Local Ethnic Geography, Expectations of Favoritism, and Voting in Urban Ghana*

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Abstract

African democracies are increasingly urban. While ethnicity is generally correlated with vote choice, recent research suggests there may be less ethnic voting in cities. But I show that voting for co-ethnic parties is as common in some urban neighborhoods as in rural areas, while non-existent elsewhere in the same city, combining original survey data, polling station results, and fine-grained census data from urban Ghana. Rather than being explained by the individual salience of ethnic identity or other characteristics of voters themselves, this intra-urban variation is influenced by the diversity and wealth of the local neighborhoods in which parties and voters interact, which change otherwise similar voters’ expectations of the benefits they will receive from a co-ethnic party in different places.

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1 Introduction

Urban areas in Africa are expanding rapidly. In West Africa, there are now 100 million more urban residents than in 1990, when countries in the region began re-introducing elections (United Nations 2014). Mirroring this trend, for the first time the majority of Ghana’s population now lives in cities. Classical modernization theory predicted that the political importance of ethnicity would diminish in urban areas as people became disconnected from traditional social institutions (Lerner 1958, Deutsch 1961, Inkeles 1966). Early research on Africa challenged this, documenting a central role for ethnic competition in independence-era urban politics (Epstein 1958, Melson 1971, Wolpe 1974, Gugler and Flanagan 1978, Bates 1983). But much of the literature on political behavior in the contemporary period focuses instead on rural areas (Wantchekon 2003, Posner 2005, Harding 2011, Baldwin 2013, Ichino and Nathan 2013a, Koter 2013a). While ethnicity and vote choice can be intricately linked in rural Africa, there has been little study of this relationship in contemporary cities, even as urban voters represent an increasingly large portion of the electorate.

Modern African cities differ starkly from rural areas, with urban residents varying more widely in their wealth, education, economic roles, and ties to ethnic groups. In contrast to the independence era, but consistent with a modernization hypothesis, recent cross-national studies suggest that there is less support for co-ethnic parties in urban than rural areas, especially among better educated, wealthier voters (Conroy-Krutz 2009), and also show that ethnic identities are less salient for similar voters (Robinson 2014). But in addition to individual-level differences between urban and rural voters, variation in the local contexts in which politicians and voters interact can also affect voting behavior. There is often extensive heterogeneity in the level of economic development and ethnic diversity of urban neighborhoods, to a greater degree than in rural areas. These contexts inform voters’ expectations about which people and which places are most likely to benefit if a given party is elected, changing incentives to support co-ethnic parties depending on where otherwise similar voters live.

I argue that neighborhood contexts are the more important factor altering the relationship between ethnicity and vote choice in urban areas. The interaction of two neighborhood characteristics within cities – ethnic composition and wealth – influences urban voters’ expectations about receiving the two types of goods commonly distributed where patronage politics are prevalent: local public (or “club”) goods and private goods. While the ability of politicians to reward rural co-ethnics with geographically excludable club goods...
goods – such as schools, roads, and electricity – is at the root of existing explanations for ethnic voting in rural areas (Bates 1983, Posner 2005, Kimenyi 2006), I predict that voters in diverse urban neighborhoods are less likely to expect that club goods will be targeted on the basis of ethnicity, lowering incentives to support co-ethnic parties. And in more homogeneous urban neighborhoods, voters face incentives to vote across ethnic lines when living as a local minority in an area where they can benefit from club goods delivered by a non-co-ethnic party (Ichino and Nathan 2013). But I expect these relationships to be moderated by neighborhood wealth. In the poorest neighborhoods, dense concentrations of poverty allow politicians to more extensively distribute private benefits than in many rural areas. Where private goods distribution is prevalent, voters have strong incentives to continue supporting their co-ethnic party, regardless of the ethnic composition of the neighborhood.

I examine these predictions in Ghana’s largest metropolitan area, Greater Accra, which now has 4 million people. I focus on presidential elections to study the contest with the greatest influence on the distribution of state resources at both the national and local levels, and hold candidate characteristics – such as ethnicity, policy programs, and economic performance – fixed, comparing voters facing the same choice across neighborhoods. I define ethnic voting as support for the party affiliated with each voter’s ethnic group (if an affiliation exists), not only as a match between the ethnicity of a candidate and voter.

In an original survey in 48 urban neighborhoods, I find no evidence that individual characteristics such as wealth or education explain support for co-ethnic parties, or that there is less ethnic voting among voters for whom ethnic identity is less salient. But there is still extensive intra-urban variation in ethnic voting. Across these neighborhoods, support for co-ethnic parties ranges from 100% to 50% of respondents – from where ethnicity perfectly predicts vote choice, to where these are uncorrelated. Using geo-coded census data to measure highly localized neighborhood conditions, I find that ethnic voting is less common in two types of neighborhood: diverse, upper and middle class areas, where voters do not receive private goods and do not except differences in club goods they will receive from each party; and upper and middle class

\[1\] Velasquez (2013) makes a similar argument to this point for Uganda.

\[2\] The major parties in Ghana draw support from stable coalitions of groups, even as presidential candidate ethnicities vary. Unless a single group is large enough to win on its own, even the most ethnically-based parties in Africa combine support from coalitions of groups (Arriola 2012); ethnic bloc voting for such parties can be extensive, even though the specific candidate can only be from one group at a time.
areas where voters live in the local ethnic minority and benefit from club goods targeted to that area by their non-co-ethnic party. But in poor neighborhoods, or where voters are in the local ethnic majority, ethnic voting is prevalent. I also find suggestive evidence of a similar pattern in polling station results. While it is not possible to identify causal effects, I use a survey experiment to measure the hypothesized mechanism and find that expectations of benefiting from club or private goods from each party match the neighborhood variation in vote choice. Finally, I find little support for several alternative explanations, including that the results are due to endogenous sorting of voters or social interactions with other groups.

This makes several contributions. Although a nascent literature documents overall rural-urban differences in voting and ethnic politics in Africa (Conroy-Krutz 2009, Harding 2010, Resnick 2012, Koter 2013b), a full understanding of these differences is not possible without considering the varied conditions within cities themselves. By examining voting within urban areas, I develop a more comprehensive explanation for how urban context influences voting, extending theory for ethnic voting in rural areas to show that differences between rural and urban voters can be accounted for by a common underlying model.

I also build on extensive research from outside of Africa demonstrating that clientelistic parties simultaneously target different types of goods to different types of places (Luna 2010, Diaz-Cayeros et al. 2012, Albertus 2013, Stokes et al. 2013, Gans-Morse et al. 2014). I suggest that similar dynamics occur in African settings, where they have rarely been studied, and show the consequences for voting behavior of geographic variation in the distributive strategies of political parties. Finally, I connect to literature on the influence of the ethnic composition of neighborhoods in the United States (e.g., Key 1949, Hopkins 2010, Enos 2014) and suggest that ethnic context also affects political behavior in developing countries, albeit via a different mechanism. But other than Ichino and Nathan (2013a) and Kasara (2013), there has been little examination of neighborhood effects on political behavior in Africa. These findings suggest that to explain voting behavior in the developing world, we must account for how differences in local contexts alter voter incentives.

In Section 2, I discuss existing explanations for ethnic voting, before introducing the theory for urban areas in Section 3. I introduce the Ghanaian case in Section 4 and the data in Section 5. Analysis is in Section 6, Section 7 considers alternative explanations, and Section 8 concludes.
2 Ethnic Voting in African Democracies

There is generally a strong correlation between ethnicity and vote choice in Africa. Existing literature offers two primary explanations. The first is that voters are more likely to support co-ethnics as an “expressive” act of allegiance to their group (Horowitz 1985). Predictions from modernization theory about urbanization are in line with this explanation: if ethnicity is less salient for more educated, wealthier, and more cosmopolitan urban voters, they should be less likely to vote on ethnic lines. But expressive explanations find little empirical support in existing literature; instead, existing evidence on ethnic voting in Africa comes down more strongly for an instrumental theory, arguing that voters support co-ethnics because they expect more state resources from them if elected (Bates 1983, Chandra 2004, Posner 2005, Padro i Miquel 2007, Carlson 2012a). In this theory, a candidate or party’s ethnic profile serves as an informational cue about the benefits voters can expect after the election (Ferree 2006, Conroy-Krutz 2013).

These expectations are consistent with a long record in many countries of actual (or perceived) ethnic favoritism in distribution of state resources (Franck and Rainer 2012). This includes private goods, but also club goods (local public goods) targeted to specific ethnic groups (Bates 1983, Kimenyi 2006). Club goods – with benefits excludable outside, but not within, a given area – can be distributed as patronage to rural communities where ethnic groups are spatially clustered (Ejdemyr et al. 2014). Parties can monitor recipient communities through aggregate election results, avoiding the organizational hurdles of individual-level clientelism (Stokes et al. 2013). Although there is private goods distribution alongside club goods distribution in rural areas (Bratton 2008, Lindberg 2010), especially gift giving immediately before elections (Kramon 2011), parties typically cannot monitor vote choice and often lack strong local organizations for

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3 Early research showed instead that ethnicity was not less relevant for urban residents (e.g., Epstein 1958, Melson 1971, Ekeh 1975, Bates 1983). Recent research suggests that this may be changing, however, with lower salience of ethnic versus national identity among urban Afrobarometer respondents (Robinson 2014).

