Surrounded and Threatened: How Neighborhood Composition Reduces Ethnic Voting Through Intimidation*

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Abstract

Ethnic voting is an important phenomenon in the political lives of numerous countries. In the present paper, we propose a theory explaining why ethnic voting is more prevalent in certain localities than in others and provide evidence for it. We argue that local ethnic geography affects ethnic voting by making voters of an ethnicity that finds itself in the minority fear intimidation by their ethnic majority neighbors. We provide empirical evidence for our claim using the data from the round 4 of the Afrobarometer survey in Ghana to measure the voters' beliefs that they are likely to face intimidation during electoral campaigns. Using geocoded data from rounds 3 and 4 of the Afrobarometer, as well as data from the Ghana Demographic and Health Survey, we find no evidence for local public goods provision as an alternative mechanism.

Keywords: Voter Intimidation, ethnic voting, neighborhood composition.

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1 Introduction

In this paper, we propose a theory of ethnic voting based on local ethnic geography. We argue that when one ethnic group surrounds another in a neighborhood, a member of the minority group is likely to choose to vote for a candidate from the majority one due to the fear of intimidation by the majority group. The minority votes for non-coethnic candidates because, surrounded by the majority group, it must necessarily interact with this group with great frequency. This intensity of interaction is not achieved when both groups live in ethnically homogeneous communities and thus have fewer opportunities and incentives to communicate and engage in joint endeavors.

To support our claims, we use several variables from the Afrobarometer surveys in Ghana. The largest ethnic group in Ghana, comprising 44% of the population, are Akans. Our theory predicts that Akans will intimidate non-Akans in Akan-majority localities, and that this intimidation will cause non-Akans to vote for the NPP (the New Patriotic Party), the party known to advance the interests of Akans. Thus, we use the questions that ask the respondents whether they fear becoming a victim of political intimidation during election campaigns and whether they believe that people have to be careful of what they say about politics. We show that living in a neighborhood with a high percentage of Akans only makes an individual more likely to express the intention to vote for the NPP candidate if this individual fears becoming a victim of political intimidation or believes that people have to be careful of what they say about politics.

We also address the most prominent alternative explanation for why individuals may fail to vote along the ethnic lines: provision of local public goods. The instrumental theory of ethnic voting posits that individuals vote along ethnic lines because they expect that they will receive public goods only if they elect their coethnics (Ferree 2006, Carlson 2015). Recently, Ichino and Nathan (2013) have suggested that provision of public goods may also explain non-ethnic voting: individuals living in a neighborhood where some ethnicity is in the majority may vote for the candidate of that ethnicity even if she is not their coethnic because they anticipate that she will provide non-excludable public goods in an area where

the candidates' coethnics are in the majority. We do not find support for this alternative explanation in the data.

Using geocoded data from rounds 3 and 4 of the Afrobarometer, as well as data from the Ghana Demographic and Health Survey (DHS), we show that the impact on the vote choice of living in a neighborhood with a high percentage of Akans does not vary depending on the presence of local public goods in the area, and that our finding that the percentage of Akans in the neighborhood only matters for the vote choice when the respondents fear intimidation is robust to controlling for local public goods provision (measured either in levels or changes). We also find that the percentage of Akans in the neighborhood has no statistically significant impact on the levels of local public goods provision.

The results advance our understanding of ethnic voting and the role of intimidation in the vote choice in developing countries. We show that the interaction between neighborhood composition and voters' concern about intimidation reduces ethnic voting. This finding implies that an instrumental motive for (non)-ethnic voting is present.[1] This instrumental motive is the desire to avoid political intimidation. However, we do not rule out expressive reasons for ethnic voting: citizens may want to vote for coethnics for expressive reasons but choose not to due to intimidation. Thus both instrumental and expressive reasons may drive ethnic voting.

Our findings are especially relevant for those African countries which experience marked ethnic divides and recurrent episodes of electoral violence. Because we find that even in a country like Ghana, which is considered to be one of the most stable democracies in Africa, voters' concern about intimidation impacts ethnic voting, our estimates are likely to be a lower bound on the estimates for a representative sample of developing countries. Thus the case of Ghana constitutes a hard test for our expectation that neighborhood composition affects ethnic voting by making voters of the minority ethnicity concerned about intimidation.

[1]See, for example, Posner 2005, Wantchekon 2003, Carlson 2012 on instrumental ethnic voting and, for example, Horowitz 1985 on expressive ethnic voting. Section 3 reviews the related literature on the theories of ethnic voting.

2 Theory

2.1 Ethnic Voting and Intimidation

Our paper proposes a theory of ethnic voting based on local ethnic geography. We argue that, in order to avoid intimidation by ethnic majority neighbors, members of the minority ethnicities vote for the parties associated with the ethnic majority. Moreover, were they not living in an area where they were a minority, they would have instead voted for a party associated with their own ethnicity. Thus being surrounded by the majority ethnicity and wanting to avoid intimidation causes ethnic minorities to not vote along ethnic lines.

We define ethnic voting as the tendency of the voters belonging to an ethnic group to vote for candidates from this ethnic group or candidates advancing the interests of this ethnic group. In the setting in the present paper, a tendency of individuals with non-Akan ethnicity to vote for the NPP, a party which is perceived to advance the interests of Akans, is inconsistent with ethnic voting.

The patterns we find in the data suggest that the true preference of the individuals is to vote along ethnic lines: if they did not want to vote along ethnic lines, fear of intimidation by ethnic majority neighbors would not have had a discernible impact on the vote choice of the ethnic minorities in the Akan-majority neighborhoods.[2]

We conceptualize political intimidation as unfolding before, during and after the election. Prior to the election and during the polls, voters may face threats of sanctions should the non-majority ethnicity candidate win. After the election, the sanctions might be carried out if the non-majority candidate indeed wins. Voters may also face violence and threats of violence for expressing intent to vote for a non-majority ethnicity candidate. The goal of such pre-election intimidation efforts is to induce the citizen expressing the vote intent to change her mind and to show to the other citizens that the agents engaging in intimidation are able and willing to carry out the sanctions. Theories of both pre- (Chatuverdi 2005, Collier and Vicente 2012) and post- (Ellman and Wantchekon 2000) electoral intimidation

[2]See Horowitz 1985, Chandra 2004 for theories of ethnic voting and additional empirical evidence for its presence.

have been developed in the literature.

Ballot secrecy is not needed for the proposed mechanism to work. To see why, consider the following example. Suppose that 2/3 of the voters in a district are of the majority ethnicity, while 1/3 are of the minority ethnicity, and it is known that each individual prefers to vote along ethnic lines. We call the party of the ethnic majority party $\mathcal{A}$ and the party of the ethnic minority party $\mathcal{B}$. Suppose that with probability 2/3 an individual experiences a preference shock causing her to vote for party $\mathcal{A}$ with probability 1/3 and to vote for party $\mathcal{B}$ with probability 2/3. Then if everyone votes for the majority ethnicity party (conditional on not experiencing a preference shock), its expected vote share is 5/9, while if only the majority ethnicity votes for the majority party, its expected vote share is 4/9. Thus if party $\mathcal{A}$ loses, the majority ethnicity can infer that some members of the minority ethnicity failed to vote for it, which gives members of the majority ethnicity grounds for sanctioning members of the minority ethnicity.[3]

2.2 Evidence of Political Intimidation

According to the Freedom House report, "Ghanaian elections have been fraught with extreme tension, including intimidation, organized thuggery, and sporadic flare-ups of interparty violence" (Gyimah-Boadi and Brobbey 2012). The Carter Center, after observing the voter registration process for the 2008 presidential election in Ghana, reported that "In several areas visited by Center observers, it was clear that the lack of political tolerance produced an intimidating environment" (Carter Center 2008). Paul Nugent writes of the 2000 election in Ghana: "There was some pre-election violence in parts of Accra, significant bloodshed in Bawku during the first round of voting on 7 December and instances of intimidation at the time of the Presidential run-off on 28 December" (Nugent 2001, 406). Other scholarly (Gyimah-Boadi 2009, Straus and Taylor 2012) and journalistic (Kennedy 2011) accounts confirm the presence of political intimidation in the elections in Ghana as

[3] A similar argument has been made in the vote buying literature, which finds that brokers can use aggregate electoral results to sanction groups instead of relying on observing the individuals' votes (see e.g., Rueda 2017).

well.

There have been reports of the NPP election observers being kept from away from the polling stations and arrested by the army (Osei 2009, 115). Politicians in Ghana have hired "macho men" to intimidate opposition supporters (Amankwaah 2013). Moreover, there is some qualitative evidence that a higher share of party supporters in a neighborhood facilitates voter intimidation. As one researcher writes, "The majority of the interviews and reported cases of violence in Ghana suggest that election-related violence often occurs in areas that are strongholds of one of the two larger parties, where minority supporters can easily be intimidated" (Amankwaah 2013, 14).

3 Related Literature

The present paper is related to the literature on ethnic voting and its determinants. Theories of ethnic voting have argued that citizens engage in ethnic voting due to either instrumental reasons or expressive reasons. Scholars conceptualize instrumental ethnic voting as individuals voting for the candidates because the candidates' ethnicity provides information about groups to which these candidates are likely to deliver public goods and other benefits (Ferree 2006, Carlson 2015). In particular, individuals engaging in instrumental ethnic voting expect that politicians will provide benefits only to their coethnics, to the extent that these benefits are excludable. On the other hand, expressive ethnic voting is devoid of such concerns. Instead, it is seen as being akin to ideological voting (Wantchekon 2003), conceptualized as using the act of casting a vote as an affirmation of one's identity as a member of an ethnic group (Horowitz 1985) or is viewed as an effort to elect a coethnic candidate because having a coethnic candidate in power raises the status of the voter's ethnic group (Chandra 2004).

By providing evidence that citizens can fail to engage in ethnic voting because they feel intimidated, the present paper contributes to a more nuanced understanding of ethnic voting. Our argument implies that individuals may want to engage in ethnic voting for expressive reasons but will choose not to for fear of adverse consequences in the localities

where another ethnic group is in the majority.

Previous literature has identified the impact of local ethnic geography on ethnic voting. In their 2013 article entitled "Crossing the line: Local Ethnic Geography and Voting in Ghana", Ichino and Nathan (2013), using data from Ghana as we do, show that a higher percentage of citizens of a particular ethnicity in a neighborhood makes non-coethnics more likely to vote for the candidates of that ethnicity. They suggest that this is due to the expectation that politicians will provide local public goods in the areas where their coethnics are in the majority and, because these public goods are locally non-excludable, minority ethnicities in these areas will also benefit. However, Ichino and Nathan (2013) have not provided empirical evidence for this mechanism. The present paper confirms that neighborhood composition affects vote choice and provides evidence that this impact is due to the voters' concern about intimidation. Moreover, the present paper finds no evidence for local public goods provision as an alternative mechanism.

Ichino and Nathan (2013) describe their contribution as extending the theory of instrumental ethnic voting by showing that local ethnic geography affects ethnic voting and conjecturing that this impact is through expectations of local public goods provision. Our paper contributes to the theory of ethnic voting as well, showing that there is evidence that citizens in Ghana are guided by instrumental reasons in choosing whether to vote for non-coethnics. While theories of instrumental ethnic voting (Posner 2005, Wantchekon 2003, Carlson 2012) have tended to focus on a particular instrumental reason for vote choice – the expectation that politicians are more likely to provide local pubic goods to their coethnics, other instrumental reasons are, in principle, possible. The key contribution that we make is to identify a novel instrumental reason – fear of political intimidation – for voting for candidates of a particular ethnicity.[4]

Exploring heterogeneity of treatment effects, Ichino and Nathan (2013) find that local

[4]In our framework, instrumental and expressive motives for ethnic voting are not mutually exclusive. This is because citizens may want to vote for coethnics for expressive reasons but, when surrounded by non-coethnic majorities, they may choose to not act on this desire for an instrumental reason, in order to avoid political intimidation. Thus our results provide evidence for instrumental motives in ethnic voting, and are also consistent with expressive ethnic voting.

ethnic geography affects ethnic voting only in rural areas. They suggest that this is due to local public goods being more easibly accessible to a larger population in urban areas. In contrast, we find that for respondents fearing political intimidation the effect is present in both rural and urban areas (for respondents who feel that they have to be careful when talking about politics, on the other hand, it is only present in rural areas). Thus, unlike the mechanism Ichino and Nathan suggest, the mechanism we identify may be at work regardless of the urbanization level.

Our paper is also related to the literature on allocation of local public goods. A number of recent papers have identified a relationship between ethnic segregation and local public goods provision. For example, Ejdemyr et. al. (2018) show that Member of Parliament (MPs) in Malawi are more likely to target local public goods to their coethnics when the coethnics are sufficiently segregated. Harris and Posner (2019) show that politicians in Kenya are more likely to reward their supporters by allocating Constituency Development Fund projects when the supporters and the opponents are geographically segregated. The reason is that segregation makes it easier to target local public goods only to the supporters.[5] Relatedly, a paper by Harding (2020) demonstrates that geography matters for the allocation of public goods, finding that competitive elections lead politicians to implement pro-rural policies to get the votes of the rural majority. Harding shows that this pro-rural bias manifests in improved access to primary education and lower infant mortality rates, but only in rural areas.

Finally, the present paper relates to the literature on voter intimidation. This literature has addressed the questions of whether voter intimidation happens before or after the elections, who is targeted, who the perpetrators are and which tactics are used. With respect to timing, Ellman and Wantchekon (2000) present a theory of post-election violence, while Chatuverdi (2005) and Collier and Vicente (2012) present theories of voter intimidation employed before and during elections.

