | (0.02) | (0.02) | (0.02) |
| Social Sanctions*Trust | -0.067 | -0.066 | -0.077 | -0.073 |
|  | (0.04) | (0.04) | (0.04) | (0.04) |
| Vote-buying |  | 0.027 | 0.006 | 0.014 |
|  |  | (0.02) | (0.02) | (0.02) |
| Ethnic Attachment |  | -0.025 | -0.011 | 0.009 |
|  |  | (0.04) | (0.04) | (0.04) |
| Community Violence |  |  | -0.004 | -0.007 |
|  |  |  | (0.02) | (0.02) |
| WJ Important |  |  | 0.144*** | 0.135*** |
|  |  |  | (0.02) | (0.02) |
| Services |  |  | 0.227*** | 0.211*** |
|  |  |  | (0.02) | (0.02) |
| Male |  |  |  | 0.065*** |
|  |  |  |  | (0.02) |
| Urban |  |  |  | 0.000 |
|  |  |  |  | (0.00) |
| Literacy |  |  |  | 0.098*** |
|  |  |  |  | (0.02) |
| Electricity |  |  |  | 0.033 |
|  |  |  |  | (0.02) |
| Pashtun |  |  |  | 0.022 |
|  |  |  |  | (0.03) |
| Constant | 0.555*** | 0.550*** | 0.342*** | 0.247*** |
|  | (0.02) | (0.02) | (0.02) | (0.03) |
| N | 3048.000 | 3048.000 | 3048.000 | 3048.000 |
| r2 | 0.321 | 0.322 | 0.382 | 0.399 |

*MLE of Tables 4.1 and 4.2*

We replicate our main analyses, using MLE.

**Table D.10: Probit Model on Likelihood of Voting (Table 2), Marginal Effects**

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 | Model 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctioning | 0.258 | | | 0.259 | 0.257 | 0.242 | 0.206 | 0.246 | 0.214 | 0.206 |
| | (0.02) | | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Vote-buying | | 0.019 | | 0.016 | 0.016 | 0.034 | 0.024 | 0.007 | 0.007 | 0.017 |
| | | (0.02) | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Ethnic Attachment | | | -0.042 | -0.072 | -0.069 | -0.06 | 0.007 | 0.016 | 0.021 | 0.024 |
| | | | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) | (0.04) |
| Community Violence | | | | | -0.034 | | -0.021 | -0.045 | -0.052 | -0.024 |
| | | | | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Wolesi Jirga Importance | | | | | | | | 0.255 | 0.145 | 0.147 |
| | | | | | | | | (0.02) | (0.02) | (0.02) |
| Services | | | | | | | 0.290 | | 0.261 | 0.250 |
| | | | | | | | (0.02) | | (0.02) | (0.02) |
| Male | | | | | | | 0.079 | 0.073 | 0.073 | 0.079 |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Urban | | | | | | | 0.055 | 0.011 | 0.03 | 0.050 |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Literate | | | | | | | 0.124 | 0.145 | 0.126 | 0.119 |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Electricity | | | | | | | -0.006 | 0.026 | 0.015 | -0.01 |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Pashtun | | | | | | -0.148 | -0.115 | | | -0.117 |
| | | | | | | (0.03) | (0.03) | | | (0.03) |
| Pseudo R2 | 0.0522 | 0.0002 | 0.0003 | 0.0533 | 0.054 | 0.0695 | 0.1692 | 0.1224 | 0.1715 | 0.1797 |
| N | 3048 | 3048 | 3048 | 3048 | 3048 | 3048 | 3048 | 3048 | 3048 | 3048 |

Marginal effects of probit regression. Robust standard errors clustered by PSU (polling center)