4 Expressive explanations for ethnic voting cannot account for the observed link between ethnic voting and performance expectations in recent experimental research (e.g. Carlson 2012a, Conroy-Krutz 2013) or for variation in ethnic voting after changes in voters’ strategic incentives that do not correspond to changes in substantive identities (e.g., Posner 2005).

5 Although Kramon and Posner (2013) shows that empirical evidence of favoritism is mixed across types of resources within many countries, Posner (2005) and Carlson (2012b) find that voters in Zambia and Uganda, respectively, perceive favoritism – believing that government co-ethnics are systematically favored in goods distribution – even when these beliefs are inaccurate, in part because these beliefs are so strongly entrenched by historical legacies of favoritism.
building long-term relationships with individual rural voters (van de Walle 2007, Riedl 2014). Club goods targeted to entire communities are thus a more efficient means for many parties to reach rural co-ethnics.

An instrumental theory accounts for geographic variation in ethnic voting if there are differences across places in expectations of benefits cued by a party’s ethnic profile. Ichino and Nathan (2013a) argues that when voters expect parties to target club goods to geographic areas with more co-ethnics, the probability of benefitting from a non-co-ethnic party is increasing in the population of that party’s ethnic groups in the area, regardless of a voter’s own ethnicity. Ichino and Nathan (2013a) finds cross-ethnic voting when voters live in rural areas of Ghana dominated by groups aligned with their non-co-ethnic party, but do not find a similar pattern in urban areas.6

Variation in ethnic voting between rural and urban areas – and within urban areas – should also occur if voters have different expectations about what they will receive. Resnick (2012) suggests that there is less ethnic political mobilization in urban Zambia because opposition parties campaign on more populist platforms in urban areas. Koter (2013b) attributes rural-urban differences in incumbent support in Senegal to the inability of the government to target patronage to urban voters, especially those without ties to traditional elites. Harding (2010) argues that lower support for incumbent presidents in urban areas, which can be interpreted as less ethnic voting by the president’s co-ethnics, results from governments investing a disproportionate share of resources in rural areas. But each of these arguments takes urban areas as largely homogeneous. Parties emphasizing populist or other programmatic messages can simultaneously target patronage resources to favored voters (Levitsky 2003, Luna 2010); clientelism is much more viable in some urban neighborhoods, and among some urban voters, than others; and even if cities receive fewer resources overall, specific neighborhoods can still be targets of favoritism, reinforcing incentives for ethnic voting. If differences in access to state resources alter incentives for ethnic voting, there should be intra-urban variation in the extent to which ethnicity predicts vote choice.

6This latter analysis uses a limited and non-representative sample of urban Afrobarometer respondents, however.
3 Expectations Across Urban Neighborhoods

Building from instrumental theories, I argue that the two key explanatory variables affecting within-urban differences in ethnic voting will be each neighborhood’s ethnic composition and level of wealth, rather than voters’ individual characteristics. This can be illustrated with a simplified example of a hypothetical African city. The city contains two ethnic groups – A and B. There are neighborhoods made up mostly of each, while others are mixed. Within these neighborhoods (diverse, A dominated, B dominated), some are slums, while others have more upper and middle class residents. In poor neighborhoods, most residents are poor themselves, while upper and middle class neighborhoods have a mix of poor and wealthier residents. Each group has an affiliated party – party A and party B – competing in a single election, with all votes counting equally. Beliefs about the distributive strategies of these parties inform voters’ expectations about the value of electing a co-ethnic party. In turn, this affects vote choice.

Assume that the parties do not offer ideologically-differentiated policy proposals – similar to many African parties (van de Walle 2007) – but motivate voters by promising a bundle of targeted private or local public (“club”) goods to be delivered after the election. Private goods have benefits excludable to individuals, while local public, or club, goods have benefits excludable to neighborhoods. The parties are otherwise similar. Each party has a budget to allocate in each area; party leaders can vary its size across the neighborhoods, but there is some non-negligible minimum for each place. For each neighborhood, party leaders choose how much (above the minimum) and what type of good(s) to promise (and then deliver).

7 Assume that voters’ locations are fixed. I consider sorting in Section 7.1.
8 Competitiveness is thus uniform across neighborhoods; voters cannot take an A victory for granted just because they live in a locally-A area.
9 I do not argue that beliefs about instrumental benefits from parties are the only factor affecting vote choice. The predictions here are not mutually exclusive with some voters also being motivated by other forces, such as economic performance voting (see below).
10 In reality, parties can simultaneously make national policy proposals and also deliver truly public goods. But these affect A and B voters similarly; while there may be aggregate shifts in the electorate due to a major national policy or due to macro-economic performance, for example, this cannot explain variation in vote choice for otherwise similar people (of the same ethnic group) in the same election in different neighborhoods. Note that types of “performance” that benefit one neighborhood over others are targeted and thus generally fall within this theory.
11 In addition, partisanship for some voters may be fixed, such that current expectations no longer determine vote choice. But partisan identities not malleable to changes in incentives would predict against finding any of the patterns below.
12 Political institutions in Ghana and elsewhere in Africa often ensure that there is some fixed budget to be allocated in each local administrative unit, such that there cannot be perfect sorting of resources across space – with parties only spending resources in locations where they can be most efficiently converted into electoral support (see Section 4).
All else equal, club goods will be more cost effective than private goods, even if individual voters may value private over club benefits. Club goods benefit many voters at once without incurring large organizational costs to the party. By contrast, private goods are excludable to individuals and costly to supply; because a party must identify and monitor private goods recipients through long-term patronage relationships, it can only reach a minority of individual voters in a given neighborhood. I thus define private goods not only as one-shot, small payments immediately before elections, which can be distributed without ethnic targeting in the absence of patronage networks (Kramon 2011), but the broader range of private goods – such as jobs, loans, and on-going assistance with expenses – delivered in many countries as part of longer-term patronage relationships. I assume that this latter group of benefits is more important for vote choice than small unconditional, non-targeted payments just before elections (Guardado and Wantchekon 2014).

Consistent with patterns of ethnic favoritism, the parties avoid giving benefits to voters they expect will not support them (Dixit and Londregan 1996) and use ethnicity as a heuristic for who is a likely supporter. The parties thus will not provide club goods where most residents are from the opposite group. And because vote buying transactions are not fully enforceable, they primarily direct private goods to their own group (Nichter 2008). The parties must also consider voter demands. Voters demand club goods regardless of their own wealth or neighborhood. But demands for private goods are primarily from poor voters, as discussed below. For poor voters, targeted private benefits that address pressing economic needs (unemployment, tuition for a child’s school, etc.) can be more valuable than a club good for their neighborhood.

3.1 Party Strategies

These factors combine to produce expected patterns of goods delivery in Panel (a) of Figure 1, which inform the voter behavior in Panel (b). Focusing first on expected party behavior, the ethnic composition of

13Indeed, parties may distribute unconditional small gifts on a non-targeted basis in “swing areas,” which are often diverse, to build positive reputations immediately before elections (Guardado and Wantchekon 2014). But as long as both parties do this (and they do in Ghana), it will not produce aggregate expectations among voters that they will be systematically favored by one party over the other after the election, and thus cannot explain the variation in voting observed below.

14The parties are also better able to build patronage networks among co-ethnics because the agents distributing benefits will predominantly be from affiliated groups.

15Importantly, even if parties sometimes deviate from these patterns of favoritism in practice, the predictions for vote choice hold as long as voters continue to believe that co-ethnics will be favored most (Posner 2005).

16Service delivery of basic club goods (e.g. roads, water pipes, trash collection) is weak in many African cities, even in wealthier neighborhoods. Wealthy residents are as likely to demand club goods from the government as poor residents (Nathan 2014b).
neighborhoods influences where each party invests in club goods. In $A$ dominated neighborhoods (column $ii$), party $A$ will invest the most in club goods, as primarily $A$ voters will benefit. The same holds for party $B$ in $B$ neighborhoods (column $iii$). Neither party promises club goods in neighborhoods dominated by the other group. In the most diverse neighborhoods (column $i$), the parties cannot target club goods to a specific ethnic group because benefits reach both groups. Thus even if some club goods are still distributed in diverse areas, there will be no systematic difference in which party is more likely to favor these areas.