Independent of the timing of electoral violence, the victims are likely to be swing voters

[5]See also Franck and Rainer 2012 and De Luca et al. 2018 on the relationship between ethnic segregation and ethnic favoritism.

since their choice is most likely to be swayed (Collier and Vicente 2012; Chatuverdi 2005, Robinson and Torvik 2009, Gutierrez-Romero 2014), voters who are poor and uneducated since they are the most vulnerable (Bratton 2008, Gonzalez-Ocantos et al. 2020), and voters who live in rural areas since monitoring is more difficult in those areas (Gonzalez-Ocantos et al. 2020). The literature is divided on who should be more likely to employ electoral violence, with some expecting that strong incumbents will intimidate voters (Chatuverdi 2005), and some predicting that weak incumbents will do so (Collier and Vicente 2012).

Over half of all elections in Sub-Saharan Africa experience some form of electoral violence and intimidation (Burchard 2015). Most of electoral violence occurs prior to the election and is associated with the incumbent party (Straus and Taylor 2012). The tactics of the perpetrators of electoral violence in Sub-Saharan Africa include employing youth wings of the parties and hiring thugs (Makumbe 2002).

The literature on voter intimidation, however, considers neither the interaction between neighborhood composition and voter intimidation, nor its impact on ethnic voting.[6] Our contribution to the literature on voter intimidation is to provide a more nuanced understanding of the conditions under which intimidation is used by showing that it is facilitated when an ethnic minority is surrounded by an ethnic majority in a locality.

4 Measuring Voters' Concerns

4.1 Main Independent Variables

We use the following question from round 4 of the Afrobarometer to measure intimidation: "During election campaigns in this country, how much do you personally fear becoming a victim of political intimidation or violence?"[7] 49% of the 1200 respondents report that they fear political intimidation "A little bit," "Somewhat," or "A lot," while 48% do not

[6] An exception is Fafchamps and Vicente 2013. However, the focus of their work differs from ours: they are interested in the effects of anti-intimidation campaigns and the channels through which such campaigns work, including local interactions.

[7] We have recoded the responses so that 0 means "Not at all", 1 means "A little bit," 2 means "Somewhat," and 3 means "A lot". If the respondent answered "Don't know", we treat the observation as missing.

fear being a victim of political intimidation. The remaining 3% percent of the respondents chose the "Don't know" option. A closer look at the distribution of the political intimidation variable reveals that 24% of the respondents fear political intimidation "A little bit," 11% fear political intimidation "Somewhat," 13% of the respondents fear political intimidation "A lot". Moreover, non-Akans fear political intimidation "A lot" to a greater extent than Akans (62%, as compared to 38%).

The following question from the Afrobarometer is used to measure the voters' belief that they cannot express their political views freely: "In this country, how often do people have to be careful of what they say about politics?"[8] 50% of the respondents report that people have to be careful of what they say about politics "Often" or "Always", while 46.5% of the respondents believe that people in Ghana "Rarely" or "Never" have to be careful in expressing their political views. The remaining 3.5% report that they "Don't know."[9]

These descriptive statistics suggest that political intimidation and concerns about political expression are prevalent enough in Ghana to affect electoral outcomes and lend plausibility to our hypothesis that neighborhood composition affects vote choice through voters' fear of intimidation.

4.2 Data

The main dependent variable in our analysis is a binary indicator that takes a value of 1 if the respondent indicated the intention to vote for the NPP in the 2008 presidential election and 0 otherwise. The main independent variables are fear of political intimidation (*Political Intimidation*), concerns about political expression (*Careful*), and the share of Akans within a 30 km radius of the respondent's location. 1200 respondents participated in round 4 of the Afrobarometer in Ghana. Table A1 in the Appendix presents descriptive statistics for the variables used in our analysis.

The Afrobarometer data is better suited for our analysis than other possible data

[8]The responses are coded as follows: 0 means "Never," 1 means "Rarely," 2 means "Often" and 3 means "Always." If the respondent answered "Don't know," we treat the observation as missing.

[9]Figures A1 and A2 in the Appendix show the distributions of the fear of political intimidation and the belief that people have to be careful of what they say about politics for Akans and non-Akans.

sources, such as the polling station-level data. This is because, as we explain in greater detail in the Appendix, the use of aggregate data for explaining individual-level behavior is problematic. Consider the following example. If a higher share of Akans in a neighborhood was associated with a higher percentage fearing intimidation and a higher percentage voting for the NPP at a polling station, we could not be sure whether the individuals who fear intimidation, or a different set of individuals entirely, were voting for the NPP. In other words, polling station-level data is subject to the ecological inference problem. For this reason, we do not use the polling station-level data in our main analysis.

Polling station-level data is used in a related paper by Ichino and Nathan (2013). We show in section A1.6 in the Appendix that their results are driven by incorrect standard errors. In particular, as we show in table A39 in the Appendix, once we properly account for the uncertainty in the estimates by clustering the standard errors by electoral districts and using wild cluster bootstrap, we find that the polling station-level data does not contain enough variation to precisely estimate the effects we are interested in.

4.3 Ethnic groups and Elections in Ghana

In this section we briefly summarize the facts about ethnic groups and elections in Ghana that are relevant to our arguments. Akans are the largest ethnic group in Ghana, comprising 44% of the population. The other sizable ethnic groups are Dagombe, Ewe and Ga, comprising 16, 12 and 8% of the population respectively (Encyclopedic World Atlas 2002, 108).

Since 1992, parliamentary and presidential elections have been held in Ghana every four years. The National Patriotic Party (NPP) and the National Democratic Congress (NDC) emerged as the main contenders in the elections. The NDC won the election in 1992. Since then, power changed hands between the NDC and the NPP three times: in 2000, 2008 and 2016. The 2008 election was the closest in Ghana's history, with the NDC presidential candidate winning the runoff election with 50.23% of the vote.

Ethnic voting has been prominent in Ghanaian elections, with the NPP seen as the

party associated with Akans. On this, Ziblim Iddi writes "In Ghana, the Ashanti and Wolta regions are noted for voting largely along ethnic lines. The Akan votes in the Ashanti region largely go to the NPP, while the Ewe votes in the Volta region go to the NDC" (Iddi 2016, 80). Fridy (2007, 281) writes that "ethnicity matters in Ghanaian elections far more than socioeconomic variables." According to Faanu and Graham, "the NDC and the NPP are tagged as Ewe-Northerners party and Akans party, respectively" (Faanu and Graham 2017, 141) and "the Akan–non-Akan divide has shaped elections" Faanu and Graham (Faanu and Graham 2017, 154). A number of other scholars such as Arthur (2009) and Adams and Agomor (2015) confirm the importance of ethnic voting in Ghana. Further, there is evidence of Ghanaian parties using ethnic appeals: as Faanu and Graham (2017, 143) write, "...parties in Ghana often play the ethnic tone on campaign platforms during elections."

5 The Impact of the Concern about Intimidation

Model (1) in table 1 estimates the impact of the percentage of Akans in the neighborhood on the intention to vote for the NPP candidate. We find that this impact is not statistically significant. Model (2) in table 1 adds to the specification used in model (1) an interaction of the percentage of Akans in the neighborhood and the *Intimidation* variable.[10] We find that the percentage of Akans in the neighborhood has no statistically significant impact when *Intimidation* is 0 or 1 but has a positive and statistically significant impact when *Intimidation* takes values 2 and 3 on a scale that goes from 0 to 3. Substantively, increasing the percentage of Akans in the 30 km radius by 10% makes a respondent who fears becoming a victim of political intimidation or violence during an election campaign "Somewhat" 1.72% more likely to express an intent to vote for the NPP candidate, while if the respondent fears political intimidation "A lot", the probability of expressing an intent to vote for the NPP candidate increases by 2.56%.

Model (3) in table 1 adds to the specification used in model (1) an interaction of the

[10]We use the data for Akans and not for other ethnic groups because the variation in the percentage of an ethnic group in a neighborhood is the greatest for Akans, and this variation facilitates a more precise estimation.

percentage of Akans in the neighborhood and the *Careful* variable. Similar to the impact of *Intimidation*, we find that the percentage of Akans in the neighborhood has no statistically significant impact when *Careful* is 0 or 1 but has a positive and statistically significant impact when *Careful* takes values 2 and 3 on a scale that goes from 0 to 3. Increasing the percentage of Akans in the 30 km radius by 10% makes a respondent who believes that he or she "Often" needs to be careful when expressing political views 1.38% more likely to express an intent to vote for the NPP candidate, while if the respondent believes that he or she "Always" needs to be careful in political expression, the respondent is 2.21% more likely to express an intent to vote for the NPP candidate.

Finally, model (4) in table 1 adds to the specification used in model (1) an interaction of the percentage of Akans in the neighborhood and the *Intimidation* variable and an interaction of the percentage of Akans in the neighborhood and the *Careful* variable. We find that if a respondent both fears political intimidation "A lot" and believes that he or she needs to "Always" be careful in political expression, then increasing the percentage of Akans in the 30 km radius by 10% makes the respondent 5.55% more likely to express an intent to vote for the NPP candidate.[11]

The magnitude of our estimates is comparable to the magnitude of the estimates in Ichino and Nathan (2013). Ichino and Nathan estimate that increasing the percentage of Akans in the 30 km radius by 10% makes a respondent 3.5% more likely to express an intent to vote for the NPP candidate. This is larger than the effect we estimate for respondents who fear political intimidation or violence (2.56% at the maximal level of *Intimidation*) but smaller than the effect for the respondents who both fear political intimidation and believe that they need to be careful when expressing political views (5.55% at the maximal level of *Intimidation* and *Careful*).

To further illustrate the magnitude of the effects, Figure 1 shows the predicted

[11]Table A2 in the Appendix presents the results weighting the observations by the post-stratification weights included in Round 4 of the Afrobarometer. Because the use of weights in regression analysis (as opposed to descriptive statistics) remains controversial (see Gelman (2007) and Solon, Haider and Wooldridge (2015)) and because our conclusions are unaltered when we use weights, our regression estimates are unweighted everywhere except for Table A2.

Table 1: The impact of percent Akan in the 30 km radius on the intent to vote for NPP without and with intimidation

	(1)			
	No Interactions			
Marginal Effect of *Akan30*	0.089			
Standard Error	(0.079)			
	(2)			
	Intimidation:			
	Not at all	A little bit	Somewhat	A lot
Marginal Effect of *Akan30*	-0.039	0.072	0.172**	0.256**
Standard Error	(0.095)	(0.080)	(0.088)	(0.110)
	(3)			
	Careful:			
	Never	Rarely	Often	Always
Marginal Effect of *Akan30*	-0.043	0.049	0.138*	0.221**
Standard Error	(0.108)	(0.086)	(0.080)	(0.092)
	(4)			
	Intimidation and Careful:			
	Not at all, Never	Not at all, Always	A lot, Never	A lot, Always
Marginal Effect of *Akan30*	0.007	-0.042	-0.173	0.555***
Standard Error	(0.124)	(0.132)	(0.137)	(0.116)

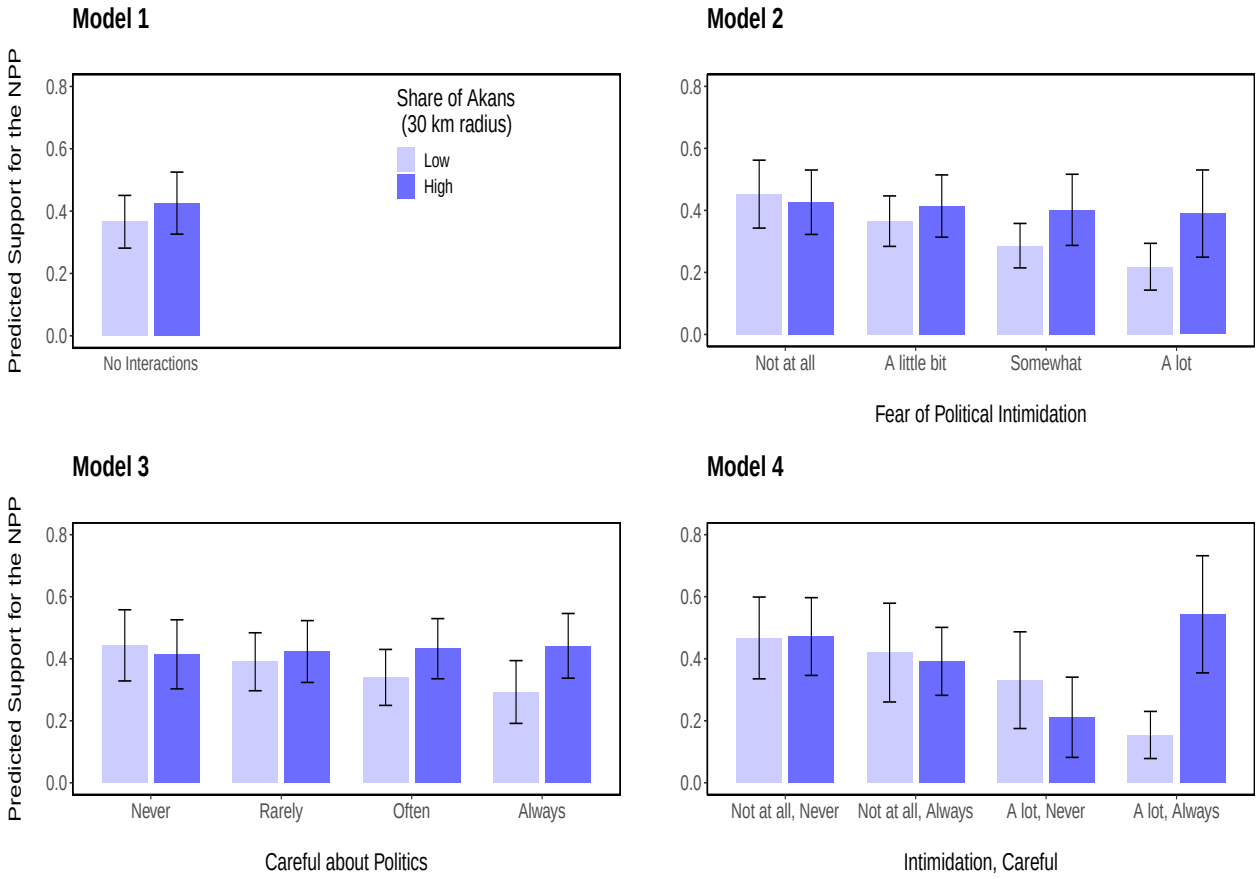
Model (1) does not include interaction terms. Model (2) includes an interaction term for *Akan30* and *Intimidation*. Model (3) includes an interaction term for *Akan30* and *Careful*. Model (4) includes interaction terms for *Akan30* and *Intimidation*, as well as for *Akan30* and *Careful*. Table A38 in the appendix shows additional results from model (4), providing marginal effects of *Akan30* conditional on different combinations of the levels of *Intimidation* and *Careful*. All models include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas. The coefficients presented in the table are marginal effects with continuous variables held at means and binary variables held at median values. Standard errors obtained via the delta method and clustered by enumeration area in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

probabilities of supporting the NPP across the relevant independent variables. Specifically, for each of the values for *Intimidation* and *Careful* in table 1, we calculate the predicted probabilities of support for the NPP fixing the share of Akans in the 30 km radius at low (10 percent, light blue bars) and high levels (80 percent, dark blue bars).[12] In line with the findings above, higher levels of *Intimidation* and *Careful* are associated with higher predicted support for the NPP. For example, in our preferred specification (model (4)), for respondents

[12]These two levels of *Akan30* represent the 25th (low) and 75th percentile (high) of the empirical distribution. In addition, in section A1.2 in the Appendix, we present the predicted probabilities of support for the NPP across all values of *Akan30*. We show that, conditional on intimidation, there is a strong positive relationship between the share of Akans in a neighborhood and the probability of voting for the NPP.

who fear intimidation and believe they should be careful in political speech living in an area with a high share of Akans increases the probability of supporting the NPP by almost 40 percentage points.

