

"Why Vote? Mobilization, Sanctioning, and the African 'D' Term"

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Abstract:

Why do Africans vote? Given that voting is costly and individual votes do not prove pivotal to outcomes, it is puzzling why turnout remains high in Africa's transitioning democracies. Using agent-based modeling (ABM), we generate predictions derived from three explanations: that voter's are mobilized to vote 1) in order to access additional individual pay-offs such as vote-buying through patronage 2) from a sense of duty and attachment to their ethnic group or political party, and 3) to avoid negative social sanctions from other community members for not voting. Favoring the third explanation, we argue that voting can be understood as an individual investment in collective goods and therefore community members must cooperate and coordinate to vote and field electoral winners. We test the emergent properties of the ABM using novel data from a pre-election survey we conducted before Ghana's 2008 general election, where turnout reached 70%. We find support that patronage may actually drive down turnout as voters who find individual pay-offs important are less committed to candidates. We find additional support that the avoidance of negative pay-offs from social sanctioning drives mobilization, while strength of ethnic attachments has no impact.

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Rational choice theorists have long puzzled over why citizens vote, given voting is costly and the likelihood any one person's vote is pivotal proves to be small (Downs 1957; Riker and Ordeshook 1968; Blaise 2002). Yet citizens consistently vote in large numbers, particularly in transitioning democracies such as those in Africa that have only recently introduced multiparty elections. In these countries, the level of voting is even more peculiar given the high costs of doing so: African voters lose a productive day of labor, must stand in long lines (amidst potentially unfavorable weather conditions such as heat or rain), and may face other adverse conditions such as electoral violence. And yet roughly 70% percent of Ghanaians turned out for their 2008 presidential elections (Electoral Commission of Ghana 2008), mirroring similar patterns across the continent.

Why do Africans vote? To explain the perceived "anomaly" of turnout, scholars have amended the classic rational choice approach by focusing on three sets of additional factors that may drive voter mobilization. The first is selective incentives that parties or candidates promise to voters, particularly in the form of vote-buying or patronage (Chabal and Daloz 1999; Posner 2005; Chandra 2004; Wantchekon 2003). This typically includes a one-time pay-off to the individual simply for showing up the polls and casting a ballot for the designated party. The second is that a voter's sense of duty from affective ties of belonging to a group, including a political party or ethnic group, will drive them to vote in order to affirm their social membership (Horowitz 1985; Dickson and Scheve 2006; Ulaner 1986, 1993). This approach examines the duty or "D" term in predictions of turnout, and focuses on non-material gains that accrue to voters (as formulated by Riker and Ordeshook 1968). The third suggests that individuals vote to avoid costly sanctioning from members of their community (Niemi 1976), defined possibly as their family, neighbors, ethnic group, or political party given a general understanding that for the

group's interests to be pursued, they must field electoral winners which requires cooperation and turnout, usually through dense social networks (Rosenstone and Hansen 1993).

However none of these explanations on its own actually correctly predicts observed levels of turnout, and face a number of other challenges, particularly as they apply to explaining voting in Africa's emerging democracies. Selective incentive approaches assume that small personalistic goods are enough to drive turnout, without measuring these against the opportunity costs of voting or how parties are able to mobilize voters in such large numbers as well as afford pay-offs. See table 1. With turnout nearly 70 percent (equivalent to 12,472,758 voters) in Ghana, it is unlikely that every person voting has been bought off. The duty one feels to a group may be an important factor in explaining political behavior, but scholars frequently assume that group attachments are consistent across individuals and groups in which case elections should always produce near universal turnout. However, as table 1 demonstrates, not everyone votes. In fact, as we will show, expressed levels of partisanship and ethnic attachment fall significantly *below* the level of turnout in Ghana, suggesting that people without a strong "duty" still vote. Last, sanctioning from others may motivate behavior, but this does not explain why communities find it important to sanction, whether there is variation in sanctioning levels and if so what explains those patterns, or how they monitor outcomes of whether everyone has voted, a costly exercise in its own right.