Similar to literature documenting different patterns of clientelism in poor versus wealthy areas (e.g., Weitz-Shapiro 2012), neighborhood wealth affects where each party distributes private goods. Private goods distribution is rare in wealthier neighborhoods (row 1 of panel (a)) where few voters demand private benefits (Nathan 2014$b$) or can be reached through social networks by clientelistic brokers (Koter 2013$b$), and middle class voters may punish parties seen as engaging in corrupt individual-level clientelism (Kramon 2011, Weitz-Shapiro 2012).\[^{17}\] In poor urban neighborhoods (row 2 of panel (a)), however, there are large concentrations of poor voters who highly value private benefits, often more than club goods. Through sheer population density and close social ties within slums, party agents can reach individual voters more directly and at lower cost than in wealthier neighborhoods or in rural villages. In poor urban neighborhoods dominated by their own groups, the parties can still more cost effectively reach co-ethnics with club goods, with little wasted on non-supporters. But where the other party’s voters dominate, and club goods mainly benefit the other group, each party can maintain valuable support from co-ethnics in poor neighborhoods by delivering private instead of club benefits (row 2, columns $ii$ and $iii$). Even if the overall amount of resources party $A$ allocates to poor $B$ neighborhoods is lower than where group $A$ is more numerous, the remaining $A$ voters in $B$ neighborhoods will receive more private goods than when they are in the local majority. A similar logic holds in poor diverse neighborhoods (row 2, column $i$).

Compare this to predictions for rural areas in Ichino and Nathan (2013$a$), depicted in row 3 of panel (a).\[^{18}\] In these communities, a similar pattern holds in the distribution of club goods, with each party

\[^{17}\] A few voters will receive private goods anywhere, particularly those with close ties to local officials. This holds for many Ga voters in Accra, as described below.

\[^{18}\] Although there are differences in ethnic diversity, these areas are predominantly in columns $ii$ and $iii$. For unaligned rural areas – homelands of groups not affiliated with a party – Ichino and Nathan (2013$a$) predicts that the probability of receiving club goods from party $A$ is still increasing in the size of the local population from group $A$, such that the most $A$ area within a politically-unaligned district is most likely (locally) to receive benefits from party $A$. 
(a): Anticipated Party Actions

<table>
<thead>
<tr>
<th>(i) Diverse</th>
<th>(ii) Group A Dominated</th>
<th>(iii) Group B Dominated</th>
</tr>
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<tbody>
<tr>
<td><strong>URBAN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Upper or Middle Class Neighborhood</td>
<td>Party A: Some club goods; few private goods</td>
<td>Party A: Many club goods; few private goods</td>
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<tr>
<td></td>
<td>Party B: Some club goods; few private goods</td>
<td>Party B: Few club goods; few private goods</td>
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<tr>
<td>(2) Poor or Slum Neighborhood</td>
<td>Party A: Few club goods; many private goods (to A voters only)</td>
<td>Party A: Many club goods; some private goods (to A voters only)</td>
</tr>
<tr>
<td></td>
<td>Party B: Few club goods; many private goods (to B voters only)</td>
<td>Party B: Few club goods; many private goods (to B voters only)</td>
</tr>
<tr>
<td><strong>RURAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Poor</td>
<td>Party A: Some club goods; few private goods</td>
<td>Party A: Many club goods; few private goods</td>
</tr>
<tr>
<td></td>
<td>Party B: Some club goods; few private goods</td>
<td>Party B: Few club goods; few private goods</td>
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</tbody>
</table>

(b): Expectations of a Group A Voter

<table>
<thead>
<tr>
<th>(i) Diverse</th>
<th>(ii) Group A Dominated</th>
<th>(iii) Group B Dominated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>URBAN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Upper or Middle Class Neighborhood</td>
<td>Club goods expectation: Party A = Party B</td>
<td>Club goods expectation: Party A &gt;&gt; Party B</td>
</tr>
<tr>
<td>(2) Poor or Slum Neighborhood</td>
<td>Club goods expectation: Party A = Party B = 0</td>
<td>Club goods expectation: Party A &gt;&gt; Party B</td>
</tr>
<tr>
<td><strong>RURAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(3) Poor</td>
<td>Club goods expectation: Party A = Party B</td>
<td>Club goods expectation: Party A &gt;&gt; Party B</td>
</tr>
</tbody>
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From perspective of a **Group A voter**.

Figure 1: *Predictions of the theory across “ideal type” urban and rural neighborhoods*: I use discrete types only to simplify presentation – all comparisons below are for continuous marginal effects. Areas with less ethnic voting are highlighted in **bold** in panel (b).
favoring areas dominated by its own group. But in comparison to urban slums, fewer rural voters are likely to receive valuable private goods. While there is non-conditional distribution of small gifts before elections, African parties typically lack the grassroots organizations in rural areas to engage in long-term patronage relationships with a large set of individual clients spread out over sparsely populated areas (van de Walle 2007, Kramon 2011, LeBas 2011). This is especially in the rural homelands of the opposite ethnic group – party A will often lack the networks to reach many individual A voters with private benefits in B villages, and particularly, B regions of the country. Instead, as discussed above, while parties engage in clientelistic relationships in rural areas, this often is targeted to entire communities. Moreover, private goods that are distributed are often delivered indirectly through chiefs or other traditional elites (absent in many urban neighborhoods) (Koter 2013a), without many individuals receiving benefits directly from a party agent. As a result, rural areas (panel (a), row 3) may be more similar to middle class urban neighborhoods (row 1) than urban slums (row 2).

3.2 Expectations and Vote Choice

In Panel (b) of Figure 1, I show how the patterns in Panel (a) inform an A voter’s expectations about what she is likely to receive, influencing her vote choice. Focusing on urban neighborhoods (rows 1 and 2), the A voter’s club goods expectations will be influenced by the ethnic composition of her neighborhood. In diverse neighborhoods, the A voter’s expectation of benefitting from club goods will not depend on the ethnic profile of each party because she receives similar benefits regardless of which party wins (column i). In A neighborhoods (column ii), only party A will be expected to deliver many club goods. But when she lives in a B neighborhood (column iii), only party B is likely to deliver club goods.

The A voter’s private goods expectations will depend primarily on the wealth of her neighborhood. In upper or middle class neighborhoods (row 1), she expects little from either party. But if the A voter is in a poor B neighborhood (column iii, row 2), she will benefit from valuable private goods from party A, as one of the few potential recipients in an area where party A emphasizes private over club goods. The same

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19For example, while Lindberg (2010) documents distribution of private benefits by MPs to rural voters in Ghana, this often involves voters traveling to an MP’s house to demand gifts, not the MP systematically targeting private benefits through dense networks to entire blocs of voters, as in machine parties elsewhere (e.g., Auyero 2000, Brusco et al. 2004).
holds in diverse neighborhoods (column i, row 2). But when the A voter lives in a neighborhood surrounded by many other A voters, party A is more likely to invest in club than private goods (see above) and she is unlikely to be in the minority of A voters receiving private benefits (column ii, row 2). Thus while the A voter expects more club benefits from party A when she is in the local majority than in the local minority, she expects more private benefits from party A when in the local minority than in the local majority.

Adding together each cell of Panel (b), there are specific predictions about vote choice. Rather than ethnic voting being uncommon across the entire urban area, support for party A by an A voter will be relatively low in two types of neighborhoods: (a) in wealthier, diverse neighborhoods, there is no difference between parties in targeted goods the A voter expects (row 1, column i); (b), in wealthier, B areas, the A voter receives few private benefits, but club goods from party B, encouraging cross-ethnic voting. But in the other four cells in Panel (b), the A voter still has incentives to support her co-ethnic party. Where there are many other A voters (column ii), the voter will expect more benefits from party A than B. In poor, diverse neighborhoods (row 2, column i), the voter expects private benefits from party A, pushing her to support party A. Finally, in poor, B neighborhoods (row 2, column iii), the A voter is likely poor herself (living in a poor neighborhood, as described above) and highly values private goods from party A over benefits from club goods delivered by party B. She often still votes for party A as a result.

By comparison, in rural areas (panel (b), row 3), spatial variation in vote choice in this model predominately follows expectations about club goods. As Ichino and Nathan (2013a) find for rural Ghana, a rural A voter will support party A in A areas, but faces incentives to vote for party B instead when living in B areas. The analysis below instead tests the predictions in rows 1 and 2 of panel (b) for urban areas.

4 Presidential Elections in Greater Accra

I examine these predictions in Ghana. Two parties – the National Democratic Congress (NDC) and the New Patriotic Party (NPP) – dominate the presidential system. All votes for president count equally in a single national constituency. The parties are associated with distinct coalitions of ethnic groups. The opposition NPP, in power 2001-2009, draws strong support from the Akan, particularly the Ashanti, Akyem, and Akuapem sub-groups. The ruling NDC, in power 1992-2000 and 2009-present, draws support from the Ewe and many predominantly Muslim groups of northern Ghana, especially now that the NDC president is a
The NDC historically has also drawn most votes of the Ga, the indigenous ethnic group of the capital, Accra. Existing research shows an overall pattern of ethnic voting, while also indicating that some voters swing between the parties (Harding 2011, Weghorst and Lindberg 2013, Ichino and Nathan 2013a).