Figure 1: Predicted Support for the NPP



Each bar represents the estimated support for the NPP with the corresponding 95% confidence interval (black vertical lines). The share of Akans in a 30 km radius is fixed at the two values: low (10 percent, light blue bars) and high (80 percent, dark blue bars). Other continuous variables held at means and binary variables held at median values. Model 1 does not include interaction terms. Model 2 includes an interaction term for *Akan30* and *Intimidation*. Model 3 includes an interaction term for *Akan30* and *Careful*. Model 4 includes interaction terms for *Akan30* and *Intimidation*, as well as for *Akan30* and *Careful*. In addition, all models include the following controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas. Standard errors obtained via the delta method and clustered by enumeration area in parentheses.

We also test whether the effects differ in rural and urban areas. Tables A3 - A10 in the Appendix show the results. We find that, conditional on the respondents' fearing political intimidation, the percentage of Akans in the 30 km radius and in the 5 km radius has a statistically significant impact on vote choice both in rural and in urban areas. Conditional on the respondents believing that they have to be careful in expressing opinions about politics,

the percentage of Akans in the 30 km radius and in the 5 km radius has a statistically significant impact on vote choice in rural but not in urban areas. Conditional on the respondents both fearing political intimidation and believing that they have to be careful in political expression, we similarly find that the percentage of Akans in the 30 km radius and in the 5 km radius has a statistically significant impact on vote choice in rural but not in urban areas.

To test whether the mechanism we explore operates through the influence of Akans on non-Akan respondents, we split the sample into non-Akan and Akan respondents and repeat the analysis separately for each of the two samples. Tables A11 - A14 in the Appendix show the results. We find that the interaction of political intimidation and the percentage of Akans in the 30 km radius has a statistically significant impact on vote choice only for non-Akan respondents. We also find that, conditional on the respondent believing that one has to be careful in political expression and fearing political intimidation, the percentage of Akans in the 30 km radius has a statistically significant impact on vote choice for both Akan and non-Akan respondents.

6 The Lack of the Impact of Local Public Goods Provision

Theoretically, the existing literature suggests that the public goods provision mechanism is unlikely to explain the relationship found in the data. This is because the feasibility of promises of public goods provision as an electoral strategy is contingent on a history of credible commitments by political parties, something that is unlikely to be satisfied in a country such as Ghana, which has only relatively recently become democratic (for a similar argument see Bratton 2008, Keefer and Vlaicu 2008).

Empirically, in this section we provide evidence showing that the effect of the percentage of Akans in a neighborhood does not operate through local public goods provision, as captured in the Afrobarometer questions. In principle, it is possible that the Afrobarometer

questions do not capture local public goods provision with sufficient accuracy. It is also possible that voters care about local public goods which are different from those used in the Afrobarometer questions. Finally, it is possible that voters expect that the winning party will provide local public goods in the areas where its coethnics are in the majority, but the party does not in fact do this, so that the voters are wrong in their expectations.

We attempt to allay these concerns through a variety of robustness checks. To show that our findings do not rely on the use of the Afrobarometer dataset, in section A1.3 in the Appendix we repeat the analysis using questions from 2008 Ghana Demographic and Health Survey (DHS). To show that our findings do not rely on the use of levels of public goods provision, in section 6.2 we show that the dynamics of local public goods provision do not explain the impact of the neighborhood composition on the vote choice. To address the possibility that expectations of public goods provision matter, in section A1.4 in the Appendix we repeat the analysis using questions from Afrobarometer that may serve as proxies for the expectations.

In spite of our robustness checks, it is still possible that local public goods provision impacts ethnic voting. However, to the extent that the results about the lack of impact of public goods provision might be viewed as more convincing than the results about the lack of impact of expectations of public goods provision, our analysis shows that, if public goods provision matters for the ethnic voting, it is likely to matter through the *incorrect* expectations of the voters. If we expect voters to learn over time, so that in equilibrium they correctly anticipate that public goods will not be provided, then this implies that the impact of the expectations of public goods provision is likely to be only short-term.

6.1 The Presence of Local Public Goods

We focus on three local public goods: paved roads, schools, and health clinics. These goods are geographically targetable and locally non-excludable and thus might, in principle, mediate the impact of the percentage of Akans in a neighborhood on the vote choice.

We use the following three questions from the Afrobarometer to measure the level of

local public goods provision within an enumeration area:

1. "Thinking of your journey here: Was the road at the start point in the primary sampling unit/enumeration area paved/ tarred/ concrete?"
2. "Are the following facilities present in the primary sampling unit/enumeration area, or within easy walking distance: School?"
3. "Are the following facilities present in the primary sampling unit/enumeration area, or within easy walking distance: Health clinic?"

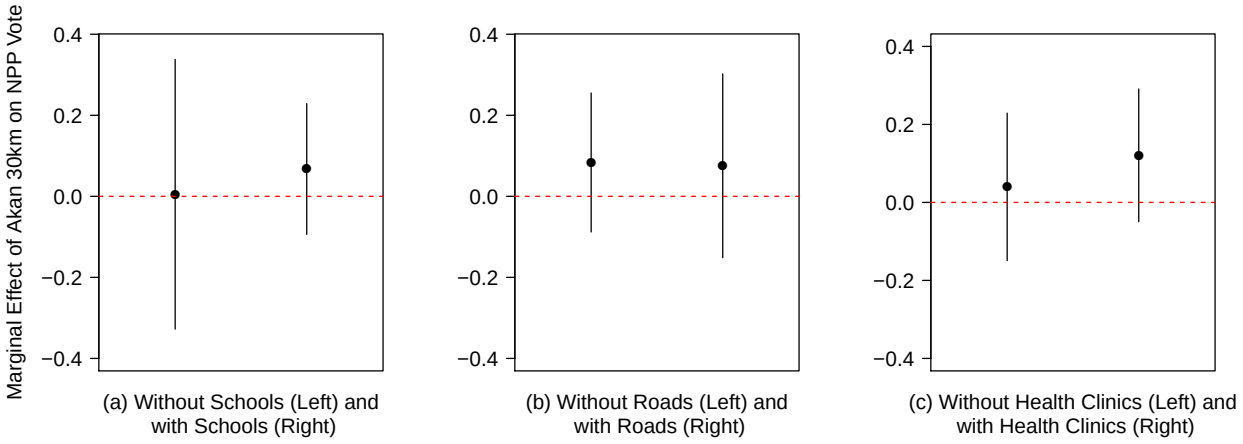
We assign the value of 1 to the variable *Road/School/Health clinic* if the answer is "Yes" and the value of 0 if the answer is "No".

We first analyze the impact of the presence of local public goods and being surrounded by Akans on the intention to vote for the NPP.[13] Tables A15 - A26 in the Appendix show the results for roads, schools and health clinics. In each of the tables, models (1) and (2) use the percentage of Akans in the 30 km radius, while models (3) and (4) use the percentage of Akans in the 5 km radius. Models (1) and (3) include the variable for the local public good and the interaction of this local public good with the percentage of Akans in the neighborhood. Models (2) and (4) also include the variable *Careful* and the interaction of *Careful* with the percentage of Akans in the neighborhood (tables A15, A19, A23), the variable *Intimidation* and the interaction of *Intimidation* with the percentage of Akans in the neighborhood (tables A16, A20, A24), both of these variables and interactions (tables A17, A21, A25), and, finally, a three-way interaction of these variables (with all the lower interactions and constituent terms included, tables A18, A22, A26).[14]

[13] If being surrounded by Akans impacts vote choice through local public goods provision, then districts with high proportions of Akans that had also received local public goods when the NPP controlled the presidency in 2000-2008 should be most likely to vote for the NPP. While it is a possibility that the local public goods recorded in the survey had been provided by the NDC before 2000, this concern is alleviated insofar as the NDC is hypothesized to have little incentive to provide local public goods to Akan-majority districts. To further alleviate this concern, we analyze the dynamics of local public goods provision in section 6.2.

[14] We treat intimidation as a continuous variable in tables A3 - A26. This means that a unit change in intimidation has a constant impact on the latent propensity of voting for the NPP. As a robustness check, we allow the effect of intimidation to differ by intimidation levels. Tables A36 and A37 present the main results from tables A3 - A26, treating each level of intimidation as a different category. Our results are robust to this change in specification.

Figure 2: The impact of percent Akan in the 30 km radius on the intention to vote for the NPP without and with local public goods



The figures show the coefficients and the corresponding confidence intervals. The coefficients are marginal effects with continuous variables held at means and binary variables held at median values.

Neither the presence of local public goods nor the interaction of the local public goods with the percentage of Akans in the neighborhood has a statistically significant effect on the intention to vote for the NPP candidate in any of the specifications in tables A15 - A26. In contrast, the result that the fear of political intimidation and the belief that one has to be careful in political expression mediate the effect of the percentage of Akans in the neighborhood is robust: in all specifications, the percentage of Akans in the neighborhood has a statistically significant effect on the intention to vote for the NPP candidate when the respondents fear political intimidation and believe that one has to be careful of what one says about politics. Figure 2 summarizes the results by plotting the marginal effect of *Akan30* on the intention to vote for the NPP candidate when a local public good is present and when it is not.

In light of the finding that local public goods do not affect vote choice directly and do not mediate the effect the percentage of Akans in the neighborhood, we estimate a model testing whether the percentage of Akans affects local public goods provision. If non-Akan voters in Akan-majority areas vote for the NPP due to the higher likelihood of receiving public goods from the NPP, then NPP-affiliated politicians should be more likely to provide

local public goods in these areas. Because the variable for the provision of local public goods does not vary by the respondent and instead varies by the enumeration area, we collapse the data to the means by enumeration area. Table A27 in the Appendix shows the results. Models (1), (3) and (5) use the percentage of Akans in the 30 km radius, while models (2), (4) and (6) use the percentage of Akans in the 5 km radius. We see that the percentage of Akans in the neighborhood has no statistically significant impact on local public goods provision.

6.2 Dynamics of Local Public Good Provision

Alternatively, the impact of the percentage of Akans in a neighborhood may affect the dynamics of local public good provision, and not the levels. It is possible that the longer the NPP is in power, the more local public goods areas with a high share of Akans receive. It is also possible that the NPP provides local public goods to the areas where there is more need for such goods, so that, if we were to just compare the levels of local public goods, we would mistakenly conclude that the NPP is less likely to provide such goods to the areas surrounded by Akans. To explore this possibility, we estimate the effect of the share of Akans in a neighborhood on the changes in local public goods provision between 2005 and 2008, using the data from round 3 (2005) and round 4 (2008) of the Afrobarometer.

In order to obtain measures of local public goods provision in the same areas at two points in time, we geocoded and then matched the enumeration areas included in round 3 and round 4 of the Afrobarometer by their geographical proximity. Once paired, we compared the changes in our three measures of local public provision.[15] Since in many instances the enumeration areas differ between the rounds, we selected only those enumeration areas in round 3 that are less than 20 kms away from the ones included in round 4. In doing so, we are treating the presence of public goods in a matched enumeration area from round 3 as a proxy for the presence of public goods in 2005 for those enumeration areas included in round

[15]The geocoded references for round 3 at the enumeration area level were generously provided by Omar García-Ponce and Leonard Wantchekon.

4.[16]

As a result, we can compare the provision of local public goods at two points in time, that is, we can compare those enumerations areas that did not receive a local public good in either 2005 or 2008 to those which received it either in 2008 or both in 2005 and 2008.[17] Since round 4 was conducted before the 2008 election where the NPP lost, the NPP is in power in both periods included in the dataset. If the impact of local ethnic geography is due to public goods provision, then we should see a positive impact of the share of Akans in a neighborhood: that is, the longer the NPP is in power, the more local public goods should be provided to the areas surrounded by Akans. Table A29 shows that the impact of the percentage of Akans does not explain changes in local public goods provision. The coefficient is only significant for *Roads*, but its sign (negative) goes in the direction not consistent with the public goods explanation.