Table 1: 2008 Turnout in Ghana by Region (source: Electoral Commission of Ghana)

	Region	Turnout
1	Western	67.31%
2	Central	69.09%
3	Greater Accra	67.10%
4	Volta	67.12%
5	Eastern	67.35%
6	Ashanti	73.58%
7	Brong Ahafo	68.48%
8	Northern	74.90%
9	Upper East	70.72%
10	Upper West	68.89%
	<i>Total National</i>	<i>69.52%</i>

In this paper, we attempt to solve some of these conundrums by synthesizing various explanations to explore Ghana's level of voter turnout. We understand voting to be a prisoner's dilemma in which individuals vote as personal investments in collective goods. Voters must therefore coordinate to cooperate and maintain a level of turnout that helps support the community's interest. We use an agent-based model (ABM) to derive turnout predictions given certain parameters that we manipulate across a host of models with respect to selective incentives, duty, and social sanctioning. We test these predictions against data drawn from a novel nation-wide public opinion survey that we conducted a few weeks before Ghana's 2008 election.

To preview our preliminary results, we find that a certain number of hard-core partisans will turnout regardless of additional costs or benefits of doing so. However, this puts turnout at only 30 percent. Next, we find that some selective incentives will boost further turnout, but at a price that is unrealistic for parties to pay and is beyond their ability to provide. Patronage may also have negative effects on turnout because voters who believe it is important for parties to provide patronage are less likely to be committed to candidates and therefore less likely to vote. Third, we find that strong (ethnic) attachments contribute somewhat to turnout, but only in a

highly localized setting. Fourth, we find that the pay-offs associated with costly social sanctioning are what best predict the level of turnout. Cooperation, understood as individuals voting, is maintained by the avoidance of extreme negative sanctions on the part of other community members. Individuals are able to sanction each other given that voting is highly visible to small local communities both at the polling station but afterwards as voters have marked fingers with indelible ink. This avoidance of negative sanctioning from other individuals in the community drives cooperation at levels that match the actual turnout.

I. Theory and Model

Following Popkin et al. (1976) and Popkin (1994), we argue that the act of voting is analogous to an individual investment in collective goods. Regardless of the individual benefits that may accrue to a voter either from voting or selecting a winner, the motivations for selection are done with an eye towards how electoral outcomes affect the provision of goods to the environment in which individuals live. We are agnostic as to whether voters view these “collectives” in terms of parties, ethnic groups, regions, villages, etc. We also recognize that regardless of collective aims, voting may also confer private benefits to a voter. However, since democratic lawmakers legislate on the bases of groups or locales and not individuals solely, electoral outcomes affect collectives and voters face a constant problem of coordination in order to ensure that their group or area successfully fields electoral winners.

Therefore, voter turnout is a problem of cooperation at its core, and secondarily a problem of coordination. This can be captured in a prisoner’s dilemma-like framework, where ideal points are taken into account. Patterns of agent cooperation and coordination within a population playing a PD can be seen as analogous to voting behavior, especially since individuals have incentives to free ride as they will enjoy the benefits of distribution regardless

of whether or not they turnout. 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. These characteristics may include payoffs to the game, individuals' beliefs about the population, and ideology.¹

Voters, as agents, play a 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 are thought to be 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 tangible benefits from voting, such as personalistic goods like patronage received through vote-buying. They may also be akin to the positive psychic benefits that an individual feels from voting to affirm their identity or otherwise support their “duty” to vote. 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.

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

¹ For a full description of the architecture of the more general ABM, please see Jung and Lake (2008).

predominantly with ALLC and TFT agents, “nasty” populations are heavy on ALLD strategy types.

The ideological spread is set, but for these examples we do not deviate from a normally distributed population centered at 0.5. The weight on ideology is also set. The higher the weight is, the less attractive cooperation with an agent who is ideologically distant becomes. The model allows for ideological affectation, but ultimately can model any kind of strong attachment. In this way the model’s focus on “ideology” is analogous to the discussion of strong ethnic/partisan attachments found in the literature that may drive voting from a sense of duty to one’s group. Setting this dynamic allows us to incorporate affective ties explanations for cooperation as a baseline for determining turnout given hardcore ethnics, or another affective tie such as partisanship or ideology.

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, 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 Africa, are analogous to networks.

The hierarchy is a way for agents to buy third party enforcement to mandate cooperation amongst member players. Joining this organization mandates cooperation amongst 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.