Favoritism in the distribution of state resources (Briggs 2012, Franck and Rainer 2012, Faller 2013) reinforces support for co-ethnic parties in presidential elections. While Members of Parliament can allocate a small discretionary fund, control over most resources depends on the presidential election, typical of many African countries (van de Walle 2003). While not always attributable to the president personally (Harding 2011), the president’s party controls allocations in local governments through the presidential appointment of District Chief Executives (akin to mayors), as well as appointment of ruling party members to one third of the seats in each (otherwise elected) district assembly. This allows the president’s party to use local governments to target club goods. In addition, the major parties are among the most organized in Africa (Riedl 2014), although these local organizations are often less active (or effectively absent) in rural strongholds of the opposing party. While local activists are as often the recipients of patronage as its distributors (Ichino and Nathan 2012), the ruling party places some members into positions in each local government from which they steer local spending.

Ghana is undergoing significant urbanization. In the last two decades, the population of the capital, Accra, and its metropolitan area has grown over 250% to 4 million. Alongside economic growth, urbanization has produced wide variation in the wealth and diversity of the city’s neighborhoods. The area is home to a growing middle class, with modern housing developments alongside expanding slums (Grant 2009, Ardayfio-Schandorf et al. 2012, Paller 2014). The city is the indigenous homeland of the Ga. Although

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20 The connection between the NDC and Northern voters does not hold for every Northern ethnic group, but dates to extensive patronage from the NDC to northern Ghana under Jerry Rawlings (an Ewe) in the 1980s and 1990s (Briggs 2012), as well as strong ties between the Rawlings regime and Northern migrants in southern Ghana (Kobo 2010).

21 The NPP is affiliated, however, with a few families, or clans, among the Ga because the previous NPP government backed their claims for disputed chieftaincies.

22 The city extends far beyond its official boundaries. “Greater Accra” in this paper refers to 28 urban parliamentary constituencies within the administrative region, covering Accra, Tema, and adjoining areas. This excludes 6 predominately rural constituencies in Greater Accra Region.

23 There are three other major metropolitan areas in Ghana – Kumasi, Takoradi-Sekondi, and Tamale. Because these cities each have more limited census data availability, I focus on Accra.
Ga chiefs hold traditional ownership over land, Ga have become a minority. As of 2010, the Greater Accra Region was 40% Akan, 27% Ga, and 20% Ewe, with the remaining 13% comprised mostly of Northern ethnic groups. Despite this, Ga elites remain entrenched in local government, holding a majority of district assembly seats, senior appointments in district governments, and half of the urban parliamentary seats (as of 2012). The top panel of Figure 2 displays the majority group in each each of the 238 urban Electoral Areas (ELAs), or wards, showing that many are diverse, with no majority group, while others are homogeneous. In 2012, the NDC won 50.6% of the vote in the urban constituencies, compared to 48.8% for the NPP, similar to 50.3% and 47.8%, respectively, in the same constituencies in 2008. The bottom panel of Figure 2 shades ELAs by 2008 presidential vote share.

5 Data

I combine a survey of 1008 voters, conducted in November-December 2013, with the 2010 census and polling station results from the 2008 and 2012 presidential elections. The survey interviewed a representative, stratified random sample of urban Greater Accra, reaching 21 respondents each in 48 neighborhoods in 10 parliamentary constituencies. The sample was selected after stratifying constituencies by wealth, ethnic diversity, and 2012 NDC vote share, and then selecting random start points within constituencies after stratifying on wealth and ethnic diversity using geo-coded census data. Interviews were conducted in four languages (English, Akan/Twi, Ga, or Ewe) by local enumerators using smartphones. From each of the 48 start points, respondents were selected via a random walk procedure.

The main explanatory variables – neighborhood wealth and ethnic composition – are measured from geocoded enumeration areas using a 10% individual-level random sample of the 2010 census. I follow Ichino and Nathan (2013a), Lee et al. (2008), and Reardon and O’Sullivan (2004) and define local neighborhood

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242012 results are incomplete (see Section 6.4).
2513 interviews are dropped due to enumerator errors, leaving N = 995. The parliamentary constituencies are Ayawaso East, Ayawaso North, Ablekuma North, Ablekuma Central, and Okaikwei Central, within the city of Accra, and Weija / Gbawe, Bortianor-Ngleshie Amanfro, La Dadekotopon, Ledzokuku, and Krowor, in the metropolitan area.
26See the Supporting Information (SI).
2740% of interviews were on weekends and holidays so employed and wealthy respondents were more likely to be available.
28This is 10% within each enumeration area, selected by the Ghana Statistical Service.
characteristics as weighted averages of census characteristics around survey respondents, with information closer to the respondent weighted higher, and all data outside a given radius weighted as 0. Because of the small scale at which urban club goods can be targeted, population density and the fact that it becomes increasingly difficult to differentiate pockets of ethnic homogeneity from more heterogeneous surroundings at larger distances, the main radius used is 500 meters around each respondent. This means that each neighborhood in the analysis is measured relative to each respondent’s own location.

Neighborhood wealth is calculated as the first dimension in a factor analysis of census questions on assets, education, and employment. Local diversity is measured as the Herfindahl fractionalization index for the weighted average of the ethnic group shares within the same radius. Population density is the population of the enumeration areas covered by each sampling cluster, divided by the area (in sq. km). At an individual level, wealth, education, and employment status are measured through similar indices, from factor analyses of survey questions on assets, to measure individual wealth, and education level and type of employment, to proxy for social class. There is significant variation in the neighborhoods of the survey respondents, as well as in their own wealth, education and employment status (see SI). Importantly, because there are poor voters living amidst otherwise wealthy neighborhoods – for example, as squatters – there are sufficient numbers of poor respondents in wealthy neighborhoods to estimate relationships between

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29 Tract boundaries in Ghana, as elsewhere (Wong et al. 2012), are politically and socially irrelevant. Taking tracts as the unit of observation may also suffer from the modifiable areal unit problem (Openshaw 1983). I mitigate both issues by smoothing data over enumeration area boundaries. This also accounts for population density, with the weights a function of both distance and population density around the respondent. See the SI for detail on the weighting function. Census enumeration areas are geo-located as approximately 3000 polygons on a map of Greater Accra. The median polygon is 0.03 sq. km in area, smaller than the 0.79 sq. km of each 500m radius around respondents.

30 Population density reach over 90,000 / sq. km in the sample.

31 Variables that only measure service provision, not wealth, are excluded. The index includes: % with running water (privately provided by wealthier residents via tanker or borehole); % with a flush toilet, % with electricity (available to all who can afford it), % in a single-family home (excluding informal structures); % with a computer; % adults with more than a middle school education (public education is free through middle school); and % adults employed in the formal or public sectors. The index is scaled in standard deviations from the city-wide mean of 0. It is calculated over all enumeration areas in urban Greater Accra. In the survey sample, the variable ranges from -1.4 to 3, with a mean of -0.10. Higher values indicate greater wealth.

32 Fractionalization is for the 9 census categories for ethnicity: Akan, Ga-Dangbe, Ewe, Mole-Dagbon, Guan, Gurma, Grusi, Mande, and Other. Because a subset of the latter 6 categories are Northern groups, more Northerners in an area will be correlated with fractionalization. I also calculate an alternative index that collapses to 5 categories: Akan, Ga-Dangbe, Ewe, Northern, and Other. This is highly correlated with the 9 category measure (r = 0.92). Results are robust to using either.

33 The assets index includes: owning a car, television, and computer, having running water, a flush toilet, electricity, and a home security gate. The variables in the education/employment index are: whether the respondent has more than a middle school education, is fluent in English, and is employed in the formal or public sector (or is a retired pensioner over 65). Results below are robust to instead using indices with additional variables, such as tertiary education.
neighborhood wealth and voting while controlling for individual wealth. The wealth and ethnic diversity of neighborhoods also are not strongly correlated, such that the six types in Figure 1 are present in the sample.

6 Empirical Results

6.1 Vote Choice

I define ethnic voting as support for the presidential candidate of the party affiliated with each respondent’s ethnic group. For Akans, this means support for the NPP, while for Ewe, Ga, and Northern respondents, support for the NDC. Instead of having respondents tell vote choices directly, they were asked to mark their vote choice in the December 2012 presidential election on a confidential ballot, obscured from the enumerator, and to place it in a box. This adapts a procedure from Carlson (2012a, 2014) to reduce desirability and non-response bias when measuring vote choice. Seventy-six percent (76%) of respondents reported support for their ethnically affiliated party in the 2012 presidential election. But there is variation across locations: in 13 survey locations, over 85% of respondents reported support for co-ethnic parties; but in 7 neighborhoods, the rate was below 60%.