As a result, we can compare the provision of local public goods at two points in time, that is, we can compare those enumerations areas that did not receive a local public good in either 2005 or 2008 to those which received it either in 2005 and/or 2008.[18] Since round 4 was conducted before the 2008 election where the NPP lost, the NPP is in power in both periods included in the dataset. If the impact of local ethnic geography is due to public goods provision, then we should see a positive impact of the share of Akans in a neighborhood: that is, the longer the NPP is in power, the more local public goods should be provided to the areas surrounded by Akans. Table A29 shows that the impact of the percentage of Akans

[16] As a robustness check, in table A30 we present the results using different distances (5 kms, 10 kms, and 15 kms) to match the enumeration areas. Our results are robust to using different distances. (There is no variation in *School* when we use distances smaller than 20 kms, so we present the results for *Road* and *Health clinic* only.)

[17] The dependent variable takes a value of 1 if a local public good was present in the enumeration area in either 2008 or both 2005 and 2008; it takes a value of 0 if a local public good was present in the enumeration area neither in 2005 nor 2008. Our results are robust to treating the dependent variable as having three categories (receiving the public good in neither period, only in 2008 and both in 2005 and 2008) and estimating an ordered logit (the results are available from the authors upon request).

[18] The dependent variable takes a value of 1 if a local public good was present in the enumeration area in either 2008 or both 2005 and 2008; it takes a value of 0 if a local public good was present in the enumeration area neither in 2005 nor 2008. Our results are robust to treating the dependent variable as having three categories (receiving the public good in neither period, only in 2008 and both in 2005 and 2008) and estimating an ordered logit (the results are available from the authors upon request).

does not explain changes in local public goods provision. The coefficient is only significant for *Roads*, but its sign (negative) goes in the direction not consistent with the public goods explanation.

7 Conclusion

While previous literature showed that neighborhood composition can impact ethnic voting, it did not provide empirical evidence for the mechanism through which this happens. We have provided evidence that there is an association between reported feelings of intimidation and voting for the majority ethnic group's party. Moreover, we have shown that data does not support local public goods provision as the alternative explanation.

The findings advance our understanding of both ethnic voting and the role of intimidation in elections in developing countries. Our findings imply that an instrumental motive for ethnic voting – the desire to avoid political intimidation – is present in the voting behavior in Ghana. Our results do not rule out that this instrumental motive co-exists with an expressive motive, yet voters who would like to vote along ethnic lines for expressive reasons may nevertheless refrain from doing so due to political intimidation.

Our findings may seem surprising for a country like Ghana, which is considered one of the most stable democracies in the Sub-Saharan Africa. We conjecture that had Ghana not experienced such marked improvements in democracy and the rule of law, the effect that we find would have been larger. As such, one can think of the effect found for Ghana as a lower bound. Because of this, we would expect the effect for countries like Kenya and Nigeria, which have suffered from more severe episodes of electoral violence, to be larger. It is thus likely that the extent to which neighborhood composition affects vote choice depends on the political environment that allows for or inhibits the influence of the majority ethnic groups on the minorities.

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Online Appendix

A1.1 Alternative Measure of Voters' Concerns

As an alternative measure of the voters' concern about political intimidation and freedom of political expression, we conduct factor analysis on the variables *Intimidation* and *Careful* and obtain the new variable *Factor*. Using the variable *Factor* in the analysis, we find that the interaction of the belief that one has to be careful in political expression, fear of political intimidation and the percentage of Akans in the 30 km radius has a statistically significant impact on vote choice only for non-Akan respondents. On balance, our results are consistent with Akans employing political intimidation to induce non-Akans to vote for the NPP.

A1.2 The Impact of the Size of the Surrounding Group

How does the size of the surrounding ethnicity affect the propensity of the members of other ethnicities to change their vote choice due to the fear of political intimidation? We show that, conditional on intimidation, there is a positive relationship between the share of Akans in a neighborhood and the probability of voting for the NPP.

To establish this, we estimate the predicted support for the NPP across all possible values of *Akan30*. We do not find any relationship between the share of Akans in a neighborhood and the probability of voting for the NPP for respondents who fear intimidation "Not at all" and believe they "Never" have to be careful about what they say about politics. In contrast, for respondents who fear intimidation "A lot" or believe that they "Always" have to be careful about what they say about politics, all our models predict that as the share of Akans in a neighborhood grows large, the support for the NPP will increase as well. The increase in the predicted support as we move from low to high shares of Akans in a neighborhood is more dramatic for respondents who both fear intimidation a lot and believe they should always be careful in political speech. Figures A3 – A6 in the

Appendix present the results.

A1.3 The Presence of Local Public Goods: DHS Dataset

In order to make sure that our finding that the percentage of Akans in the neighborhood does not impact local public goods provision is robust to using different datasets, we use the 2008 Ghana Demographic and Health Survey (DHS) as an alternative source of the measures of local public goods provision. Because measuring demographic and health indicators is the primary purpose of the DHS, we expect the measures of such indicators recorded in the DHS to be more accurate than those in the Afrobarometer. We geocode the enumeration areas included in round 4 of the Afrobarometer and, using the geocoded references, we match the enumeration areas in round 4 of the Afrobarometer to the closest enumeration areas in the DHS, matching only the enumeration areas that are no more than 20 kms apart.[19][20]

Because the DHS does not directly measure the presence of local public goods, we use questions from the DHS that can serve as plausible proxies for local public goods. We use two variables as proxies for the presence of a hospital in an area: *Delivery in a hospital* and *Antenatal care in a hospital*.[21] We argue that distance to a hospital and whether the family has the means to pay for the use of health facilities are the main determinants of whether a woman gives birth to a child in a hospital rather than at home and whether she receives antenatal care in a hospital. Because we control for poverty, the proportion of births in the area given in a hospital in likely to be a good proxy for the presence of a hospital easily

[19] Using the data shared by the Afrobarometer project, which includes localities names for round 4, we geocode the enumeration areas for that round using multiple sources, among them: Google Maps, GeoNames, and the Fallingrain Global Gazetteer.

[20] Distance is defined as the length of the shortest curve between two points along the surface of the Earth. For implementation see the `R` package `gmt`.

[21] The wording of the question used to construct the variable *Delivery in a hospital* is as follows: "Where did you give birth to (NAME of son/daughter)?" The response options are: 1. At home; 2. Someone else's home; 3. Public sector hospital (includes government hospitals, and health centers); 4. Private sector hospital. We recoded categories 1 and 2 as 0, and 3 and 4 as 1. The wording of the question used to construct the variable *Antenatal care in a hospital* is as follows: "Where did you receive antenatal care for this pregnancy?" The response categories and the recoding labels are the same as for *Delivery in a hospital*. Both questions ask about the pregnancies that a woman experienced in the 5 years before the survey. If a woman experienced more than one pregnancy in the 5 year period prior to the survey, we focus on the most recent pregnancy.

accessible by the residents in the area. As table A28 shows, our results are robust to the use of the DHS data. That is, the percentage of Akans in the neighborhood does not have an impact on the presence of local public goods.[22]

A1.4 The Expectations of Local Public Goods Provision

We have found that the presence of local public goods and the dynamics of local public goods provision have no impact on the vote choice and are not correlated with the percentage of Akans in the neighborhood. We now explore the possibility that expectations of receiving local public goods in the future, and not the local public goods that are already present in an area, drive the vote choice.[23]

Ideally, we would like to have access to a variable that measures citizens' expectations of access to local public goods in the event that the NPP or the NDC candidate wins. Since neither the Afrobarometer nor any other surveys that we are aware of ask this question, we use the questions in the Afrobarometer that can plausibly proxy for expectations of local public goods provision. In particular, we use the following questions:

1. "In your opinion, how likely is it that you could get together with others and make: Your elected Assembly man/woman listen to your concerns about a matter of importance to the community?" and,
2. "In your opinion, how likely is it that you could get together with others and make: Your Member of Parliament listen to your concerns about a matter of importance to the community?"

The responses to these questions are coded so that 0 means "Not at all likely", 1 means

[22]Our results are robust to different definitions of closeness between enumeration areas such as using cutoffs of 10 or 15 km instead of 20 km. The results with alternative cutoffs are available from the authors upon request.

[23]It seems implausible that expectations of receiving local public goods are in no way connected to the actual presence of local public goods and the dynamics of local public goods provision, since, should voters find that the reality does not match their expectations, they are likely to adjust their expectations. Yet incorrect expectations may persist in the short term, or measurements of the expectations of local public goods provision may be more precise than measurements of the presence or dynamics of local public goods. For this reason, we examine the relationship between expectations of receiving local public goods and vote choice.

"Not very likely", 2 means "Somewhat likely" and 3 means "Very likely."

Since access to local public goods is likely to be important to the community, the belief of the citizens that they can make their representatives listen to their concerns about such matters can plausibly be interpreted as expectations that they will receive local public goods in the future. To further establish that the above questions are reasonable proxies for expectations of local public goods provision, we now explain in greater detail how these officials are involved in public goods provision.

The District Assemblies are responsible for overall development of each district. The District Assemblies' Common Fund (DACF) is the main source of revenue for the District Assemblies (DAs), providing funds for 80-90% of their spending. The head of each DA, the District Chief Executive, is appointed by the president. In addition, the president appoints no less than 30% of the DA members. The rest of the DA members are elected (Banful 2009).

DA members can exercise substantial discretion in choosing in which localities and how the development projects are implemented. For example, the National Community and Sanitation Programme is implemented as follows (Useche 2016). First a village submits a proposal for a new rural water project to the District Assembly. If the proposal is accepted, then the village forms the Water and Sanitation Committee. This committee works with the DA to implement the project.

The involvement of MPs in initiating and influencing the implementation of local development projects is also extensive. Scholars note that "MPs . . . go out of their way and use every possible means to provide community development benefits to their constituents as a key strategy to get re-elected" (Lindberg 2010, 128). Moreover, MPs often initiate development projects in response to requests from individual citizens and communities. Lindberg (2010, 128) writes that "MPs have some public resources (the DACF share, HIPC funds) which they often use for school buildings, toilets, roofing sheets, scholarships and boreholes, depending on the needs in the area" and that "MPs also use a lot of time lobbying ministers and top-level bureaucrats to bring development projects to their constituencies."

Additionally, we use the following question: "Do you approve or disapprove of the way the following people have performed their jobs over the past twelve months, or haven't you heard enough about them to say: The President." The responses are coded so that 1 means "Strongly Disapprove", 2 means "Disapprove", 3 means "Approve", and 4 means "Strongly Approve."

If the president is favoring his co-ethnics in the distribution of local public goods, the beneficiaries of such favoritism should be more likely to approve of the president, either because they have benefited from the favoritism themselves or because they have heard that their co-ethnics benefited and expect to benefit in the future. The use of *Presidential Approval* to infer whether local public goods were expected and provided here relies on the assumption that such expectations are at least partially correct. This assumption seems plausible, since, should the reality consistently fail to match the voters' beliefs, they are likely to adjust their beliefs.

We repeat the analysis above using the proxies for expectations of local public goods provision instead of the variables measuring local public goods provision. Tables A31 - A34 in the Appendix show the results. We find that the interaction of the proxies with the percentage of Akans in the neighborhood has no impact on the intention to vote for the NPP candidate. The variables *Can make councillor listen* and *Can make MP listen* have no impact on the vote choice. The variable *Presidential Approval* raises the probability of expressing intention to vote for the NPP only in the areas where the percentage of Akans in the neighborhood is zero, which suggests that the expectations of public goods provision by the NPP are not related to the share of Akans in the neighborhood.

Additionally, as table A35 in the Appendix shows, we find that the percentage of Akans in the neighborhood has no statistically significant impact on the proxies for expectations of local public goods provision.

A1.5 Additional Tables

In this section we present additional figures and tables that we refer to in the paper as follows:

Figures:

Figure A1: Distribution of the fear of political intimidation expressed by Afrobarometer respondents

Figure A2: Distribution of the belief that people have to be careful of what they say about politics

Figure A3: The probability of voting for the NPP by share of Akans in 30 km radius without controlling for *Intimidation* and *Careful*

Figure A4: The probability of voting for the NPP by share of Akans in 30 km radius, maximum and minimum levels of *Intimidation*

Figure A5: The probability of voting for the NPP by share of Akans in 30 km radius, maximum and minimum levels of *Careful*

Figure A6: The probability of voting for the NPP by share of Akans in 30 km radius, maximum and minimum levels of *Careful* and *Intimidation*

Tables:

Table A1: Summary Statistics

Table A2: The impact of percent Akan in the 30 km radius on the intent to vote for NPP without and with intimidation (Weighted Analysis)

Table A3: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius (Careful)

Table A4: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius (Intimidation)

Table A5: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius (Intimidation and Careful)

Table A6: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius (Factor: Intimidation and Careful)

Table A7: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius (Careful)

Table A8: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius (Intimidation)

Table A9: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius (Intimidation and Careful)

Table A10: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius (Factor: Intimidation and Careful)

Table A11: The impact of being surrounded by Akans - for non-Akan and Akan respondents (Careful)

Table A12: The impact of being surrounded by Akans - for non-Akan and Akan respondents (Intimidation)

Table A13: The impact of being surrounded by Akans - for non-Akan and Akan respondents (Intimidation and Careful)

Table A14: The impact of being surrounded by Akans - for non-Akan and Akan respondents (Factor: Intimidation and Careful)

Table A15: The impact of roads and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Careful)

Table A16: The impact of roads and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Intimidation)

Table A17: The impact of roads and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Intimidation and Careful)

Table A18: The impact of roads and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Factor: Intimidation and Careful)

Table A19: The impact of schools and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Careful)

Table A20: The impact of schools and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Intimidation)

Table A21: The impact of schools and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Intimidation and Careful)
Table A22: The impact of schools and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Factor: Intimidation and Careful)
Table A23: The impact of health clinics and being surrounded by Akans on the intention to vote for NPP, 30 and 5 km radius (Careful)
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Table A27: The impact of neighborhood composition on local public goods provision, 30 and 5 km radius
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Table A32: The impact of proxies for expectations of local public goods provision and being surrounded by Akans on the intention to vote for NPP (Intimidation)
Table A33: The impact of proxies for expectations of local public goods provision and being surrounded by Akans on the intention to vote for NPP (Intimidation and Careful)