ABM generated hypotheses:

Initial simulations are run with a baseline population of 30 ALLCs—or hardcore partisans who will vote no matter what—20 TFTs (swing voters) and 50 ALLDs. In essence the baseline cooperation rate in the population is about 50% early on, with only 30% that will always cooperate. We establish the 30% baseline from a survey question that asked respondents whether they felt close to any political party (see below). In order to observe high levels of cooperation other factors must be in play. Default payoffs are the same as Axelrod's (1984) and changes are manipulated from there.²

1) Patronage Hypothesis (*increase CC payoff*)

² The payoff for mutual cooperation is 3, for mutual defection is 1, for being suckered is 0 and for being the one suckering is 5.

First, we test the hypothesis that individual material rewards for voting, such as patronage or what is typically associated as vote-buying, is what drives cooperation.

Specifically,

H1: *Higher payoffs to cooperation increase turnout (cooperation).*

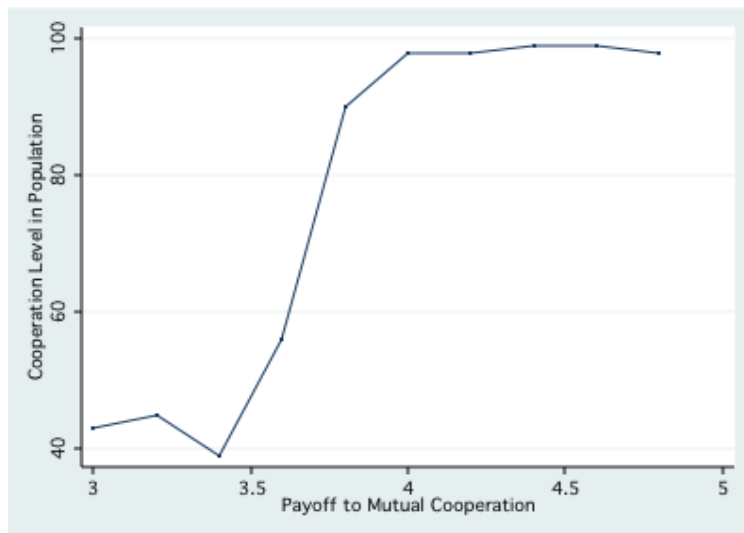


Figure A. Cooperation/Turnout as benefits to mutual cooperation increase (patronage)

Figure A demonstrates the level of turnout created by increasing the benefits to mutual cooperation (delivering patronage). Figure A shows the comparative static results of moving along from the standard payoff of 3, and incrementing it up by 0.2. These increases in the payoffs (along the x-axis) produce dramatic results in the level of cooperation (turnout).

Immediately we can see that payoffs need to be unreasonably high to obtain participation above what is observed in Ghana (70% turnout). Essentially, *ceteris paribus*, an added payoff of about 0.7 would be needed to achieve such high levels of cooperation. Therefore, we do not think that patronage, or any marginal payouts through vote-buying, can explain turnout.

2) Duty/Affective Ties Hypothesis (*Increase weight on Ideal point*)

Second, we test whether affectation and strong ties of identity increase the likelihood of cooperation.

Specifically,

H2: *A stronger sense of duty from ethnic attachments increases turnout (cooperation).*

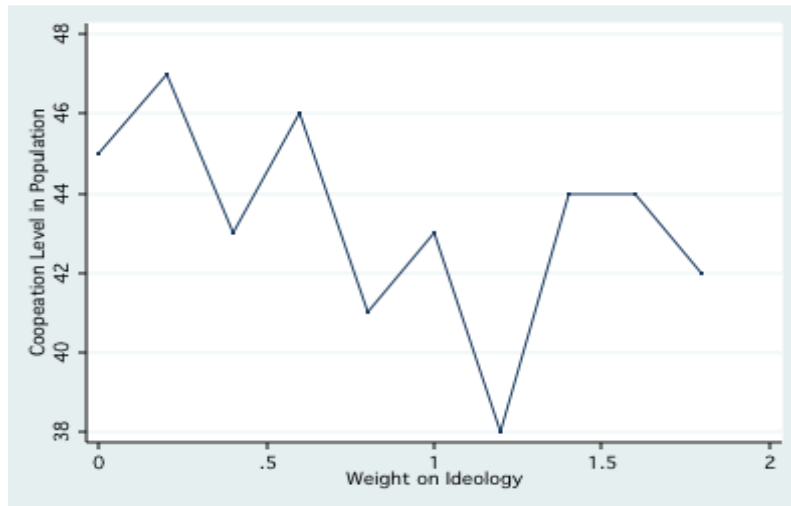


Figure B: Cooperation/Turnout as the strength of identity increases.