34 In areas with above average ethnic fractionalization, the wealth index ranges from -1.1 to 2.4. In areas with below average fractionalization, the range is -1.4 to 3.0.
35 The Akan are comprised of multiple sub-groups. While most are linked to the NPP, the Fanti have been less aligned, in part because the NDC candidate was Fanti in 2000, 2004, and 2008. But the 2012 election occurred after his death, with a Northern candidate from the NDC. Fantis in 2012 voted more in line with other Akan groups; 71% on the survey reported supporting the NPP. Results for vote choice are robust to including the 103 Fantis as Akans or coding Fantis as unaffiliated. Results here are the former.
36 Respondents from unaffiliated groups are dropped when the outcome is ethnic voting. 181 respondents reported that they are members of two groups. They are coded as members of the first group mentioned to the enumerator, and then indicators control for whether respondents are members of other ethnicities.
37 In Afrobarometer surveys in Ghana, many opposition supporters appear unwilling to identify themselves, with non-response for vote choice as high as 22% in 2005. There is also concern that respondents over-report support for the ruling party. Using the ballot procedure, non-response was 4% and the responses match real election results: 53% reported voting for the NDC and 45% of for the NPP, compared to 52% and 47%, respectively, in the same 10 constituencies in official results. This question skipped respondents who reported that they did not vote.
38 This is higher than nation-wide rates on Afrobarometer surveys or a 2008 poll in Hoffman and Long (2013). While this appears inconsistent with literature showing less ethnic voting in urban areas, this may be due to reductions in desirability bias compared to surveys not using a confidential reporting procedure (Carlson 2014). A more appropriate comparison is to a companion survey conducted by the author with the same procedures in rural areas (N = 511), in which 85% of respondents reported support for co-ethnic parties.
To explain this variation, the theory makes two central predictions: (a) that there will be less ethnic voting in more diverse areas, primarily when the area is wealthy (row 1, column i of Figure 1) and (b) that there will be cross-ethnic voting when voters are surrounded by a larger population from groups affiliated with a non-co-ethnic party, especially in wealthier neighborhoods (row 1, column iii of Figure 1). To test the first prediction, I regress a binary indicator for support for each respondent’s co-ethnic party on neighborhood- and individual-level predictors. The preferred specifications are multi-level logistic regressions, which partially pool intercepts by sampling location to account for clustering in the sample (Gelman and Hill 2007). All models follow the form:

$$y_i = \alpha_{j[i]} + \theta_{k[j]} + \beta_1 Fractionalization_i + \beta_2 NeighWealth_i + \beta_3 Density_j + \beta_4 Fractionalization_i * NeighWealth_i + X_i \delta + \epsilon_i$$

where $i$ indexes respondents, $j$ indexes sampling clusters, and $k$ indexes parliamentary constituencies. $y_i$ is an indicator for voting for the co-ethnic party. $Fractionalization_i$, $NeighWealth_i$, and $Density_j$ are defined as above. All specifications include fixed effects, $\theta_{k[j]}$, for each parliamentary constituency $k$ to identify localized variation while controlling for baseline differences in the structure of the political parties and local governments. $X_i$ is a matrix of individual level predictors: the assets and education/employment indices described above, age, gender, and whether the respondent is Muslim, indicator variables for each ethnic group, and for whether respondents or their immediate family are active members in a local party organization. To control for endogenous sorting of respondents (see Section 7.1 below), this also includes indicators for whether a respondent found her current home through family or ethnic group ties and for whether a respondent reported an ethnicity as the identity they “feel closest to” (Eifert et al. 2010), as well

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39 Because there are by definition many more A voters in column ii than in column iii of Figure 1, the aggregate prediction from increasing diversity (column i vs. the average of columns ii and iii) is less ethnic voting.

40 Results are robust to instead clustering standard errors by location.

41 The agents distributing benefits differ by constituency, as do their budgets. In addition, overall levels of expenditure in many policy areas are fixed by formula-based allocations to each district (Banful 2008), with favoritism coming as within-district targeting. Constituencies either correspond directly to districts, or to “sub-metropolitan assemblies,” a subsidiary tier in large districts. Finally, selection procedures for parliamentary candidates have also been shown to affect presidential election results by constituency (Ichino and Nathan 2013b). The average area of sampled constituencies is 29.8 sq. km, larger than the 0.79 sq. km circles measuring neighborhoods.
as the number of years each respondent has lived in the neighborhood.\textsuperscript{42,43}

In Table 1, I find no evidence consistent with the predictions of modernization theory. The wealth and education/employment indices do not predict ethnic voting.\textsuperscript{44} In addition, the salience of ethnic identity at an individual level does not predict whether respondents vote for their co-ethnic party.\textsuperscript{45} But controlling for these characteristics, higher local diversity predicts lower support for co-ethnic parties in column 1 of Table 1 ($p = 0.08$), consistent with less ethnic voting in more diverse neighborhoods. To interpret the magnitude of this relationship, I estimate that a 1 standard deviation (10.7 percentage point) increase in fractionalization around each respondent is associated with a 27.9 percentage point decrease in the probability of voting for a co-ethnic party (95% CI: -36.9, 8.8).\textsuperscript{46}

In column 2 of Table 1, I interact fractionalization and neighborhood wealth. Consistent with the difference between diverse and non-diverse neighborhoods being greater in wealthier areas, I find that ethnic voting is less common at high levels of diversity in wealthier neighborhoods only; as simulated in Panel (a) of Figure 3, there is significantly less ethnic voting after a 1 standard deviation increase in diversity around each respondent in wealthier neighborhoods, but no difference in poorer neighborhoods. The effect of neighborhood wealth is also signed as predicted. Simulating from column 2, there is not a significant difference in ethnic voting from a 1 standard deviation increase in wealth in the most homogeneous neigh-

\textsuperscript{42} Two additional indicators control for interview quality and measurement error: whether enumerators made logistical errors during the interview (12% of interviews), and whether enumerators noted respondents were uncooperative (10%). I do not control for information access, as in Casey (2013), because all respondents, conditional on literacy and owning a radio, TV, or computer (already controlled for), share a media environment.

\textsuperscript{43} Voters may choose parties they believe will perform better economically, even without expectations of targeted benefits (Posner and Simon 2002, Bratton et al. 2011). Robustness tests in the SI show that the main results hold controlling for respondents’ economic performance evaluations. But because these evaluations may be as much an outcome of vote choice as a cause, I do not include them in the main specifications.

\textsuperscript{44} Moreover, whether respondents are employed in the formal or public sectors, or employed at all, is not correlated with ethnic voting. For education and literacy, only an indicator for having more than a middle school education is predictive of (less) ethnic voting ($p = 0.10$). But other measures of education, including all other levels of schooling, do not predict ethnic voting (see SI).

\textsuperscript{45} This uses the same question as Eifert et al. (2010).

\textsuperscript{46} All predicted probabilities are simulated as in Hanmer and Kalkan (2013), with 1000 simulations.
borhoods, but a predicted 7.7 percentage point decrease in ethnic voting ($p = 0.051$, 95% CI: -16.3, 1.0) after similarly increasing wealth in the most diverse neighborhoods.\(^{17}\)

The theoretical reason for a differential effect of diversity across neighborhood wealth is the presence of private goods delivery in poor, but not wealthy areas. In Panel (b) of Figure 3, I estimate how the change in voting from the same increase in diversity differs across the percentage of respondents in each location reporting private goods distribution by the government.\(^{18}\) The negative correlation between diversity and ethnic voting is strongest in areas with the least reported private goods distribution, but is statistically indistinguishable from zero in neighborhoods where private goods provision is extensive.

For the second major prediction, I find less ethnic voting in wealthier neighborhoods where respondents can benefit from club goods from their non-co-ethnic party. In a second series of logistic regressions, I change the outcome variable to a binary indicator for NDC vote and replace the fractionalization variable with the share of the population from each major ethnic group around each respondent.\(^{19}\) The model and other predictors are as above. While there are not clear differences in the full sample, this changes once Ga respondents are removed. As described in Section 4, the minority Ga occupy a unique place in the politics of Greater Accra. As the indigenes of the city, Gas have greater access to patronage benefits than other residents regardless of where they live, particularly from the NDC. Clientelism is targeted to the Ga through chiefs and family heads, who are more powerful than for other groups in Greater Accra, providing networks that the NDC uses to distribute goods and monitor behavior. These networks reach Gas who no longer live in original Ga enclaves of the city. Chiefs use land ownership to lobby for club goods in Ga neighborhoods and Gas are heavily represented in local governments, as well as in the local leadership of the NDC. This allows for higher rates of both club and private goods distribution by the NDC to Ga communities relative to other voters (Nathan 2014a). If voting is influenced by differences in expectations of benefits between the parties, Gas are least likely to be sensitive to the composition of other groups around them.

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\(^{17}\)The lower order term for wealth in column 2 is when fractionalization is 0. But the minimum value is 0.39. Evaluated at this minimum, the first difference from increasing neighborhood wealth by 1 standard deviation is indistinguishable from zero (90% CI: -4.3, 5.1 percentage points). This is consistent with no difference between the average of the predictions in row 1, columns \(i\) and \(iii\) (weighted, by definition, to column \(ii\)) versus the average of row 2, columns \(ii\) and \(iii\), from Figure 1.

\(^{18}\)Respondents were asked whether they knew of anyone in their neighborhood who had received a job, a loan, business funding, or access to training through a government program.