Table A34: The impact of proxies for expectations of local public goods provision and being surrounded by Akans on the intention to vote for NPP (Factor: Intimidation and Careful)

Table A35: The impact of neighborhood composition on proxies for expectations of local public goods provision

Table A36: The impact of being surrounded by Akans (30km radius) by different levels of intimidation

Table A37: The impact of being surrounded by Akans (5km radius) by different levels of intimidation

Table A39: Polling Station-Level Analysis: Brong-Ahafo region

Figure A1: Distribution of the fear of political intimidation expressed by Afrobarometer respondents

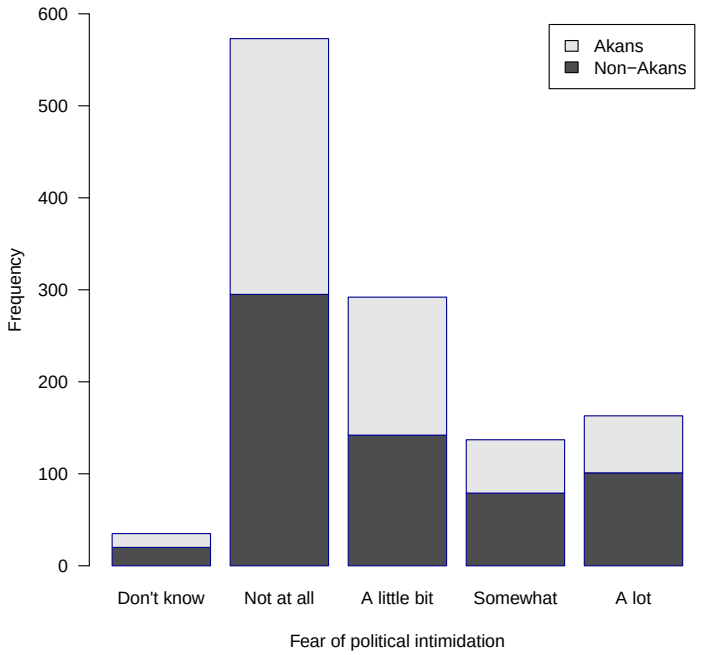


Figure A2: Distribution of the belief that people have to be careful of what they say about politics

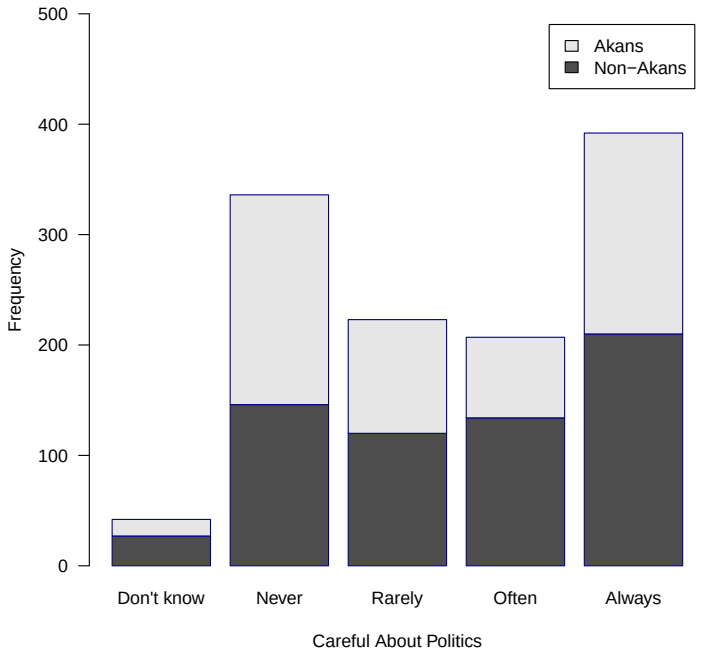
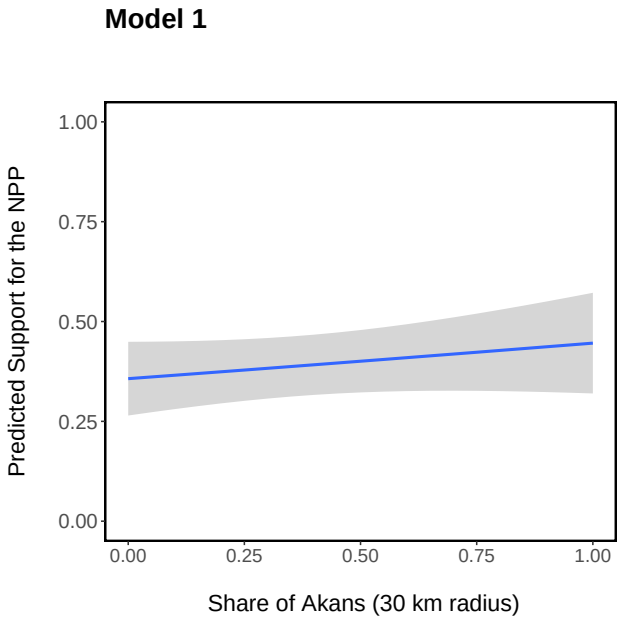
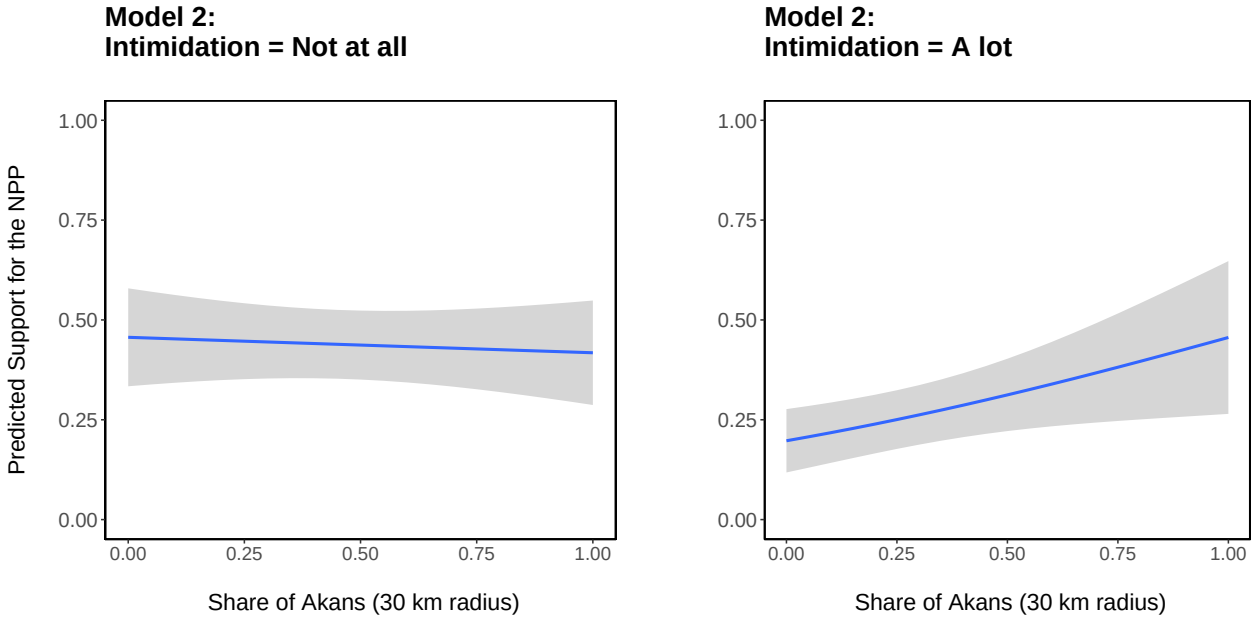


Figure A3: Probability of voting for the NPP by share of Akans in 30 km radius without controlling for either *Intimidation* or *Careful*



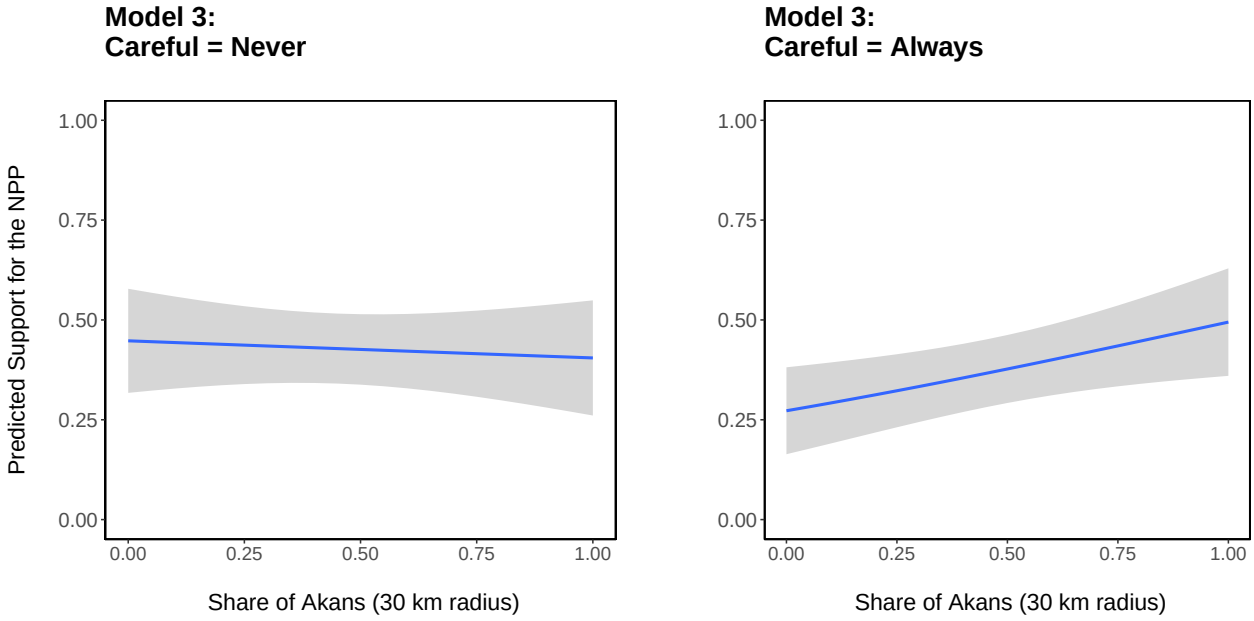
Predicted Support for the NPP (blue line) with the corresponding 95% confidence interval (shaded gray region). Model 1 does not include interaction terms. In addition, the following controls are included: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas. Unless noted otherwise, continuous variables held at means and binary variables held at median values. Standard errors obtained via the delta method and clustered by enumeration area in parentheses.

Figure A4: Probability of voting for the NPP by share of Akans in 30 km radius, maximum and minimum levels of *Intimidation*



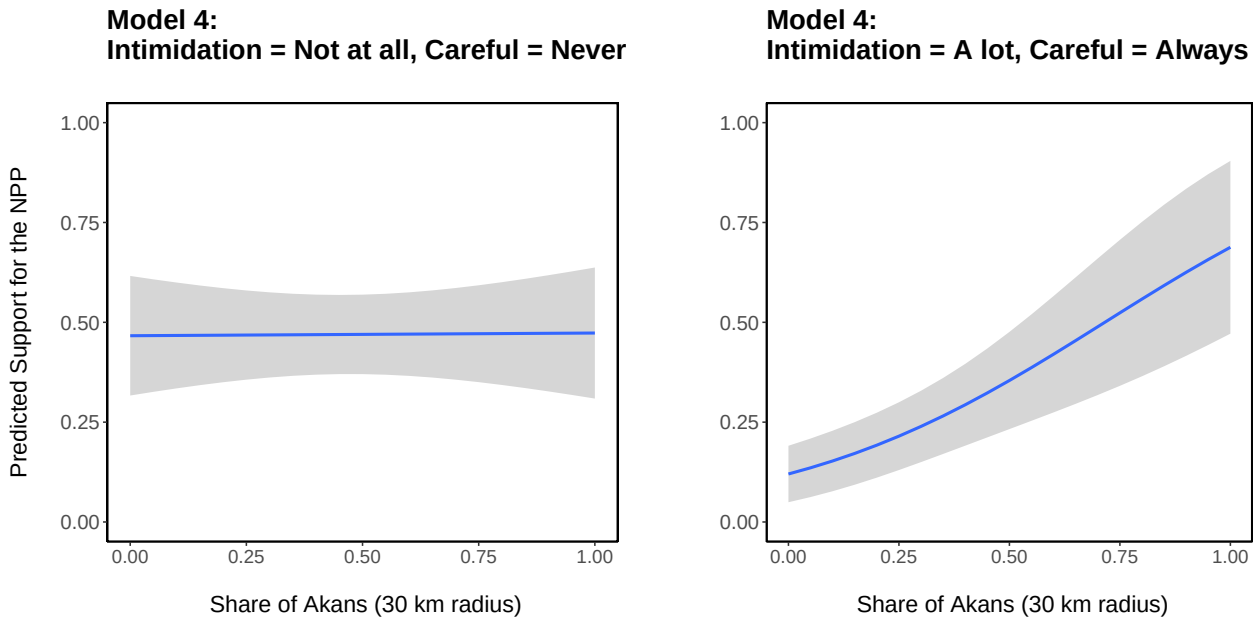
Predicted Support for the NPP (blue line) with the corresponding 95% confidence interval (shaded gray region). Model 2 includes an interaction term for *Akan30* and *Intimidation*. In the plot on the left (right) *Intimidation* is fixed at "Not at all" ("A lot"). In addition, the following controls are included: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas. Unless noted otherwise, continuous variables held at means and binary variables held at median values. Standard errors obtained via the delta method and clustered by enumeration area in parentheses.