**Table D.11: Probit Model of Community Trust (Table 3)**

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|---|---|---|---|---|---|---|
| Social Sanctioning | 0.355 | 0.325 | 0.316 | 0.198 | 0.152 | 0.151 |
| | (0.03) | (0.03) | (0.04) | (0.02) | (0.02) | (0.02) |
| Vote-Buying | 0.088 | 0.053 | 0.069 | -0.028 | -0.023 | -0.014 |
| | (0.04) | (0.04) | (0.04) | (0.03) | (0.03) | (0.03) |
| Ethnic Attachment | -0.096 | -0.053 | -0.014 | -0.04 | 0.011 | 0.043 |
| | (0.07) | (0.07) | (0.07) | (0.05) | (0.05) | (0.04) |
| Community Violence | | -0.087 | -0.062 | | -0.013 | 0.002 |
| | | (0.04) | (0.04) | | (0.03) | (0.03) |
| WJ Importance | | 0.125 | 0.120 | | 0.161 | 0.156 |
| | | (0.04) | (0.04) | | (0.03) | (0.03) |
| Services | | 0.294 | 0.279 | | 0.247 | 0.229 |
| | | (0.03) | (0.03) | | (0.02) | (0.03) |
| Male | | | 0.124 | | | 0.044 |
| | | | (0.04) | | | (0.02) |
| Urban | | | 0.064 | | | 0.037 |
| | | | (0.04) | | | (0.03) |
| Literate | | | 0.095 | | | 0.132 |
| | | | (0.04) | | | (0.02) |
| Electricity | | | 0.052 | | | -0.043 |
| | | | (0.04) | | | (0.02) |
| Pashtun | | | -0.139 | | | -0.086 |
| | | | (0.04) | | | (0.03) |
| Trust Sample? | No | No | No | Yes | Yes | Yes |
| Pseudo R2 | 0.082 | 0.1707 | 0.2077 | 0.0379 | 0.1314 | 0.1581 |
| N | 1111 | 1111 | 1111 | 1937 | 1937 | 1937 |

Marginal effects of probit regression. Robust standard errors clustered by PSU (polling center)

To account for a more restrictive definition of Ethnic Attachment, in Table D.12 , respondents' ethnic attachment, Moderate Ethnic Attachment, is coded to = 1 for respondents that identify more (or only) with their ethnicity. Those who identify equally with their ethnicity and being an Afghan and those who feel only Afghan or more Afghan than their ethnicity are coded =0 as non-ethnic identifiers. Results with this expanded definition do not change from Table 2.

**Table D.12: Table 2 replicated, with robust definition of *Ethnic Attachment***

| | (1) vote | (2) vote | (3) vote | (4) vote | (5) vote | (6) vote | (7) vote | (8) vote | (9) vote | (10) vote |
|---|---|---|---|---|---|---|---|---|---|---|
| Social Sanctions | 0.217*** | | | 0.217*** | 0.217*** | 0.217*** | 0.172*** | 0.191*** | 0.167*** | 0.167*** |
| | (0.02) | | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Vote-buying | | 0.035 | | 0.030 | 0.030 | 0.030 | 0.023 | 0.026 | 0.017 | 0.017 |
| | | (0.02) | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Ethnic Identifier (Moderate) | | | -0.006 | 0.007 | 0.007 | 0.007 | 0.023 | 0.017 | 0.023 | 0.022 |
| | | | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Community Violence | | | | | -0.002 | | -0.011 | -0.001 | -0.007 | -0.008 |
| | | | | | (0.02) | | (0.02) | (0.02) | (0.02) | (0.02) |
| Pashtun | | | | | | 0.009 | 0.016 | | | 0.019 |
| | | | | | | (0.03) | (0.03) | | | (0.03) |
| Services | | | | | | | 0.244*** | | 0.211*** | 0.211*** |
| | | | | | | | (0.02) | | (0.02) | (0.02) |
| Male | | | | | | | 0.069*** | 0.074*** | 0.068*** | 0.068*** |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| Urban | | | | | | | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | (.) | (.) | (.) | (.) |
| Literacy | | | | | | | 0.106*** | 0.117*** | 0.099*** | 0.100*** |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| electricity | | | | | | | 0.037 | 0.037 | 0.034 | 0.035 |
| | | | | | | | (0.02) | (0.02) | (0.02) | (0.02) |
| WJ Important | | | | | | | | 0.205*** | 0.137*** | 0.138*** |
| | | | | | | | | (0.02) | (0.02) | (0.02) |
| Constant | 0.608*** | 0.660*** | 0.670*** | 0.599*** | 0.599*** | 0.596*** | 0.345*** | 0.309*** | 0.270*** | 0.264*** |
| | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.02) | (0.02) | (0.03) | (0.03) | (0.03) |
| N | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 | 3048.000 |
| r2 | 0.317 | 0.290 | 0.289 | 0.318 | 0.318 | 0.318 | 0.389 | 0.368 | 0.398 | 0.398 |