Figure B simulates the turnout obtained by switching the weight on ideology, analogous to increasing strength of affective ties of membership and therefore duty. These comparative static results show that high measures of identity/salience on these affective components should in fact slightly decrease cooperation/turnout, or localize it. Essentially, when the ideological costs to cooperating with people whose ideal points are distant from their own increase, cooperation in the population decreases-- people are only willing to cooperate with those who are ideologically very similar. We should note that this population is normally distributed around 0.5; these results may vary in a bimodal population, or one with a tighter ideological spread. When there is a tight cluster, or potentially a bimodal distribution with two groups, we might expect two clusters of cooperation, where what we see here is one cluster at the ideological

center, and only a gradual decrease. Note too that as the weight on ideology increases, the level of cooperation does not vary as much as we see either above or below. Because the baseline cooperation level is not high (50%), we would not expect that increasing the weight on ideology should provide an incentive for added cooperation and certainly not to the levels we observe in many African democracies. These results lead us to believe that affective ties alone are unlikely drive high levels of cooperation.

3) Social sanctioning hypothesis (*increasing negative pay-offs from DD*)

Third, we hypothesize that social sanctions from other individuals within a community from not voting may drive cooperation.

Specifically,

H3: *As social sanctions increase, turnout (cooperation) increases.*

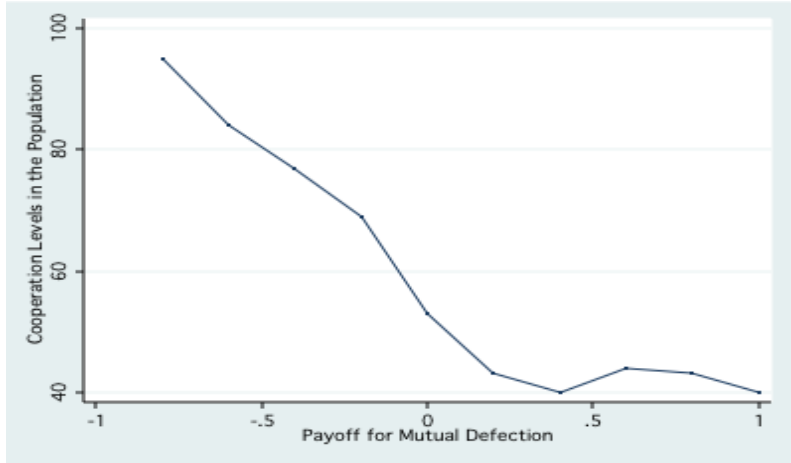


Figure C: Cooperation/Turnout as Penalties for not participating increase.

Figure C shows the likely turnout as social sanctions for not voting increase (or the DD payoff becomes worse). Like the figures above, this is a comparative static result. The figure clearly demonstrates that turnout increases dramatically as the threat of negative payoffs

increases. Indeed, the net payoff to such an outcome need only be slightly negative (between -0.2 and -1.0) to induce cooperation at rates well above the default cooperation rate in the population.

We therefore argue that the social sanctioning mechanism is the strongest predictor for explaining the high level of turnout witnessed in Ghana.

II. Tests

Data

In this section, we perform a preliminary test of the emergent predictions from the ABM models using survey data from Ghana.³ We conducted a nationally represented household survey of registered Ghanaian voters a few weeks before its December 2008 general election. We sampled from the final registry of voters produced by the Electoral Commission of Ghana, using multi-stage cluster-sampling with proportional distributions to regions, districts, and constituencies; including random selection of enumeration areas, households, and respondents. In total, we surveyed 2033 Ghanaians in all ten regions.

The survey included a number of questions regarding perceptions and attitudes about local and national government, incumbent performance, the electoral process, ethnicity, and vote choice (on voting behavior, see also Hoffman and Long 2009). Here, we focus on a few questions regarding mobilization and turnout.