Figure A5: Probability of voting for the NPP by share of Akans in 30 km radius, maximum and minimum levels of *Careful*



Predicted Support for the NPP (blue line) with the corresponding 95% confidence interval (shaded gray region). Model 3 includes an interaction term for *Akan30* and *Careful*. In the plot on the left (right) *Careful* is fixed at "Never" ("Always"). In addition, the following controls are included: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.Unless noted otherwise, continuous variables held at means and binary variables held at median values. Standard errors obtained via the delta method and clustered by enumeration area in parentheses.

Figure A6: Probability of voting for the NPP by share of Akans in 30 km radius, maximum and minimum levels of *Careful* and *Intimidation*



Predicted Support for the NPP (blue line) with the corresponding 95% confidence interval (shaded gray region). Model 4 includes interaction terms for *Akan30* and *Intimidation*, as well as for *Akan30* and *Careful*. In the plot on the left (right) *Intimidation* and *Careful* are fixed at "Not at all" and "Never" ("A lot" and "Always"), respectively. In addition, the following controls are included: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas. Unless noted otherwise, continuous variables held at means and binary variables held at median values. Standard errors obtained via the delta method and clustered by enumeration area in parentheses.

Table A1: Summary Statistics (Afrobarometer Data, round 4)

	Weighted Mean	Std. Dev.	Min	Max
Vote NPP	0.45	0.50	0	1
% Akan in 5km	0.48	0.29	0.01	0.94
% Akan in 30km	0.48	0.31	0.01	0.96
Akan	0.45	0.50	0	1
Ewe	0.15	0.36	0	1
Dagomba (Mole-Dagbon)	0.07	0.25	0	1
Male	0.50	0.50	0	1
Economy approval	3.21	1.07	1	5
Poverty	0.00	1.00	-1.12	1.85
Urban	0.20	0.40	0	1
Central Region	0.08	0.28	0	1
Local level of development	-0.08	1.00	-1.14	2.99
Political Intimidation	0.90	1.08	0	3
Careful	1.56	1.22	0	3
Health Clinics	0.58	0.49	0	1
Schools	0.92	0.28	0	1
Roads	0.43	0.50	0	1
Presidential Approval	3.27	1.29	1	9
Make MP listen	2.06	2.13	0	9
Make Councilor listen	2.20	1.83	0	9
Number of Observations	1200			

Weighted means and standard deviations are obtained using the post-stratification weights included in the Afrobarometer surveys.

Table A2: The impact of percent Akan in the 30 km radius on the intent to vote for NPP without and with intimidation (Weighted Analysis)

	(1)			
	No Interactions			
Marginal Effect of *Akan30*	0.033			
Standard Error	(0.079)			
	(2)			
	Intimidation:			
	Not at all	A little bit	Somewhat	A lot
Marginal Effect of *Akan30*	-0.104	0.019	0.128	0.220**
Standard Error	(0.084)	(0.072)	(0.086)	(0.110)
	(3)			
	Careful:			
	Never	Rarely	Often	Always
Marginal Effect of *Akan30*	-0.052	0.010	0.069	0.125
Standard Error	(0.106)	(0.081)	(0.076)	(0.094)
	(4)			
	Intimidation and Careful:			
	Not at all, Never	Not at all, Always	A lot, Never	A lot, Always
Marginal Effect of *Akan30*	-0.026	-0.159	-0.128	0.499***
Standard Error	(0.123)	(0.124)	(0.184)	(0.133)

Model (1) does not include interaction terms. Model (2) includes an interaction term for *Akan30* and *Intimidation*. Model (3) includes an interaction term for *Akan30* and *Careful*. Model (4) includes interaction terms for *Akan30* and *Intimidation*, as well as for *Akan30* and *Careful*. Table A38 in the appendix shows additional results from model (4), providing marginal effects of *Akan30* conditional on different combinations of the levels of *Intimidation* and *Careful*. All models include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas. The coefficients presented in the table are marginal effects with continuous variables held at means and binary variables held at median values. Standard errors obtained via bootstrap (500 bootstrap samples) and clustered by enumeration area in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

Table A3: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius

	Vote for NPP		
	All	Rural	Urban
Akan30	−0.175	−0.436	3.092***
	(0.442)	(0.421)	(0.572)
Careful	−0.257**	−0.246**	−0.243
	(0.111)	(0.112)	(0.439)
Akan30 × Careful	0.378**	0.424**	−0.107
	(0.176)	(0.178)	(0.646)
Constant	−0.909**	−0.739*	−3.340***
	(0.383)	(0.403)	(0.636)
Observations	1,133	904	229

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A4: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius

	Vote for NPP		
	All	Rural	Urban
Akan30	−0.157	−0.309	1.293
	(0.387)	(0.393)	(1.067)
Political intimidation	−0.409***	−0.412***	−0.833
	(0.112)	(0.114)	(0.624)
Akan30 × Political intimidation	0.461**	0.417**	1.622*
	(0.192)	(0.196)	(0.922)
Constant	−0.827**	−0.640*	−2.625***
	(0.369)	(0.387)	(0.907)
Observations	1,141	912	229

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A5: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius

	Vote for NPP		
	All	Rural	Urban
Akan30	0.027	−0.265	2.905***
	(0.498)	(0.495)	(0.928)
Political intimidation	−0.158	−0.181	−0.276
	(0.157)	(0.158)	(1.082)
Careful	−0.057	−0.056	−0.112
	(0.145)	(0.146)	(0.631)
Careful × Political intimidation	−0.134*	−0.127*	−0.115
	(0.076)	(0.075)	(0.473)
Akan30 × Political intimidation	−0.312	−0.294	0.188
	(0.274)	(0.281)	(1.785)
Akan30 × Careful	−0.067	0.007	−0.515
	(0.225)	(0.227)	(0.828)
Akan30 × Careful × Political intimidation	0.432***	0.395***	0.579
	(0.136)	(0.136)	(0.851)
Constant	−0.823**	−0.623	−3.198***
	(0.406)	(0.425)	(0.775)
Observations	1,116	890	226

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A6: The impact of being surrounded by Akans in all, rural and urban areas, 30 km radius

	Vote for NPP		
	All	Rural	Urban
Akan30	0.575*	0.400	2.835*
	(0.331)	(0.317)	(1.462)
Factor	−0.843***	−0.851***	−0.966
	(0.206)	(0.211)	(0.963)
Akan30 × Factor	1.068***	1.098***	0.991
	(0.340)	(0.356)	(1.528)
Constant	−1.434***	−1.236***	−3.598***
	(0.344)	(0.363)	(0.943)
Observations	1,116	890	226

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A7: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius

	Vote for NPP		
	All	Rural	Urban
Akan5	−0.154	−0.365	1.822*
	(0.554)	(0.534)	(1.109)
Careful	−0.286**	−0.264*	−0.684
	(0.218)	(0.135)	(0.488)
Akan5 × Careful	0.434**	0.455**	0.676
	(0.218)	(0.221)	(0.720)
Constant	−0.926**	−0.764*	−2.517***
	(0.432)	(0.478)	(0.709)
Observations	1,133	904	229

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A8: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius

	Vote for NPP		
	All	Rural	Urban
Akan5	−0.114	−0.231	0.956
	(0.453)	(0.465)	(1.104)
Political intimidation	−0.425***	−0.418***	−0.851
	(0.124)	(0.128)	(0.533)
Akan5 × Political intimidation	0.502**	0.435*	1.706**
	(0.215)	(0.223)	(0.754)
Constant	−0.855**	−0.674	−2.376***
	(0.403)	(0.421)	(0.851)
Observations	1,141	912	229

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A9: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius

	Vote for NPP		
	All	Rural	Urban
Akan5	−0.007	−0.211	1.380
	(0.647)	(0.656)	(1.378)
Political intimidation	−0.164	−0.160	−0.515
	(0.184)	(0.187)	(0.806)
Careful	−0.084	−0.061	−0.718
	(0.175)	(0.177)	(0.664)
Careful × Political intimidation	−0.134	−0.138	0.115
	(0.088)	(0.087)	(0.386)
Akan5 × Political intimidation	−0.314	−0.350	0.804
	(0.335)	(0.348)	(1.405)
Akan5 × Careful	−0.018	0.011	0.536
	(0.279)	(0.283)	(0.910)
Akan5 × Careful × Political intimidation	0.444***	0.428***	0.147
	(0.161)	(0.161)	(0.757)
Constant	−0.819*	−0.647	−2.302***
	(0.475)	(0.495)	(0.819)
Observations	1,116	890	226

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A10: The impact of being surrounded by Akans in all, rural and urban areas, 5 km radius

	Vote for NPP		
	All	Rural	Urban
Akan5	0.660*	0.467	3.029**
	(0.380)	(0.365)	(1.495)
Factor	−0.917***	−0.908***	−1.574
	(0.230)	(0.238)	(1.044)
Akan5 × Factor	1.226***	1.210***	2.165
	(0.390)	(0.416)	(1.591)
Constant	−1.485***	−1.273***	−3.600***
	(0.353)	(0.368)	(0.997)
Observations	1,116	890	226

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A11: The impact of being surrounded by Akans for non-Akan and Akan respondents

	Non-Akan		Akan	
Akan30	−0.783		0.399	
	(0.733)		(0.874)	
Akan5		−1.061		1.152
		(0.845)		(1.018)
Careful	−0.253**	−0.305**	−0.540**	−0.442
	(0.118)	(0.145)	(0.267)	(0.314)
Akan30 × Careful	0.563*		0.695*	
	(0.298)		(0.371)	
Akan5 × Careful		0.646*		0.606
		(0.340)		(0.458)
Constant	−0.633	−0.491	−0.694	−1.214
	(0.500)	(0.565)	(0.769)	(0.834)
Observations	601	601	532	532

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A12: The impact of being surrounded by Akans for non-Akan and Akan respondents

	Non-Akan		Akan	
Akan30	−0.542		1.266	
	(0.499)		(0.868)	
Akan5		−0.732		2.098***
		(0.530)		(0.773)
Political intimidation	−0.460***	−0.486***	−0.161	−0.066
	(0.123)	(0.137)	(0.428)	(0.342)
Akan30 × Political intimidation	0.678**		0.102	
	(0.321)		(0.559)	
Akan5 × Political intimidation		0.645**		−0.002
		(0.329)		(0.478)
Constant	−0.468	−0.367	−1.300*	−1.858***
	(0.469)	(0.504)	(0.770)	(0.681)
Observations	609	609	532	532

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.

*** p<0.01, ** p<0.05, * p<0.10

Logit coefficients shown in the table.

Table A13: The impact of being surrounded by Akans for non-Akan and Akan respondents

	Non-Akan		Akan	
Akan30	−0.571		1.371	
	(0.778)		(1.041)	
Akan5		−0.985		2.088*
		(0.928)		(1.223)
Careful	−0.054	−0.106	−0.260	−0.307
	(0.155)	(0.190)	(0.417)	(0.465)
Political intimidation	−0.207	−0.240	1.067	0.798
	(0.163)	(0.195)	(0.929)	(0.880)
Akan30 × Careful	0.090		0.124	
	(0.352)		(0.552)	
Akan5 × Careful		0.216		0.170
		(0.405)		(0.658)
Akan30 × Political intimidation	−0.636		−1.897	
	(0.626)		(1.210)	
Akan5 × Political intimidation		−0.438		−1.684
		(0.582)		(1.251)
Careful × Political intimidation	−0.129	−0.120	−0.479	−0.316
	(0.080)	(0.092)	(0.415)	(0.404)
Akan30 × Careful × Political intimidation	0.579**		0.889*	
	(0.256)		(0.538)	
Akan5 × Careful × Political intimidation		0.473*		0.767
		(0.241)		(0.584)
Constant	−0.445	−0.261	−1.212	−1.646*
	(0.509)	(0.601)	(0.887)	(0.962)
Observations	593	593	523	523

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A14: The impact of being surrounded by Akans for non-Akan and Akan respondents

	Non-Akan		Akan	
Akan30	0.447		1.596**	
	(0.397)		(0.660)	
Akan5		0.246		2.178***
		(0.442)		(0.656)
Factor	−0.931***	−1.051***	−0.771	−0.572
	(0.228)	(0.262)	(0.596)	(0.593)
Akan30 × Factor	1.616***		0.859	
	(0.586)		(0.803)	
Akan5 × Factor		1.741***		0.676
		(0.628)		(0.850)
Constant	−1.160**	−1.096**	−1.664***	−1.999***
	(0.471)	(0.475)	(0.610)	(0.586)
Observations	593	593	523	523

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A15: The impact of roads and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.335		−0.213	
	(0.358)		(0.490)	
Akan5		0.604		−0.038
		(0.377)		(0.612)
Road	0.057	0.214	0.091	0.255
	(0.327)	(0.360)	(0.352)	(0.393)
Careful			−0.254**	−0.275**
			(0.111)	(0.135)
Akan30 × Road	0.070		0.066	
	(0.503)		(0.528)	
Akan5 × Road		−0.259		−0.282
		(0.571)		(0.615)
Akan30 × Careful			0.378**	
			(0.177)	
Akan5 × Careful				0.421*
				(0.221)
Constant	−1.300***	−1.429***	−0.964**	−1.051**
	(0.355)	(0.355)	(0.411)	(0.456)
Observations	1,172	1,172	1,133	1,133

Robust standard errors clustered by enumeration area in parentheses.
All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A16: The impact of roads and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.335		−0.221	
	(0.358)		(0.414)	
Akan5		0.604		−0.058
		(0.377)		(0.468)
Road	0.057	0.214	−0.016	0.122
	(0.327)	(0.360)	(0.319)	(0.347)
Political intimidation			−0.410***	−0.422***
			(0.112)	(0.122)
Akan30 × Road	0.070		0.144	
	(0.503)		(0.482)	
Akan5 × Road		−0.259		−0.148
		(0.571)		(0.545)
Akan30 × Political intimidation			0.463**	
			(0.193)	
Akan5 × Political intimidation				0.497**
				(0.214)
Constant	−1.300***	−1.429***	−0.827**	−0.908**
	(0.355)	(0.355)	(0.383)	(0.410)
Observations	1,172	1,172	1,141	1,141

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.