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Author Documentation of Election Day

Please see Appendix here:

# Appendix II: Agent Based Model

## Appendix E. Agent Based Model Overview

### E.1 Overview

We derive our predictions on the drivers and relative levels of turnout formally using an Agent-Based Model (ABM). As a complement to our less technical treatment of the model in text Section 2, this Appendix E provides readers a better guide to the structure and parameters of the ABM. The appendix includes the expected utility calculations used by the agents, the default settings, and a discussion of each parameter, as well as a more in-depth discussion of the predictions of the model. We divide this appendix into two sections. In the first, we give a brief overview of the method and illustrate the simulations that produce the hypotheses we describe in the main text Section 2 and that we test in Sections 3 and 4. In the second, we more specifically discuss details of the model and initial parameter settings.

### E.2 Description of the Model

We use an Agent-Based Model (ABM) of cooperation to manipulate the basic Prisoner's Dilemma setup described in Table 1 (in text). As described by Axelrod (1997), agent-based modeling provides a way to perform thought experiments. The discussion here is intended for those interested in how we derived our predictions. In our approach, most of the propositions are fairly intuitive when thinking about groups of actors who are incentivized to solve cooperation problems like those faced by voters, but the simulations serve as a way to verify the underlying intuition. The ABM allows us to introduce the role of population dynamics and individuals' reputations within the population as key characteristics that increase or decrease cooperation (Jung and Lake 2011a). These characteristics may include payoffs to the game, individuals' beliefs about the population, and affective ties of membership.

We model turnout as a problem of cooperation first, and only secondarily a problem of coordination. This dynamic is captured in a prisoner's dilemma-like framework, where ideal points are taken into account. Patterns of agent cooperation and coordination within a population faced with prisoner's dilemma ordered payoffs is analogous to voter turnout, especially since individuals have incentives to free-ride, as they will enjoy the benefits of distribution regardless of whether or not they turn out. Voters also prefer to turn out with others with whom they have strong ties. We are agnostic as to the source of these ties (they may be ethnic, social, partisan, or ideological). To capture this concept of affective ties theoretically, we subtract a weighted penalty from the benefits to mutual turnout. Effectively, this means that cooperation/turnout with people who are unlike a voter on this

dimension provides less utility than cooperation/turnout with people who are similar to a voter in this regard.

Our ABM generated hypotheses follow insights as in Jung and Lake (2011a). A population of voters face a decision to turn out or stay home summarized in Figure E.1. Their payoffs are ordered according to the classic prisoner's dilemma. These voters face the cooperative dilemma summarized above and will pay various costs to turnout.

|  |  | Voter 2 | |
| --- | --- | --- | --- |
|  |  | **Turnout** | **Stay home** |
| **Voter 1** | **Turnout** | 3-k*, 3-k | 0, 5 |
|  | **Stay home** | 5, 0 | 1, 1 |

*where k is the absolute value of the difference in affective ties between voter 1 and voter 2*

**Figure E.1 Default payoffs for turnout simulations**

We simulate 100 agent populations where we look at the population effects of pairwise interactions to cooperate (Turn out) or defect (Stay home), where agents face varying incentives and costs to voting in the face of social sanctions, vote buying, and ethnic attachments. Agents seeking mechanisms to overcome cooperation problems can make use of weak political parties, social networks, as well as the payoffs for cooperation. Here, the basic model of cooperation reflects a comparative lack of partisanship and institutionalized parties, similar to the discussion of our case of Afghanistan (Section 4).[13] In each simulation we look at the cooperation rates in the population. Because we view cooperation as analogous to turning out to vote, these correspond to simulated turnout rates in the population. Each prediction results from varying the basic incentives to turn out or stay home. We present comparative statics that sweep these parameters from low to high and track turnout in that population. The default settings reflect a weak party infrastructure as well as a relatively low level of partisanship, similar to other emerging democracies.