\(^{19}\)Models for NPP vote are substantively identical.
Once Ga respondents are removed, I show in Table 2 that voting behavior is highly sensitive to the ethnic composition of the neighborhood, primarily in wealthier neighborhoods, consistent with the theory above. In Figure 4, I estimate first differences from the models in Table 2 and show that a 1 standard deviation (15 percentage point) increase in the Akan population around each non-Ga respondent predicts lower NDC support (greater NPP support) at higher levels of neighborhood wealth. This is consistent with respondents affiliated with either party voting more for the NPP where only the NPP is likely to deliver club goods. Similarly, a higher Ewe and Northern population – or Northern population alone – both predict more NDC support, but only at higher neighborhood wealth. In the bottom-right panel of Figure 4, however, I find no similar relationship between NDC vote and the Ga population in each area.

Finally, consistent with Ga being less influenced by the composition of the neighborhood, NDC vote choice for Ga is not systematically correlated with the presence of other groups (see SI). But Ga appear more likely to vote for the NDC as the proportion Ga in their neighborhood increases, regardless of neighborhood wealth, although this is not significant at conventional levels ($p = 0.11$, see SI). In addition, the strongest predictor of NDC support for Ga is whether they report contact with a traditional chief in the past year, consistent with Ga having access to goods through traditional ethnic networks.

6.2 The Mechanism: Favoritism Expectations

The previous section demonstrates that ethnic voting varies with neighborhood composition and wealth. The theory suggests that the mechanism is voter expectations about which party is more likely to benefit them with private and club goods in each area. I measure these expectations using a survey experiment similar

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50 Because the percentage of Ewes in all neighborhoods in the survey is low, I use the combined percentage from the Ewe and Northern groups as a measure for non-indigenous NDC groups in each area.

51 Instead, correlations at the group level have opposite signs depending on the ethnic group. Ewes are more likely to vote for the NDC when surrounded by more Gas, especially at higher neighborhood wealth, consistent with the other results in Figure 4. There is no correlation with Ga population in 500m for Northern respondents, but this is likely because too few live among enough Ga to estimate a relationship. The 10th and 90th percentiles in Ga population at 500m for Northern respondents are 6% and 17%. Among Akans only, a higher percentage Ga predicts less NDC support. In all tests for Figure 4, this is the only correlation that does not reflect predictions of the theory.

52 Contact with a chief is associated with a 19.5 percentage point greater probability of NDC support (95% CI: 5.9, 33.7) for Ga, but has no predictive power for other groups.
to an endorsement experiment (Bullock et al. 2011). In this section, I show that expectations of benefits in the experiment predict ethnic voting, before showing in the next section that these expectations vary with neighborhood characteristics in the same manner as for vote choice.

Each respondent was read a prompt about a hypothetical activity to be conducted by the national government and asked if they expected that they or their families would benefit. The first randomized treatment cued whether the activity would be done by the NDC or an NPP government (had they won in 2012). The second treatment was the project, asking about one of three examples of either a private or a club good. Collapsing across examples, this makes 4 treatment conditions (NDC v. NPP, club v. private goods). Each prompt began with a variant of the phrase – “the national government has limited resources, so when they do something like [EXAMPLE], they can’t do it everywhere. They have to do it in some places first before going to other places” – before describing the good to be delivered and asking if respondents expected to benefit. To address the risk that respondents would answer more favorably about preferred parties simply as an expression of partisanship, this explicitly justifies scarcity of resources to decouple specific answers about this example from a value judgment of a party overall. Even if some desirability bias remains in evaluations of each respondent’s favored party, this is unlikely to be systematically correlated with neighborhood characteristics.

The treatment effect of interest is the difference in the proportion of respondents expecting to benefit from their co-ethnic party versus their non-co-ethnic party for each goods type. This is the causal effect on anticipated benefits from switching between a co-ethnic and non-co-ethnic government. This can also be

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53 Multiple examples were used to average over idiosyncratic features of any specific example. The examples used were: “giving out loans to people”, “creating training programs for unemployed youth”, or “giving financial assistance to people to help pay their bills and buy food” for private goods; “school construction”, “laying new water pipes”, or “constructing more drains and public toilets” for club goods. All six are among the most common goods respondents reported politicians delivering in their areas in earlier open-response questions.

54 Balance statistics are in the SI. Analyses below include controls.

55 Wording for club goods was (in translation): “The national government has limited resources, so when they do something like [EXAMPLE], they can’t do it everywhere. They have to do it in some places first before going to other places. If the NDC government was [EXAMPLE], do you think that neighborhoods like this would get it or would they do it more in other places? I’m asking for your personal opinion.”; For the private goods: “The national government has limited resources, so when they do something like [EXAMPLE], they can’t do it for everyone. They have to do it for some people first, before giving it to other people. If the NPP had won the 2012 election, and the NPP government was [EXAMPLE], do you think that people like you and your family would get it or would they do it more for other people? I’m asking for your personal opinion.”

56 50% of NDC voters and 52% of NPP voters said they would not benefit from the good from their own party.

57 $T = 1$ for Akans asked about the NPP and Ewes, Northerners, and Gas asked about the NDC, and $T = 0$ for the reverse.
re-labeled as the difference in expectations between the NDC and NPP for all respondents. Each treatment effect thus measures the relative difference in expectations between parties, not the overall level of goods expected. Consistent with existing research (e.g., Posner 2005), respondents have clear overall expectations of favoritism from their co-ethnic party relative to their non-co-ethnic party. I estimate the co-ethnic party treatment effect in multi-level logistic regression models with the same predictors as above, where the outcome is expecting to benefit from the good in the prompt and the controls also include indicators for each treatment condition. Respondents are 13.7 percentage points (95% CI: 7.8, 19.4) more likely to expect to benefit from their co-ethnic than non-co-ethnic party.

More importantly, expecting to benefit from a co-ethnic party (the mechanism) is strongly correlated with ethnic voting (the outcome). Among those who received the co-ethnic party treatment \((T = 1)\), respondents were 20.6 percentage points more likely (95% CI: 12.6, 28.0) to vote for their co-ethnic party when answering that they expected to benefit from the good, compared to those saying they would not benefit. Looking instead only at those who received the treatment for their non-co-ethnic party \((T = 0)\), I similarly find that respondents are 20.7 percentage points more likely (95% CI: 11.5, 31.0) to report voting for their non-co-ethnic party when expecting that it would benefit them.

### 6.3 Expectations and Neighborhood Characteristics

Not only are expectations correlated with ethnic voting, but the treatment effects vary across neighborhoods in patterns consistent with the theory and the results for vote choice. In line with voters not expecting club goods to be targeted on the basis of ethnicity in diverse neighborhoods, I find that the co-ethnic party treatment effect for club goods is smaller at higher levels of diversity. Sub-setting to questions about club goods, I interact fractionalization with the co-ethnic party treatment, using the same model and covariates

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58 See SI for table.

59 Estimates are simulated first differences from models in which the outcome variable is ethnic voting, regressed on an indicator for whether each respondent expects to benefit, with the data subset by party treatment condition. The model and other covariates remain as above.

60 Respondents receiving the co-ethnic party treatment are 27.9 percentage points more likely (95% CI: 16.7, 38.8) to report ethnic voting when expecting to benefit from a club good than when expecting other places to benefit instead. This is compared to only 12 percentage points more likely (95% CI: 0.6, 22.7) to report ethnic voting when expecting to benefit from the private good. But private goods expectations are significantly more correlated with ethnic voting in areas where private goods distribution is more common, as measured using the same variable in Figure 3\((b)\). In high private goods neighborhoods, expectations about private goods are as strongly correlated with voting as expectations about club goods (see SI).
as before. As shown in Panel (a) of Figure 5, the expected difference in club goods from a co-ethnic versus non-co-ethnic party declines as local diversity increases.

[Figure 5 about here]

In addition, consistent with voters being more likely to expect club goods from a non-co-ethnic party when living near more of that party’s co-ethnics, respondents are relatively more likely to expect club benefits from their non-co-ethnic party where the population affiliated with that party is larger. This only holds in wealthier areas, but this is where club goods expectations are most important for vote choice under the theory. Restricting to non-Gas for comparability to Figure 4, I reclassify the treatment effect as the difference between the NDC and NPP cues for club goods and interact an indicator for the NDC treatment with the population share of each ethnic group in the area. I estimate these models for all neighborhoods, as well as after splitting the sample by the mean value of the neighborhood wealth index (-0.1), to test the double interaction between neighborhood composition, wealth, and the NDC treatment (see SI for tables). Moving from the 10th to 90th percentile of the Akan percentage in areas with above average wealth results in a predicted 26.4 point increase in expected favoritism for club goods from the Akan-affiliated NPP over the NDC ($p = 0.08$, 90% CI: -49.8, -2.2), regardless of each respondent’s own ethnicity. Similarly, moving from the 10th to 90th percentile of Northern population in neighborhoods with above average wealth results in a predicted 31 percentage point shift in expectations of favoritism for club goods towards the Northern-affiliated NDC over the NPP (95% CI: 2.8, 62.5). Both match the patterns for vote choice. Also mirroring Figure 4, expectations about club goods do not vary across the share of Gas in the neighborhood.