*** p<0.01, ** p<0.05, * p<0.10

Logit coefficients shown in the table.

Table A17: The impact of roads and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.335		0.002	
	(0.358)		(0.535)	
Akan5		0.604		0.120
		(0.377)		(0.693)
Road	0.057	0.214	0.085	0.246
	(0.327)	(0.360)	(0.340)	(0.375)
Political intimidation			−0.159	−0.168
			(0.157)	(0.184)
Careful			−0.055	−0.078
			(0.145)	(0.175)
Akan30 × Road	0.070		0.040	
	(0.503)		(0.504)	
Akan5 × Road		−0.259		−0.305
		(0.571)		(0.580)
Careful × Political intimidation			−0.134*	−0.130
			(0.076)	(0.088)
Akan30 × Political intimidation			−0.311	
			(0.272)	
Akan30 × Careful			−0.066	
			(0.225)	
Akan30 × Careful × Political intimidation			0.431***	
			(0.136)	
Akan5 × Political intimidation				−0.311
				(0.335)
Akan5 × Careful				−0.026
				(0.281)
Akan5 × Careful × Political intimidation				0.439***
				(0.162)
Constant	−1.300***	−1.429***	−0.873**	−0.936*
	(0.355)	(0.355)	(0.427)	(0.495)
Observations	1,172	1,172	1,116	1,116

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A18: The impact of roads and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.441		0.551	
	(0.370)		(0.369)	
Akan5		0.728		0.751*
		(0.403)		(0.420)
Road	0.175	0.346	0.080	0.223
	(0.348)	(0.384)	(0.342)	(0.389)
Factor			−0.837***	−0.899***
			(0.340)	(0.228)
Akan30 × Road	−0.074		0.042	
	(0.523)		(0.510)	
Akan5 × Road		−0.430		−0.264
		(0.598)		(0.586)
Akan30 × Factor			1.065***	
			(0.340)	
Akan5 × Factor				1.203***
				(0.389)
Constant	−1.375***	−1.520***	−1.476***	−1.576***
	(0.379)	(0.383)	(0.366)	(0.371)
Observations	1,116	1,116	1,116	1,116

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A19: The impact of schools and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.106		−0.639	
	(0.677)		(0.696)	
Akan5		0.577		−0.361
		(0.694)		(0.748)
School	−0.123	−0.023	−0.339	−0.263
	(0.284)	(0.322)	(0.299)	(0.333)
Akan30 × School	0.293		0.506	
	(0.692)		(0.659)	
Careful			−0.261**	−0.290**
			(0.108)	(0.131)
Akan5 × School		−0.062		0.235
		(0.720)		(0.694)
Akan30 × Careful			0.382**	
			(0.173)	
Akan5 × Careful				0.436**
				(0.215)
Constant	−1.155***	−1.324***	−0.600	−0.691
	(0.399)	(0.442)	(0.414)	(0.454)
Observations	1,172	1,172	1,133	1,133

Robust standard errors clustered by enumeration area in parentheses.
All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A20: The impact of schools and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.106		−0.562	
	(0.677)		(0.757)	
Akan5		0.577		−0.265
		(0.694)		(0.776)
School	−0.123	−0.023	−0.248	−0.156
	(0.284)	(0.322)	(0.303)	(0.340)
Political intimidation			−0.417***	−0.430***
			(0.113)	(0.125)
Akan30 × School	0.293		0.432	
	(0.692)		(0.715)	
Akan5 × School		−0.062		0.163
		(0.720)		(0.727)
Akan30 × Political intimidation			0.474**	
			(0.195)	
Akan5 × Political intimidation				0.509**
				(0.218)
Constant	−1.155***	−1.324***	−0.593	−0.713
	(0.399)	(0.442)	(0.455)	(0.513)
Observations	1,172	1,172	1,141	1,141

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.

*** p<0.01, ** p<0.05, * p<0.10

Logit coefficients shown in the table.

Table A21: The impact of schools and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.106		−0.598	
	(0.677)		(0.799)	
Akan5		0.577		−0.460
		(0.694)		(0.895)
School	−0.123	−0.023	−0.392	−0.334
	(0.284)	(0.322)	(0.327)	(0.360)
Political intimidation			−0.195	−0.200
			(0.168)	(0.194)
Careful			−0.070	−0.099
			(0.143)	(0.173)
Careful × Political intimidation			−0.122	−0.121
			(0.078)	(0.089)
Akan30 × School	0.293		0.640	
	(0.692)		(0.705)	
Akan5 × School		−0.062		0.450
		(0.720)		(0.739)
Akan30 × Political intimidation			−0.262	
			(0.286)	
Akan5 × Political intimidation				−0.260
				(0.346)
Akan30 × Careful			−0.051	
			(0.224)	
Akan5 × Careful				0.002
				(0.277)
Akan30 × Careful × Political intimidation			0.417***	
			(0.140)	
Akan5 × Careful × Political intimidation				0.425***
				(0.164)
Constant	−1.155***	−1.324***	−0.438	−0.492
	(0.399)	(0.442)	(0.501)	(0.577)
Observations	1,172	1,172	1,116	1,116

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A22: The impact of schools and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.097		0.086	
	(0.678)		(0.650)	
Akan5		0.434		0.345
		(0.683)		(0.656)
School	−0.251	−0.204	−0.416	−0.358
	(0.321)	(0.353)	(0.325)	(0.354)
Factor			−0.871***	−0.941***
			(0.210)	(0.233)
Akan30 × School	0.357		0.547	
	(0.686)		(0.682)	
Akan5 × School		0.166		0.361
		(0.714)		(0.699)
Akan30 × Factor			1.105***	
			(0.345)	
Akan5 × Factor				1.256***
				(0.395)
Constant	−1.066**	−1.198***	−1.067***	−1.176***
	(0.418)	(0.453)	(0.405)	(0.437)
Observations	1,116	1,116	1,116	1,116

Robust standard errors clustered by enumeration area in parentheses.
All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A23: The impact of health clinics and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.261		−0.470	
	(0.428)		(0.499)	
Akan5		0.725		0.180
		(0.462)		(0.620)
Health clinic	−0.116	0.092	−0.224	−0.040
	(0.292)	(0.294)	(0.307)	(0.321)
Careful			−0.291***	−0.327**
			(0.110)	(0.134)
Akan30 × Health clinic	0.374		0.604	
	(0.442)		(0.454)	
Akan5 × Health clinic		−0.028		0.243
		(0.463)		(0.494)
Akan30 × Careful			0.418**	
			(0.176)	
Akan5 × Careful				0.485**
				(0.219)
Constant	−1.348***	−1.579***	−0.904**	−1.043**
	(0.405)	(0.417)	(0.430)	(0.483)
Observations	1,140	1,140	1,101	1,101

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A24: The impact of health clinics and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.261		−0.218	
	(0.428)		(0.470)	
Akan5		0.725		0.162
		(0.462)		(0.536)
Health clinic	−0.116	0.092	−0.066	0.129
	(0.292)	(0.294)	(0.292)	(0.306)
Political intimidation			−0.377***	−0.377***
			(0.109)	(0.119)
Akan30 × Health clinic	0.374		0.352	
	(0.442)		(0.437)	
Akan5 × Health clinic		−0.028		−0.024
		(0.463)		(0.472)
Akan30 × Political intimidation			0.409**	
			(0.189)	
Akan5 × Political intimidation				0.419**
				(0.207)
Constant	−1.348***	−1.579***	−0.957**	−1.150**
	(0.405)	(0.417)	(0.432)	(0.476)
Observations	1,140	1,140	1,109	1,109

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.

*** p<0.01, ** p<0.05, * p<0.10

Logit coefficients shown in the table.

Table A25: The impact of health clinics and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.261		−0.207	
	(0.428)		(0.565)	
Akan5		0.725		0.054
		(0.462)		(0.735)
Health clinic	−0.116	0.092	−0.140	0.049
	(0.292)	(0.294)	(0.306)	(0.333)
Careful			−0.112	−0.154
			(0.144)	(0.174)
Political intimidation			−0.148	−0.142
			(0.159)	(0.187)
Careful × Political intimidation			−0.116	−0.111
			(0.076)	(0.087)
Akan30 × Health clinic	0.374		0.508	
	(0.442)		(0.452)	
Akan5 × Health clinic		−0.028		0.143
		(0.463)		(0.505)
Akan30 × Political intimidation			−0.322	
			(0.274)	
Akan5 × Political intimidation				−0.350
				(0.338)
Akan30 × Careful			0.002	
			(0.224)	
Akan5 × Careful				0.074
				(0.278)
Akan30 × Careful × Political intimidation			0.403***	
			(0.136)	
Akan5 × Careful × Political intimidation				0.408**
				(0.160)
Constant	−1.348***	−1.579***	−0.864*	−0.999*
	(0.405)	(0.417)	(0.459)	(0.546)
Observations	1,140	1,140	1,084	1,084

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A26: The impact of health clinics and being surrounded by Akans on the intention to vote for the NPP, 30 and 5 km radius

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	0.211		0.363	
	(0.425)		(0.406)	
Akan5		0.675		0.726
		(0.473)		(0.475)
Health clinic	−0.156	0.041	−0.163	0.014
	(0.308)	(0.323)	(0.306)	(0.332)
Factor			−0.836***	−0.892***
			(0.211)	(0.237)
Akan30 × Health clinic	0.551		0.540	
	(0.456)		(0.451)	
Akan5 × Health clinic		0.174		0.197
		(0.495)		(0.504)
Akan30 × Factor			1.035***	
			(0.348)	
Akan5 × Factor				1.160***
				(0.399)
Constant	−1.372***	−1.604***	−1.502***	−1.682***
	(0.417)	(0.437)	(0.396)	(0.416)
Observations	1,084	1,084	1,084	1,084

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A27: The impact of neighborhood composition on local public goods provision, 30 and 5 km radius

	Road		School		Health clinic	
	(1)	(2)	(3)	(4)	(5)	(6)
NPP vote	1.477	1.467	−0.993	−0.785	−0.181	−0.070
	(1.036)	(1.023)	(1.851)	(1.765)	(1.112)	(1.116)
Akan30	−0.599		−3.015		−1.386	
	(1.197)		(1.785)		(1.340)	
Akan5		0.322		−0.121		−1.280
		(1.115)		(1.975)		(1.214)
Constant	−0.178	−0.508	2.738	0.899	0.300	0.206
	(1.729)	(1.709)	(2.475)	(2.465)	(1.613)	(1.606)
Observations	143	143	120	120	139	139

Robust standard errors in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Data collapsed to the means by enumeration area.
Logit coefficients shown in the table.

Table A28: The impact of neighborhood composition on local public goods provision (DHS Data), 30 and 5 km radius

	Delivery in a hospital		Antenatal care in a hospital	
	(1)	(2)	(3)	(4)
NPP vote	0.679	0.649	−0.248	−0.182
	(1.843)	(1.778)	(1.672)	(1.624)
Akan30	0.376		−0.445	
	(1.985)		(1.458)	
Akan5		1.588		−0.070
		(1.878)		(1.535)
Constant	−6.028	−5.783	5.116	5.112
	(4.743)	(4.829)	(3.535)	(3.495)
Observations	55	55	66	66

Robust standard errors in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Data collapsed to the means by enumeration area.
Logit coefficients shown in the table.

Table A29: The impact of neighborhood composition on the dynamics of local public goods provision

	Road	School	Health clinic
	(1)	(2)	(3)
Vote for NPP	−0.814	−1.782	−1.814
	(1.287)	(3.438)	(1.357)
Akan30	0.336	−7.716*	−3.180**
	(1.307)	(4.005)	(1.491)
Constant	−0.486	13.219*	1.057
	(2.066)	(5.424)	(1.979)
Observations	107	79	107

The dependent variable takes a value of 1 if a local public good was present in the enumeration area in either 2008 or both 2005 and 2008; it takes a value of 0 if a local public good was present in the enumeration area neither in 2005 nor 2008.
Robust standard errors in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Data collapsed to the means by enumeration area.
Logit coefficients shown in the table.

Table A30: The impact of neighborhood composition on the dynamics of local public goods provision: Results using different distances to match enumeration areas

	Road	Health clinic
	(1)	(2)
	Enumeration areas 5 km apart	
Akan30	5.783*	−5.278
	(3.293)	(4.102)
Observations	33	35
	Enumeration areas 10 km apart	
Akan30	1.132	−5.316
	(1.900)	(2.465)
Observations	49	53
	Enumeration areas 15 km apart	
Akan30	0.799	−2.192
	(1.888)	(1.719)
Observations	64	70

The dependent variable takes a value of 1 if a local public good was present in the enumeration area in either 2008 or both 2005 and 2008; it takes a value of 0 if a local public good was present in the enumeration area neither in 2005 nor 2008. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.10
Data collapsed to the means by enumeration area.
Logit coefficients shown in the table.