Social sanctioning

Within the prisoner's dilemma setup described in Table 1, we conceptualize an environment with social sanctioning as one in which there are increasingly negative payoffs from a lack of community investment in public goods. The modeling framework allows us to decrement the payoffs for mutual defection over multiple iterations of the simulation and track the rate at which agents (voters)

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[13] The single non-transferable vote with large district magnitudes has impeded a lack of political party development in Afghanistan, and nearly all candidates run as independents. Therefore, there is no de facto level of partisanship among Afghan voters (see Section 4). But even in Ghana with a consolidated two-party system, expressed levels of partisanship by survey respondents were still low (see Section 3).

cooperate. Figure E.2 shows the turnout on the y-axis as social sanctions for not voting increase (or the DD payoff becomes worse, read from right to left). Like the figures below, this is a comparative static result.

Moving from right to left, the graph demonstrates that turnout increases dramatically as the threat or perception of negative payoffs for staying home increases. Conversely, as those penalties become less costly, turnout decreases significantly, leaving mainly strong partisans. Indeed, the net payoff to such an outcome need only be slightly less than what they would otherwise get from not voting to induce dramatic increases in predicted turnout. Social sanctions of this sort therefore need not be particularly costly to deliver to have a dramatic effect. We therefore argue that the social sanctioning mechanism is an important predictor for explaining the expressed levels of turnout witnessed in new democracies.
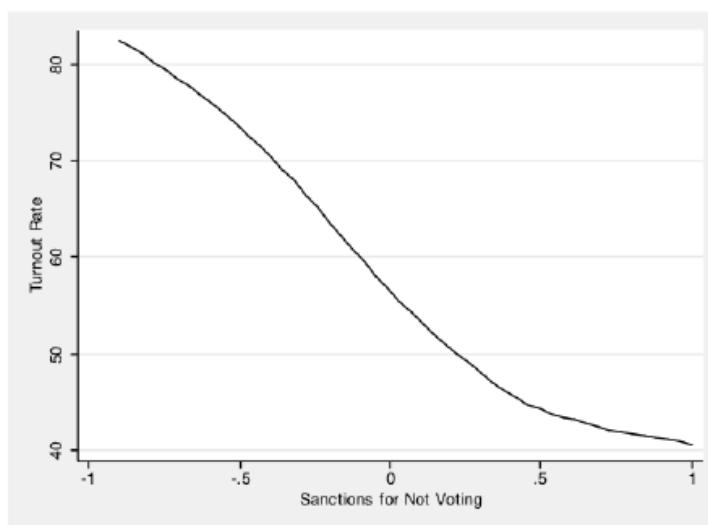


**Figure E.2. Turnout levels as penalties for not participating become increasingly large**
[note: Seed 738623: DD payoff decremented from1.0 by 0.1 over 20 increments. Smoothed]

Ethnic attachment

Figure E.3 simulates the turnout obtained by increasing the weight on affective ties of group membership from strong feelings of ethnic identity. Mechanically, this is equivalent to subtracting the weighted difference between agents' randomly assigned ideological/ethnic values. Theoretically, the larger the weight on the difference that gets subtracted from any cooperative outcome should decrease turnout rates. These comparative static results show that high values on the salience on these affective components should in fact slightly decrease cooperation/turnout, or localize it. Essentially, when the costs to cooperate with people whose ideal points are distant from their own increase, cooperation in the population is not significantly affected; people are only willing to cooperate with those who are ethnically very similar. This could result in pockets of cooperation when the affective ties/ethnic groups are geographically concentrated, but what we see below is that even large increases in the