Baseline Turnout before Incentives, Ethnicity, and Social Sanctioning are applied

³ The authors conducted the survey in conjunction with Clark Gibson and Karen Ferree of the University of California, San Diego; and Barak Hoffman of Georgetown University with generous funding from the National Science Foundation. Survey design and fieldwork managed by Danielle Jung and James Long (UCSD) and implemented by Research International (Ghana). Many thanks to Gerry van Dyk and Nana Gyaminah from Research International for their invaluable assistance. In addition to the pre-election survey, UCSD/Georgetown also conducted a nation-wide exit poll on December 7, 2009 of 4,000 Ghanaian voters.

In order to assess a baseline turnout scenario before the application of additional contributors to turnout, we asked voters whether they considered themselves members of political parties, and if so whether they felt close or not to that party. We assume that partisans will vote regardless of adjustments to the costs, benefits, or duty related to doing so. We are agnostic as to whether these partisans are fundamentally driven by any of these variables or how they assess pay-offs, rather we simply assume that for whatever reason, any election will have a baseline turnout regardless of additional factors and those who vote will be partisans.

36% percent of Ghanaians feel very close to a political party, suggesting that regardless of further adjustments to pay-offs, only a small proportion of the electorate will turn out. What explains the difference between predicted partisan turnout (36%) and that observed in the election (70%)?

Dependent Variable

Constructing a dependent variable from survey data with respect to voting turnout is difficult. In the run-up to an election, few registered voters will express the desire not to vote and so reply that they will vote regardless of their true intentions, especially if social sanctioning plays a role in driving turnout and respondents will not want to admit to interviews that they do not want to vote. Moreover, in simply asking a potential voter whether they will vote there is no cost associated with them replying yes, regardless of whether it is true. Our suspicions are demonstrated by results from the Afrobarometer survey conducted in Ghana in 2005. The survey asked respondents whether they had voted in the last election (in 2004). Less than 1% responded that they “decided not to vote.” Therefore, we did not suspect that asking a question about

whether or not the respondent intended to vote would produce valid results, or answers with enough variation to test hypotheses against.

Given the difficulties in directly measuring intended turnout in a pre-election survey, we rely upon a proxy measure of turnout that we argue serves as a better indication of whether or not respondents intended to vote. After asking respondents for whom they intended to vote for president, we asked a follow-up: “How likely are you to change your mind for whom to vote for president before election day?” We code those responses that expressed a likelihood of changing their mind or said they were unsure as “uncommitted voters.” Those who reported that they were not likely to change their mind as “committed voters.” We argue that uncommitted voters are less likely to turnout than committed voters given they have weaker preferences over outcomes in general. We recognize that some uncommitted voters may still vote—however, our argument is that on balance, an uncommitted voter is less likely to vote than a committed voter. Two pieces of evidence may support this claim. The first is that while levels of expressed intention to vote or reported voting are close to 100%, the level of committed voters is 78.5%, much closer to actual turnout (70%). Second, we asked the follow-up question on commitment to support a candidate for both the presidential and parliamentary races. If respondents tend to remain uncommitted to both candidates, we argue that their indecision and level of commitment is not likely a function of the particular attractiveness of presidential or parliamentary candidates on offer that they have trouble adjudicating between and committing to; but rather a function of the respondent’s willingness to support candidates more generally and therefore actually turn out and vote. Indeed, we find that levels of commitment to presidential and parliamentary candidates correlates highly and significantly ($r=0.54$, $p<0.001$). Levels of commitment are therefore likely

a function of respondent characteristics, and not the peculiarities of particular parliamentary or presidential candidates.

Independent Variables

Selective incentives:

Measuring the extent of vote-buying in a given election is hard through a survey because respondents may be unwilling to give truthful responses given negative perceptions of patronage. For that reason, we did not ask Ghanaians directly whether they had received patronage, but rather whether they thought parties providing selective incentives to voters was important. It is important to note that this variable captures attitudes about patronage—not the de facto level of patronage or vote-buying. We also phrased the question to read as though positive responses were not socially undesirable. We asked, “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 variable Incentives to carry a value of 1 responding to positive responses to this question “very or somewhat important,” and 0 otherwise.

Ethnicity:

To create a measure for whether affective attachments to one’s ethnic group drove a duty to vote, we first asked respondents their language/ethnic group, followed by “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?” Following measures derived

elsewhere from similar questions (Bratton and Kimenyi 2008; Ferree 2006, forthcoming), we code “ethnic identifiers” as people who responded that they felt strongly or mostly attached to their language/ethnic group.