For private goods, the theory predicts instead that voters expect more benefits from their co-ethnic party in poor areas with smaller populations of their own group, which offset benefits of club goods from the non-co-ethnic party in these areas. I interact the NDC treatment with the percentage of the population in

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61 The combined Ewe and Northern percentage variable does not significantly predict differences in the NDC treatment effect, however, although the interaction is still signed in the expected direction.

62 For Ewes only, the NDC treatment effect for club goods significantly increases with the share of Gas, consistent with Ewes voting more for the NDC in neighborhoods that are more Ga. For Northern respondents, whose voting behavior did not differ across levels of Ga in the neighborhood, expected favoritism does not differ with the proportion Ga. For Akans, who voted more for the NPP in areas with more Ga residents, counter to the pattern for the other groups, expectations of receiving club goods do not change with the Ga proportion in the neighborhood, suggesting that this inconsistent result for Akans is due to something other than goods expectations.
the neighborhood from each respondent’s own group, again restricting to non-Ga respondents for comparability to Figure 4. I restrict to neighborhoods with below average wealth, as this prediction is for poor neighborhoods only. I estimate in Panel (b) of Figure 5 that in areas with large populations from their own group, respondents do not expect significant favoritism from their co-ethnic party over the other party in private goods. But where the population of their own groups are smaller, expectations of ethnic favoritism for private goods are large and significant. There is no interaction in neighborhoods with above average wealth, where private goods expectations should not vary across neighborhoods (see SI).

6.4 Polling Station Election Results

Official polling station returns similarly suggest that there is less ethnic voting in presidential elections in more diverse urban neighborhoods. This is even though analysis of polling station results is constrained by data limitations and rests on ecological inferences that less accurately capture individual behavior than the survey data above (King 1997). Voters in urban Greater Accra cast ballots at 2090 and 3654 polling stations in the 2008 and 2012 elections, respectively. Because there is no official map of locations, research assistants physically located a random sample of stations, finding 37.8% for 2008 and 37.3% for 2012. In addition, because of missing data, it is only possible to analyze voting at 19 of the 22 urban constituencies in 2008 and 17 of the 28 urban constituencies in 2012. I am thus only able to analyze the relationship between neighborhoods and voting at 587 and 650 polling stations in 2008 and 2012, respectively. The distribution of results in this subset is still very similar to the full available results, however (see SI).

63 Finally, the expectations for Ga respondents alone also match the results for vote choice, consistent with the unique position of Gas. Ga respondents expect significantly more private goods from the NDC than the NPP where there are more Gas in the surrounding neighborhood and Gas occupy most party and local government positions (see SI). The size of the NDC treatment effect for club goods for Gas is also greatest where there are more Gas. But this does not vary with the Akan or Northern proportion in the neighborhood, consistent with whether Ga voters receive club goods being less tied to the presence of other groups around them (see SI).

64 Over 95% of the sampled polling stations were successfully located.

65 Some constituencies were subdivided before the 2012 election. While all 2008 election results are available, results for 7 of the 28 urban constituencies are missing in official 2012 polling station results. In addition, digitized boundaries for census enumeration areas in 4 other constituencies in 2012 (3 constituencies in 2008) have not been produced by the Ghana Statistical Service, preventing measurement of neighborhood characteristics.

66 Because there are multiple stations per location to reduce queue lengths in dense areas, these are at 492 and 342 unique locations for 2008 and 2012, respectively. I aggregate to a single observation per location in the analysis.
To approximate the catchment area for each station, I calculate the weighted population share from each ethnic group in the 500m radius around it. I then measure characteristics of the broader neighborhood around those voters as the same characteristics in a 2km radius. With NDC presidential vote share as the outcome in a series of OLS regressions, I test whether there is more ethnic voting in less diverse neighborhoods. I examine how the correlation between a station’s results and the composition of its electorate (the smaller radius) varies with ethnic diversity in the area around the polling station (the larger radius). Because there is no theoretical reason these relationships should be different across elections, I combine the 2008 and 2012 results, including constituency-year fixed effects to control for aggregate differences across years and constituencies.

In column 1 of Table 3, I show that the proportion of the population that is Akan at each polling station predicts lower NDC vote share. In column 3, I show that the proportion Ewe, Ga, or Northern at each polling station predicts greater NDC vote share. Both are consistent with ethnic voting. In column 2, I show that the negative correlation between the Akan population at the polling station and NDC vote share declines in the most diverse areas, consistent with less ethnic voting by Akans at higher levels of diversity. Similarly, in column 4, I find that the Ga population percentage predicts greater NDC vote share in less diverse areas, but that this correlation weakens at higher levels of diversity (although \( p = .16 \) on this interaction). In column 5, I also find a significantly weaker correlation between the Northern population and NDC vote share in more diverse areas, consistent with ethnic voting by Northerners only in more homogeneous neighborhoods. There is no clear interaction for the Ewe percentage at the polling station, however.

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67 I do not test the second prediction of cross-ethnic voting for a party affiliated with a larger nearby group. The imprecision defining catchment areas for urban polling stations is much worse than in rural areas, where polling stations often correspond to single villages (Ichino and Nathan 2013a). Without a catchment area map (there is none), it is unclear whether any correlation between vote share and the population of an ethnic group around the station (larger radius), controlling for that group’s population at the station (smaller radius), is evidence of a neighborhood effect of living near more people from that group or instead evidence that some of the people slightly outside the smaller radius also vote at the polling station.

68 The statistical significance of these results depends on which ethnic group is left as the omitted, comparison category. In both models I control for the share of the population at the polling station from un-affiliated ethnic groups, but omit the groups affiliated with the other party, such that the coefficients on the share of Akans at the polling station in columns 1 or 2, for example, represent the predicted change in NDC vote share from replacing an NDC-affiliated voter with an Akan (NPP-affiliated).

69 In a second series of models, I test the double interaction between ethnic composition, neighborhood wealth, and ethnic diversity, to test if there is evidence of less ethnic voting in less diverse areas primarily when they are wealthy, as predicted above.
7 Alternative Explanations

Because neighborhoods are not randomly assigned, the selection, or sorting, process of voters into neighborhoods may confound any correlation between neighborhood and vote choice. And even if these correlations are real, a different mechanism, such as cross-ethnic socialization, may be operating. I test and find little support for the most plausible examples of either alternative.

7.1 Endogenous Sorting

Two different types of sorting could confound the results. First, voters could have explicitly selected into neighborhoods on the basis of partisanship or demands for goods, choosing locations in a way that creates a spurious correlation between neighborhoods and voting. Second, voters may have implicitly sorted if their ability to choose locations was constrained by individual characteristics, such as ties to their ethnic groups, which also affect vote choice.

In the first type of sorting, Akans who already support the NDC could be more likely to move to non-Akan neighborhoods than Akans who support the NPP. A series of questions asked respondents how they came to live in their current homes. If this type of sorting is a confounder, there should be a correlation between having moved (and thus actively chosen a neighborhood) and vote choice. But re-estimating Table 1 including an indicator for whether a respondent moved shows no correlation between moving and ethnic voting (see SI). When asked why they moved to their current location, no respondents listed partisanship as a motivation.\footnote{Partisanship was also never mentioned during open-ended questions about moving in 13 focus groups. 10.8\% of survey respondents listed access to club goods and public services among their reasons for choosing a neighborhood. But the main results hold when either controlling for this or dropping these respondents entirely (see SI).}

Greater Accra suffers from a housing shortage, with high rents relative to income, and real estate markets are informal, with high transaction and search costs to re-location (Gough and Yankson 2000, Ardayfio-Schandorf et al. 2012).\footnote{Landlords typically require two years rent in advance and tenants have little recourse to reclaim it upon moving. In addition, because there is a high probability in Ghana that the ruling party will change every four years, it is unlikely that partisanship of neighborhoods would influence long-term housing prices.}

Residents face a limited menu of neighborhood options, constraining the extent to which they can explicitly sort based on non-economic factors like partisanship.\footnote{Even in the United States, where residential mobility is substantially higher, there is not strong evidence of large-scale partisan sorting.}

\begin{thebibliography}{9}
\end{thebibliography}
But some respondents are better able to sort than others. As in Hopkins and Williamson (2012), I identify respondents most likely to have been able to sort on non-price factors if they had wanted. Respondents who moved as adults were asked if they had considered living in other neighborhoods when searching for a home, or only considered their current community. Of the 78% who had moved at least once, only one quarter (20.3% overall) reported searching in multiple neighborhoods, which indicates having chosen a neighborhood among alternatives. But this is not predictive of ethnic voting and there are no differences in the results when controlling for this variable (see SI). Explicitly choosing neighborhoods is also not correlated with ethnic voting. Second, wealth is a key determinant of the ability to explicitly chose neighborhoods. All analyses above already control for measures of wealth, employment, and education. I also drop the top 25% of the sample on the wealth or education/employment indices, removing those likely to have had the widest range of neighborhood choices. Results for Tables 1 and 2 remain substantively the same (see SI).