salience of identity does not seem to affect turnout. Specifically, a stronger attachment to one's ethnic group does not seem to affect turnout (cooperation).
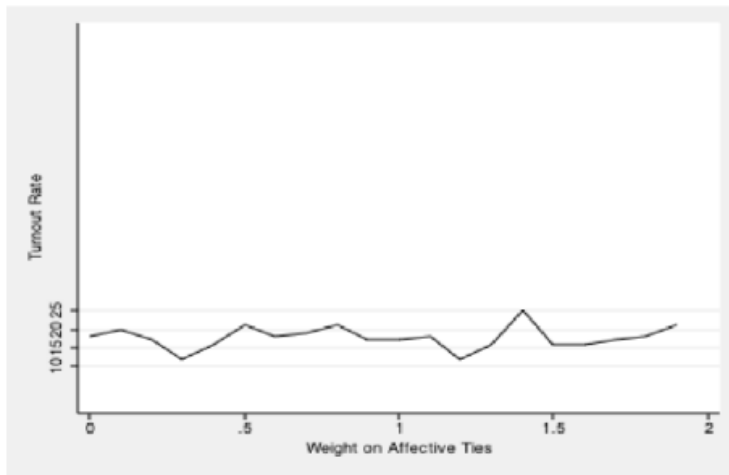


**Figure E.3 Cooperation/Turnout as the strength of identity increases.**
[Note: Seed 274625. Ideology incremented from 0 by 0.1x20]

Vote-Buying

Vote-buying includes the expectation of a tangible good provided by a party or candidate in exchange for turning out, like money or a gift. Within the framework of the prisoner's dilemma, this is equivalent to adding to the voter's expected payoff for turning out, or increasing the payoff for mutual cooperation. Figure E.4 below illustrates changes in level of turnout created by simulating increases in the benefits to mutual cooperation (delivering vote-buying). Figure E.4 shows the comparative static results of moving both up and down from the standard payoff of 3, in increments of 0.2. These increases in the payoffs (along the x-axis) produce dramatic results in the predicted level of turnout, but only as the payoffs for mutual turnout become increasingly large compared to the status quo benefits to turnout.

Immediately we can see that payoffs need to be unreasonably high to obtain participation above what is observed in our cases and many emerging democracies. Essentially, ceteris paribus, an added payoff of about 1.0 unit, or half of the expected long-term communal returns to turnout, would be needed to achieve high levels of cooperation driven by vote-buying. The credibility of nascent parties in emerging democracies to have the resources available to offer incentives large enough to offset the disincentives to vote seems questionable. Additionally, as we discuss in the main text, the human and physical infrastructure to target and identify cooperative voters, monitor their behavior, and deliver these rewards seems lacking. Therefore, we do not think that vote-buying alone, or any marginal payouts through vote-buying, explains increasing levels of turnout for the marginal voter.

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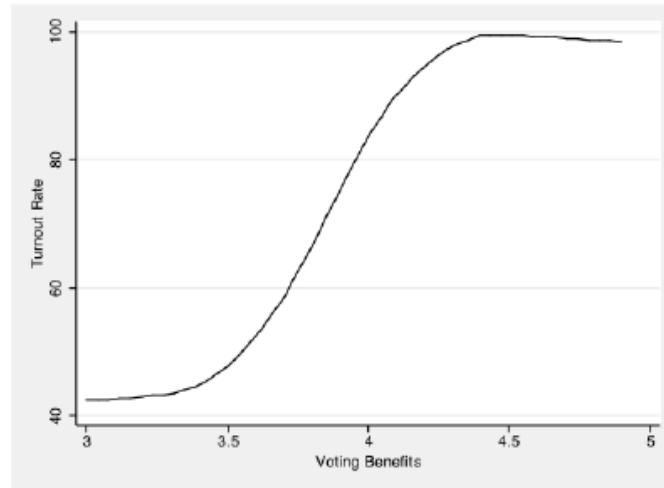
**Figure E.4: Cooperation/Turnout as benefits to mutual cooperation increase (vote-buying)**
[Notes: Seed: 7954. CC payoff incremented from 3.0 by 0.1 over 20 increments. Smoothed]

## E.3 Additional Details and Initial ABM Settings

In this portion of the appendix, we outline the ABM's mechanics (rather than the results) in greater detail. We discuss the types of agents, the setup of the simulations, expected utility calculations, and the default parameters.

Voters, as agents, play a prisoner's dilemma (PD) in which they have an assigned strategy: all cooperate (ALLC), all defect (ALLD) or tit-for-tat (TFT). Agents also have an individual ideal point [0,1]. This is designed to capture the idea that not all cooperative actions are created equal; two agents on the far left may view mutual cooperation as more beneficial than one of those agents will feel cooperation with an agent on the far right will be. To capture this, instances of mutual cooperation can be thought of as conducted at the midpoint of the two players' ideological preferences. This weighted difference is subtracted from the payoff for cooperation.