Sanctioning:

Our measure of social sanctioning is built from a question asking voters whether or not they think it is important for other members of their community to vote, even if undesirable candidates appear on the ballot. The question allows us to measure to 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 pay-offs (derived from the ABM model). Specifically, we asked “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 asked the question in relation to the potential for negative candidates as we thought simply asking whether respondents thought members of their community should vote would elicit nearly universal positive responses.

Table 2: Summary Statistics (percent providing affirmative/positive responses)

Committed Voters (turnout)	79%
Incentives	10%
Ethnic Attachments	6%
Social Sanctioning	67%

The descriptive statistics in Table 2 paint an interesting picture of the Ghanaian electorate the helps to understand voter turnout. First, the importance of select incentives for voters is small, but relevant: 10% of voters believe it is very important for parties to provide personalistic goods in exchange for voting. Second, only 6% Ghanaians feel a stronger attachment to their

ethnic group than their national identity. Neither selective incentives nor strong ethnic attachments approaches the observed level of turnout. But the level of social sanctioning does: 67% of Ghanaians believe that members of their community should vote even if candidates are undesirable, compared to an observed 70% turnout.

Table 3: Logit Model on Likelihood of Voting

	Model 1	Model 2
Patronage	-.535 (0.161) 0.001	-0.534 (0.162) 0.001
Ethnic Attachment	-0.033 (0.223) 0.882	-0.0533 (0.224) 0.812
Social Sanction	0.419 (0.111) 0.000	0.421 (0.111) 0.000
Urban		-0.128 (0.112) 0.253
Constant	1.034 0.089	1.116 0.113
Pseudo R2	0.011	0.0112
N	2033	2033

Table 3 presents two logit regression models on the likelihood that a voter will turnout, with coefficients, robust standard errors (in parentheses), and p values shown. The dependent variable is whether a respondent is a committed voter (a proxy for whether they will turn out). The three independent variables are presented in model 1, with a control for whether a respondent lived in an urban area as a control in model 2.

The results from the table give support to some hypotheses and not others. First, the coefficient for the patronage variable is significant but negative, suggesting that as respondents find the delivery of patronage from parties more important, the less likely they are to be

committed to a candidate. In so far as commitment indicates voting behavior, patronage may actually drive down turnout. Second, the coefficient for ethnic attachment is insignificant, so that the strength of ethnic attachments does not affect turnout. Third, social sanctions is highly significant towards predicting turnout—as voters’ beliefs about the importance of their community members voting increases, so does their own likelihood of committing to a candidate and voting. Last, the urban control is insignificant showing that voters are not more or less likely to vote depending on the setting in which they live.

III. Conclusion

This paper is a preliminary investigation into why citizens in Africa’s emerging democracies vote. We present an ABM model that generates predictions with respect to 1) additional individual pay-offs associated with patronage or vote-buying 2) the duty and strength of affective ties an individual may feel to an ethnic group or political party and 3) the negative pay-offs associated with not voting from community members (social sanctions). The ABM shows that the costs of vote-buying are likely too large for parties to afford, and that duty or affective ties lead to localized turnout but not an overall level that matches observed turnout. Social sanctions are the more likely explanation for observed levels of turnout. Testing these predictions using novel survey data from Ghana we show that patronage may actually reduce turnout as individuals who desire personal goods are less committed to candidates, but that social sanctioning remained significant in predicting committed voters and by extension turnout. Strength of ethnic attachments was not a significant predictor.

Note to WGAPE:

Although this draft is preliminary, we are planning the following the steps for the next iteration of the paper. We welcome comments on these as well as what we have in the draft so far.

- 1) test these hypotheses against a different turnout dependent variable, inputting actual constituency turnout values for each respondent depending on where they live.
- 2) adjust the number and type of players in the ABM. We have only tested one population, but in order make our theory and hypotheses more robust, we would like to sweep the parameter space, particularly with respect to the composition of strategy types in the population. Both higher and lower levels of “baseline” partisanship are of particular interest. After doing a full sweep of these, the next big modeling step is to move more than one of the IVs at a time in the model, looking at how the interaction of more than one might be magnified or depressed in a population—particularly are there tipping points/phase shifts when cooperation/turnout skyrockets or drops off? We also would like to use more of the data about agents’ beliefs about the ideological spread and rate of cooperation in the population.
- 3) interact variables in the regression model following step 2.

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