Table A31: The impact of proxies for expectations of local public goods provision and being surrounded by Akans on the intention to vote for the NPP

	Vote for NPP					
	(1)	(2)	(3)	(4)	(5)	(6)
Akan30	0.662	0.057	0.405	−0.082	0.484	−0.433
	(0.451)	(0.534)	(0.406)	(0.519)	(0.716)	(0.944)
Can make councilor listen	0.091	0.079				
	(0.079)	(0.080)				
Akan30 × Can make councilor listen	−0.130	−0.110				
	(0.128)	(0.130)				
Careful		−0.262**		−0.260**		−0.222**
		(0.110)		(0.110)		(0.112)
Akan30 × careful		0.387**		0.380**		0.347*
		(0.174)		(0.175)		(0.176)
MP listen			0.056	0.074		
			(0.061)	(0.062)		
Akan30 × MP listen			−0.013	−0.043		
			(0.103)	(0.105)		
Presidential Approval					0.329***	0.339**
					(0.121)	(0.143)
Akan30 × Presidential Approval					−0.086	0.033
					(0.217)	(0.267)
Constant	−1.486***	−1.089***	−1.389***	−1.070**	−2.220***	−1.889***
	(0.401)	(0.435)	(0.374)	(0.422)	(0.435)	(0.507)
Observations	1172	1133	1172	1133	1172	1133

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A32: The impact of proxies for expectations of local public goods provision and being surrounded by Akans on the intention to vote for the NPP

	Vote for NPP					
	(1)	(2)	(3)	(4)	(5)	(6)
Akan30	0.662	0.122	0.405	−0.172	0.484	−0.133
	(0.451)	(0.478)	(0.406)	(0.458)	(0.716)	(0.773)
Can make councilor listen	0.091	0.087				
	(0.079)	(0.085)				
Akan30 × Can make councilor listen	−0.130	−0.129				
	(0.128)	(0.136)				
Political intimidation		−0.416***		−0.406***		−0.356***
		(0.114)		(0.113)		(0.111)
Akan30 × Political intimidation		0.474**		0.451**		0.418**
		(0.196)		(0.193)		(0.191)
MP listen			0.056	0.036		
			(0.061)	(0.066)		
Akan30 × MP listen			−0.013	0.013		
			(0.103)	(0.111)		
Presidential Approval					0.329***	0.317**
					(0.121)	(0.124)
Akan30 × Presidential Approval					−0.086	−0.041
					(0.217)	(0.221)
Constant	−1.486***	−1.029**	−1.389***	−0.910**	−2.220***	−1.783***
	(0.401)	(0.416)	(0.374)	(0.408)	(0.435)	(0.480)
Observations	1172	1141	1172	1141	1172	1141

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A33: The impact of proxies for expectations of local public goods provision and being surrounded by Akans on the intention to vote for the NPP

	Vote for NPP					
	(1)	(2)	(3)	(4)	(5)	(6)
Akan30	0.662	0.263	0.405	0.084	0.484	−0.421
	(0.451)	(0.576)	(0.406)	(0.568)	(0.716)	(0.956)
Can make councilor listen	0.091	0.078				
	(0.079)	(0.084)				
Akan30 × Can make councilor listen	−0.130	−0.117				
	(0.128)	(0.133)				
Political intimidation		−0.166		−0.161		−0.104
		(0.158)		(0.160)		(0.153)
Akan30 × Political intimidation		−0.299		−0.307		−0.383
		(0.274)		(0.275)		(0.263)
Careful		−0.063		−0.061		−0.027
		(0.143)		(0.142)		(0.146)
Akan30 × Careful		−0.056		−0.065		−0.109
		(0.222)		(0.220)		(0.221)
Careful × Political intimidation		−0.133*		−0.132*		−0.144*
		(0.076)		(0.076)		(0.079)
Akan30 × Careful × Political intimidation		0.430***		0.427***		0.462***
		(0.136)		(0.135)		(0.138)
MP listen			0.056	0.059		
			(0.061)	(0.061)		
Akan30 × MP listen			−0.013	−0.022		
			(0.103)	(0.103)		
Presidential approval					0.329***	0.293**
					(0.121)	(0.133)
Akan30 × Presidential approval					−0.086	0.110
					(0.217)	(0.260)
Constant	−1.486***	−0.995**	−1.389***	−0.953**	−2.220***	−1.715***
	(0.401)	(0.451)	(0.374)	(0.444)	(0.435)	(0.523)
Observations	1172	1116	1172	1116	1172	1116

Robust standard errors clustered by enumeration area in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A34: The impact of proxies for expectations of local public goods provision and being surrounded by Akans on the intention to vote for the NPP

	Vote for NPP					
	(1)	(2)	(3)	(4)	(5)	(6)
Akan30	0.613	0.852	0.472	0.655	0.216	0.174
	(0.444)	(0.447)	(0.406)	(0.402)	(0.849)	(0.838)
Can make councilor listen	0.057	0.082				
	(0.078)	(0.082)				
Akan30 × Can make councilor listen	−0.084	−0.121				
	(0.127)	(0.133)				
Factor Analysis		−0.857***		−0.844***		−0.748***
		(0.208)		(0.205)		(0.215)
Akan30 × Factor		1.095***		1.060***		0.995***
		(0.342)		(0.339)		(0.351)
MP listen			0.060	0.067		
			(0.061)	(0.063)		
Akan30 × MP listen			−0.021	−0.035		
			(0.105)	(0.107)		
Presidential Approval					0.354**	0.307**
					(0.141)	(0.137)
Akan30 × Presidential Approval					0.004	0.064
					(0.261)	(0.257)
Constant	−1.429***	−1.630***	−1.426***	−1.586***	−2.270***	−2.263***
	(0.415)	(0.404)	(0.389)	(0.373)	(0.471)	(0.464)
Observations	1116	1116	1116	1116	1116	1116

Robust standard errors clustered by enumeration area in parentheses.All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A35: The impact of neighborhood composition on proxies for the expectations of local public goods provision

	Can make councilor listen	Can make MP listen	Presidential Approval
	(1)	(2)	(3)
Vote for NPP	0.391	0.472*	0.703***
	(0.228)	(0.246)	(0.142)
Akan30	0.072	0.169	0.170
	(0.218)	(0.251)	(0.242)
Constant	4.792***	4.663***	3.820***
	(0.305)	(0.358)	(0.251)
R^2	0.216	0.223	0.547
Observations	143	143	143

Robust standard errors in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Data collapsed to the means by enumeration area.

Table A36: The impact of being surrounded by Akans (30 km radius) by different levels of intimidation

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan30	−0.045	−0.490	−0.118	−0.092
	(0.409)	(0.768)	(0.431)	(0.485)
Intimidation=1	−0.339	−0.353	−0.334	−0.286
	(0.292)	(0.294)	(0.291)	(0.295)
Intimidation=2	−0.579	−0.587	−0.581	−0.490
	(0.368)	(0.370)	(0.367)	(0.359)
Intimidation=3	−1.358***	−1.390***	−1.360***	−1.270***
	(0.373)	(0.373)	(0.375)	(0.367)
Intimidation=1 × Akan30	0.044	0.063	0.029	−0.078
	(0.494)	(0.496)	(0.498)	(0.497)
Intimidation=2 × Akan30	0.606	0.624	0.609	0.474
	(0.648)	(0.654)	(0.647)	(0.640)
Intimidation=3 × Akan30	1.615*	1.665*	1.623*	1.472*
	(0.646)	(0.650)	(0.647)	(0.638)
School		−0.269		
		(0.309)		
School × Akan30		0.475		
		(0.708)		
Road			−0.019	
			(0.320)	
Road × Akan30			0.169	
			(0.486)	
Health clinic				−0.085
				(0.288)
Health clinic × Akan30				0.359
				(0.435)
Constant	−0.855*	−0.602	−0.857*	−0.982*
	(0.377)	(0.473)	(0.391)	(0.434)
Observations	1141	1141	1141	1109

Robust standard errors in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A37: The impact of being surrounded by Akans (5 km radius) by different levels of intimidation

	Vote for NPP			
	(1)	(2)	(3)	(4)
Akan5	−0.001	−0.231	0.037	0.289
	(0.475)	(0.800)	(0.488)	(0.557)
Intimidation=1	−0.363	−0.376	−0.357	−0.308
	(0.323)	(0.325)	(0.324)	(0.330)
Intimidation=2	−0.587	−0.591	−0.582	−0.466
	(0.401)	(0.401)	(0.399)	(0.387)
Intimidation=3	−1.428***	−1.449***	−1.419***	−1.292**
	(0.408)	(0.407)	(0.404)	(0.395)
Intimidation=1 × Akan5	0.092	0.109	0.078	−0.050
	(0.547)	(0.550)	(0.555)	(0.555)
Intimidation=2 × Akan5	0.622	0.629	0.611	0.415
	(0.713)	(0.716)	(0.710)	(0.699)
Intimidation=3 × Akan5	1.810*	1.843*	1.797*	1.583*
	(0.729)	(0.732)	(0.724)	(0.708)
School		−0.189		
		(0.347)		
School × Akan5		0.246		
		(0.726)		
Road			0.111	
			(0.352)	
Road × Akan5			−0.101	
			(0.554)	
Health clinic				0.116
				(0.304)
Health clinic=1 × Akan5				−0.020
				(0.474)
Constant	−0.888*	−0.714	−0.938*	−1.181*
	(0.408)	(0.527)	(0.415)	(0.476)
Observations	1141	1141	1141	1109

Robust standard errors in parentheses. All the specifications include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas.
*** p<0.01, ** p<0.05, * p<0.10
Logit coefficients shown in the table.

Table A38: The impact of percent Akan in the 30 km radius on the intent to vote for NPP

	(4)			
	Intimidation = 0 and Careful = 0	*Intimidation = 0 and Careful = 1*	*Intimidation = 0 and Careful = 2*	*Intimidation = 0 and Careful = 3*
Marginal Effect *Akan30*	0.007	-0.010	-0.026	-0.042
Standard Error	(0.124)	(0.100)	(0.104)	(0.132)
	(4)			
	Intimidation = 1 and Careful = 0	*Intimidation = 1 and Careful = 1*	*Intimidation = 1 and Careful = 2*	*Intimidation = 1 and Careful = 3*
Marginal Effect *Akan30*	-0.068	0.019	0.105	0.189*
Standard Error	(0.106)	(0.085)	(0.082)	(0.098)
	(4)			
	Intimidation = 2 and Careful = 0	*Intimidation = 2 and Careful = 1*	*Intimidation = 2 and Careful = 2*	*Intimidation = 2 and Careful = 3*
Marginal Effect *Akan30*	-0.130	0.045	-0.223**	0.392***
Standard Error.	(0.117)	(0.094)	(0.089)	(0.101)
	(4)			
	Intimidation = 3 and Careful = 0	*Intimidation = 3 and Careful = 1*	*Intimidation = 3 and Careful = 2*	*Intimidation = 3 and Careful = 3*
Marginal Effect *Akan30*	-0.173	0.065	0.324***	0.555***
Standard Error	(0.137)	(0.115)	(0.112)	(0.116)

*** p<0.01, ** p<0.05, * p<0.10. Model (4) includes interaction terms for *Akan30* and *Intimidation* and *Akan30* and *Careful*. This table shows all the marginal effects of *Akan30* conditional on different combinations of the levels of *Intimidation* and *Akan30*. All models include the following additional controls: indicators for major ethnic groups in Ghana (Akans, Ewe, Dagomba), gender, perception of the economy, poverty, local level of development and indicators for a central region and for urban and rural areas. Note that the coefficients presented in the table are marginal effects with continuous variables held at means and binary variables held at median values.

A1.6 Polling Station-Level Analysis

A related paper by Ichino and Nathan (2013) uses both the individual-level Afrobarometer data and the polling station-level data in their analysis. We draw only on the individual-level Afrobarometer data in our main analysis, for several reasons.

First, there is no data on intimidation at the polling station-level, and thus we are not able to use the polling station-level data to test our hypothesis.

Second, even had there been data on intimidation at the polling station-level, the results using this data would have been of limited use, since aggregate data are not well-suited for testing individual-level hypotheses. As noted above, if, for example, a higher share of Akans in a neighborhood was associated with a higher percentage fearing intimidation and a higher percentage voting for the NPP at a polling station, we could not be sure whether it is the individuals being intimidated, or a different set of individuals entirely, that were voting for the NPP. Thus due to the ecological inference problem, using polling station-level data, we cannot tell whether neighborhood composition affects ethnic voting through intimidation.

Third, in our case, the aggregate polling station-level data does not have enough variation to precisely estimate the effects we are interested in. In particular, the only variables that vary at the polling-station level are the parties' vote share and the percentage of Akans in the neighborhood, while all the other variables vary at the enumeration area level. Furthermore, enumeration areas are contained in electoral districts. This makes it necessary to cluster standard errors by electoral districts to properly account for the uncertainty in our estimates. Since the number of clusters (22) is small, it is not sufficient to

use cluster-robust standard errors, and either cluster bootstrap or wild cluster bootstrap is needed. Cluster bootstrap cannot be implemented due to the lack of variation within clusters during the resampling. We thus use wild cluster bootstrap (Cameron, Gelbach and Miller 2008), which estimates the p-values for the coefficients based on the empirical distribution of the t-statistics. Wild cluster bootstrap overcomes the lack of within-cluster variation in the covariates by resampling the residuals instead.

We thus replicate the polling station-level analysis in the Ichino and Nathan (2013) paper using wild cluster bootstrap. Table A39 presents the results. We find that the coefficient on the percentage of Akans in a neighborhood is not statistically significant at the conventional level anymore in both of the specifications used by Ichino and Nathan (models (2) and (3) in table A39). We thus see that the polling station-level data does not allow us to estimate the effect of interest precisely once we properly account for the uncertainty in the estimates.

Table A39: Polling Station-Level Analysis: Brong-Ahafo region

	NPP Vote share		
	(1)	(2)	(3)
Share of Akans	0.386	0.286	0.325
	(0.003)	(0.003)	(0.016)
Share of Moledagbon	0.120	0.075	0.075
	(0.191)	(0.202)	(0.210)
Share of other ethnicities	0.228	0.260	0.265
	(0.185)	(0.072)	(0.055)
Public and semi-public employment	0.086	0.083	0.070
	(0.892)	(0.869)	(0.914)
Development	0.025	0.024	0.024
	(0.004)	(0.017)	(0.023)
Akan30		0.316	0.336
		(0.089)	(0.128)
Akan30 × Share of Akans			−0.055
			(0.724)
Observations	1590	1590	1590

p-values are in parentheses.
p-values are obtained using wild cluster bootstrap at the electoral district-level, with 1200 bootstrap sample.
Regression specifications include electoral district-level fixed effects.