The model begins with user specification of the parameters. Payoffs are set. Each of the four outcomes of a PD (i.e., CC, CD, DC, and DD) is specified. In our model, higher payoffs to the CC outcome are analogous to positive psychological benefits that an individual feels from voting their identity or otherwise support their "duty" to vote. They may also be akin to the tangible benefits from voting, such as personalistic goods received through vote-buying. We think of the CC outcome as occurring when an individual and the randomly selected member of her community both turn up at their polling station. The CC outcome should indicate investment in the collective goods. Additionally, worse payoffs for not voting, the DD outcome, are analogous to a social punishment from not voting, in which case sanctioning from community members drives cooperation. The DD outcome occurs when an individual actor defects against a randomly chosen member of her community, who also defects. This community has minimal investment in collective goods. The CD and DC payoffs are the situations in which free-riding takes place: either the individual or its community fails to invest, producing a socially suboptimal investment.

Next, we set the population of actors. The number of actors of each strategy type is allocated to determine the predisposition to cooperation. "Nice" populations are populated predominantly with ALLC and TFT agents, while "nasty" populations are heavy on ALLD strategy types.

The affective spread is set, but for these examples we do not deviate from a normally distributed population centered at 0.5. The weight on affective ties is also set. The higher the weight, the less attractive cooperation with an "unlike" agent becomes. The focus on ethnicity is analogous to the discussion of strong ideological and/or partisan attachments found in the literature that may drive voting from a sense of duty to one's group or achieving psychological benefits from voting. Setting this dynamic allows us to incorporate psychic explanations for cooperation as a baseline for determining turnout given hardcore partisans.

To examine turnout, we look at the default rate of cooperation in the population. Some players will be predisposed to cooperate. Secondly, we will look at the observed cooperation rate in this simulated world.

Agents begin the simulation randomly paired and playing their default strategy for a set number of rounds to gather some sense of the population they are in: is it nice or nasty, are their beliefs relatively moderate, or are they assessed heavy penalties for defection? These beliefs will continue to be updated as voting is iterative, even though agents (voters) have some baseline beliefs that aid their decision-making. In the case of voting, this could arise from witnessing turnout in previous elections.

After the short learning phase, agents are given the option of leaving the standard PD to join either a network or a hierarchy. The network allows them to buy information about another player; essentially to find out if the person they are paired with in the next round is likely to cooperate or defect, and if they are likely to have to pay a heavy penalty ideologically for playing this person. The fee is exogenously set. Communities, such as villages in Afghanistan or Kenya clustered around village focal points that serve as polling stations, are analogous to potential networks of this kind.

The hierarchy is a way for agents to buy third party enforcement to mandate cooperation among member players. Joining this organization mandates cooperation among members. If an agent is paired with another member of the hierarchy in a round, it cooperates at the mandated rate, or is assessed a penalty for suckering someone in its organization. A large number of players using this form of organization will increase the cooperation rate in the population, particularly if these players are ALLD types. Hierarchies are exogenously created, at a specified ideal point (at which cooperation takes place), with a known rate of induced cooperation and penalty. Here, they are analogous to political parties or ethnic organizations.

After players have chosen their organization, they play a randomly chosen member of their community according to their strategy as well as their organizational choice.

## Expected Utility Calculations

This section defines and explains the expected utility calculations that agents make when deciding to join a market, hierarchy, or network. In addition to the user-defined parameters summarized in Table E.1, agents are defined by their probability of cooperation ($\gamma$), which is either fixed (ALLC $\gamma = 1$ and ALLD $\gamma = 0$) or variable (TFT $\gamma = 0$ or 1). For purposes of calculating an agent's expected utility (as

opposed to the actual payoffs defined above in the text), $k_{ij} = w(|p_{ij}-\rho|/2)$, where $\rho$ is the agent's belief (continuously updated) about the mean ideal point of the population. For the hierarchy, $k_{ih} = w|p_i p_h|$:

In addition, the following endogenous variables are created and updated as the simulation unfolds:
- the agent's belief about the cooperation rate of the population
- proportion of the population the agent has not already played

For each agent $i$:

*Expected Utility in the Market (1)*

The payoff for a market interaction is essentially the probability of getting each outcome based on the probability that the actor itself will cooperate (determined by their strategy type) multiplied by the probability that they believe their opponent will cooperate (determined by their beliefs about the cooperation rate in the population).

$$M = (\gamma\beta R - k_{ij}) + \gamma S(1 - \beta) + \beta T(1 - \gamma) + P(1 - \gamma)(1 - \beta) \tag{1}$$

*Expected Utility in the Network for Fixed Strategy Players (2)*

$$M - \phi \tag{2}$$

*Expected Utility in the Network for Contingent Strategy Players (3)*

The value of the network is essentially the likelihood that the player receives information about its current partner that changes its behavior (in most cases to prevent being suckered, or receiving the CD payoff) plus the likelihood it does not, less the fee imposed to join the network and gain information ($\phi$).

$$\sigma[\frac{m}{n-1}(\sum_{\gamma=1}^{n} \beta\alpha^{\gamma})(\beta R - k_{ij}) + P(1 - \beta)] + M(1 - \sigma) - \phi \tag{3}$$

*Expected Utility in the Hierarchy (4)*

The utility for entering a hierarchy will depend on the proportion of the population in the hierarchy the player will join ($\Theta$), weighed against the likelihood of cooperation within the hierarchy ($q$), the punishment for defection ($v$), the tax rate ($\tau$) and the ideal point of the hierarchy ($P_h$)

$$\theta\{(q^2 R - k_{ih}) + qS(1 - q) + [qT(1 - q) - v] + [P(1 - q)^2 - v]\} - (1 - \theta)M - \tau \tag{4}$$

Agents choose that organization with the highest expected utility in each round. Actual payoffs may differ from expected payoffs for any individual agent, but on average will be equal.

**Table E.1 Default parameter values for simulations**

| Parameter | Symbol | Description | Default Value |
|---|---|---|---|
| **General** | | | |
| Increments | | Times the simulation is run incrementing a parameter | 20 |
| Repetitions | | Times the identical simulation is repeated with different random seeds | 5 |
| Rounds | | Number of rounds of play | 20 |
| Mean for ideal point | | Distribution of actors' policy preferences in population | 0.5 |
| Weight on ideal | $W$ | Weight on policy preferences | 1.0 |
| Learning rounds | | Set as either number of rounds or population convergence to within a proportion of the true population mean | 10 rounds |
| **Agents (Total)** | | | 100 |
| All Cooperate | | Number of actors of type always cooperate | |
| All Defect | | Number of actors of type always defect | |
| TFT | | Number of actors playing tit-for tat strategy | |
| **Payoffs** | | | |
| R | R | Payoff for CC outcome | 3 |
| S | S | Payoff for CD outcome | 0 |

| Parameter | Symbol | Description | Default Value |
|---|---|---|---|
| T | T | Payoff for DC outcome | 5 |
| P | P | Payoff for DD outcome | 1 |
| **Hierarchy** | | | |
| Initial size | $\theta$ | Proportion of the population in hierarchy. In first round of play, this variable is set exogenously; after the first round, this variable is endogenous and defined as the number of players in the previous round. | 10 |
| Penalty | $V$ | Penalty for defection within the hierarchy | 0.5 |
| Prob of Co-operation | $Q$ | Rate at which the agents cooperate with other agents in the hierarchy | 0.99 |
| Tax | $\tau$ | Tax assessed on members of the hierarchy | 0.2 |
| Ideal point | $p_h$ | Ideal point of the hierarchy | 0.5 |
| **Network** | | | |
| Cost | $\phi$ | Fee for joining the network | 0.2 |
| Width | $\alpha$ | Number of past cooperative partners each agent $i$ can ask for information about agent $j$ | 3 |
| Depth | $L$ | Number of levels agent $i$ can survey | 3 |
| Memory | $m_n$ | How many past moves each agent remembers within the network | 5 |

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