That many residents are constrained, however, raises concern over the second type of sorting. By far the most common means by which respondents reported finding housing was through family members or co-ethnics, with 75% of respondents saying they are in their current locations to join family or people from their home town or ethnic group. This would account for the results if voters with closer ties to their ethnic group, or for whom ethnic identity is more salient, are both more likely to find housing where more family and co-ethnics live, and also more likely to vote for their co-ethnic party. But respondents who found their home through these ties are not actually more likely to live in neighborhoods that are less diverse. All models also control for an indicator for this and it does not predict ethnic voting (Table 1). In addition, as described above, the survey replicates an Afrobarometer question measuring the salience of ethnic identity, as in Eifert et al. (2010). All results already control for this and listing ethnicity as salient personally does not predict voting behavior.

residential sorting (Abrams and Fiorina 2012, Nall and Mummmolo 2013). Contrary to Bishop (2009), Nall and Mummmolo (2013) find that although some Americans value living near co-partisans, this is usually trumped by concerns over neighborhood quality, employment, and housing costs when moving.

73 Also see Enos and Gidron (2014).

74 This includes respondents who have never left their family home since childhood.
The results may also be due to ties to rural areas. Earlier literature attributes the politicization of ethnicity in urban areas to a struggle among rural-urban migrants to capture wealth and target it back to rural homelands (Wolpe 1974, Ekeh 1975, Gugler and Flanagan 1978, Bates 1983). This would explain the results if respondents in neighborhoods with larger populations from their own ethnic groups are more likely to have these rural ties, and vote for co-ethnic parties because of them. I control for ties to rural areas in three ways. First, results in Tables 1 and 2 are robust to controlling for whether respondents regularly visit their home regions outside Accra. Respondents were also asked if they prefer that the government focus more resources on the community where they live now or the community “they hail from.” Controlling for whether respondents prefer that state resources be targeted outside Greater Accra does not change the findings and is not correlated with ethnic voting. I also control for the percent of each respondent’s life lived in Greater Accra, as a measure of recency of rural-urban migration, and find no differences.

7.2 Socialization and Contact

A different mechanism could also explain the results. The most plausible alternative is that voters in more diverse neighborhoods will have more socialization with other ethnic groups. This could account for the results if these voters develop more positive views about other groups and become more likely to vote for parties affiliated with those groups. The most direct form of cross-ethnic contact is when voters have family members or share their homes with people from other ethnic groups. The survey recorded the ethnicity of the other people in each respondent’s household; 24.5% of respondents live with family or other household members from a group aligned with their non-co-ethnic party. Re-estimating Figures 3 and 4 controlling for this returns substantively identical results, however, and this does not predict vote choice (see SI). Among respondents with the most contact with other ethnic groups, the relationship between neighborhood characteristics and voting is unchanged.

75 The majority (55%) of respondents in the survey were born in Greater Accra and are not migrants. While growth was due to rural-urban migration in the mid-20th century, the majority of recent growth in Greater Accra is from natural increase (Ghana Statistical Service 2008).

76 This is also robust to controlling for sending remittances outside Greater Accra. Neither variable predicts vote choice.

77 Respondents still living in their home area are coded as (implicitly) preferring goods in their current area.

78 Kasara (2013) shows how inter-ethnic contact affects attitudes about other groups in Kenya. Ichino and Nathan (2013a) considers a similar mechanism for the correlation between local ethnic geography and voting in rural Ghana, but finds no correlation between these attitudes and vote choice, using the same Afrobarometer questions as Kasara (2013) (not included on this survey).
In addition, a socialization mechanism would explain the results if the neighborhood variables used here are proxies for voters’ social ties. But these variables are likely poor measures of social networks. All urban residents, regardless of the specific composition of the area within 500 meters of their homes, likely have regular interactions with people from other groups. This is especially for the 36.3% of respondents who commute to work in a different neighborhood. For those spending much of their time away from home, a variable measuring the ethnic composition of the area directly around their home is least likely to accurately measure their social network. If the results are only due to social ties, correlations between neighborhood characteristics and voting should be significantly weaker for these respondents. I repeat the analysis for Tables 1 and 2, interacting an indicator variable for those respondents who commute to work elsewhere with the neighborhood characteristics variables. I find no significant interactions – among those who do commute, correlations between neighborhood characteristics and voting behavior are the same as for those who do not (see SI), suggesting that differences in social ties are unlikely to explain the results.

8 Conclusion

I show within-urban variation in ethnic voting in an African democracy and find that this is explained by voters’ expectations about resources they will receive from different parties in different places. There is little ethnic voting in diverse, wealthy urban neighborhoods, as well as in wealthier neighborhoods where voters are in the local ethnic minority. But there is significant ethnic voting in other areas of the same city, especially in poor or segregated neighborhoods. While I can only draw on one country, I expect similar results to hold elsewhere as long as underlying assumptions of the theory are in place, with ethnic targeting of state resources, stable affiliations of parties with ethnic groups, and ethnic cleavages that are not so ossified by violence or inequality that it is implausible to benefit from club goods targeted to a nearby group. While these conditions generally apply in other African democracies, future research can explore how the theory operate in less stable party systems, countries with legacies of significant ethnic violence, or countries where the urban middle class is more dependent on access to state patronage (Arriola 2012).

70Because ethnic groups are not evenly distributed, each respondent’s local area will on average be less diverse than the city as a whole (Reardon and O’Sullivan 2004). Residents who spend significant time away from home should thus on average be in contact with a more diverse group of people than in the area around their homes.
This speaks to broader debates about urbanization, modernization, and ethnic politics. Modernization theories have long predicted different patterns of political behavior in urban than rural areas, and cross-national survey data suggests less ethnic voting among urban or wealthier voters (e.g. Conroy-Krutz 2009, Harding 2010). But if wealth and education are correlated with living in wealthier and more diverse neighborhoods, correlations between voting and these individual-level variables, as well as evidence of an overall rural-urban difference, may be standing in for neighborhood-level differences in expectations of favoritism; previous research has not controlled for contextual variation in voter expectations. Ultimately, this suggests that African democracies will not necessarily transition away from ethnic competition as they continue to urbanize. Instead, urban growth likely creates a divergence in political behavior – even as there are more diverse, middle and upper class neighborhoods where the connection between ethnicity and vote choice is fraying, urbanization can also mean rapid growth of slums and segregated, homogeneous neighborhoods, where ethnic voting remains common.
Table 1: Support for Co-Ethnic Party in the 2012 Presidential Election

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnic Fractionalization (500m)</td>
<td>$-2.513^{\dagger}$</td>
<td>$-3.522^{*}$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.428)</td>
<td>(1.528)</td>
<td></td>
</tr>
<tr>
<td>Neigh. Wealth (500m)</td>
<td>$-0.163$</td>
<td>$2.091^{\dagger}$</td>
<td>$-3.522^{*}$</td>
</tr>
<tr>
<td></td>
<td>(0.170)</td>
<td>(1.165)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1.740)</td>
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<tr>
<td>Pop. Density (by cluster)</td>
<td>$-0.007$</td>
<td>$-0.011$</td>
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<td></td>
<td>(0.007)</td>
<td>(0.007)</td>
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</tr>
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<td>Assets/Wealth Index</td>
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<td>$0.066$</td>
<td>$0.036$</td>
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<tr>
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<td>(0.107)</td>
<td>(0.108)</td>
<td>(0.101)</td>
</tr>
<tr>
<td>Education/Employ. Index</td>
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<td>$-0.073$</td>
<td>$-0.092$</td>
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<tr>
<td></td>
<td>(0.104)</td>
<td>(0.105)</td>
<td>(0.103)</td>
</tr>
<tr>
<td>Ethnic Identity “Closest”</td>
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<td>$-0.078$</td>
<td>$-0.095$</td>
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<tr>
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<td>(0.181)</td>
<td>(0.181)</td>
<td>(0.179)</td>
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<td>$0.054$</td>
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<td>$0.010$</td>
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<td>(0.008)</td>
<td>(0.008)</td>
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<td>(0.374)</td>
<td>(0.370)</td>
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<td>$-0.110$</td>
<td>$-0.119$</td>
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<tr>
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<td>(0.182)</td>
<td>(0.182)</td>
<td>(0.181)</td>
</tr>
<tr>
<td>Ewe</td>
<td>$0.439^{\dagger}$</td>
<td>$0.465^{\dagger}$</td>
<td>$0.403$</td>
</tr>
<tr>
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<td>(0.266)</td>
<td>(0.268)</td>
<td>(0.267)</td>
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<tr>
<td>Northerner</td>
<td>$-0.836^{*}$</td>
<td>$-0.859^{*}$</td>
<td>$-0.865^{*}$</td>
</tr>
<tr>
<td></td>
<td>(0.388)</td>
<td>(0.389)</td>
<td>(0.386)</td>
</tr>
<tr>
<td>Ga</td>
<td>$-0.420^{\dagger}$</td>
<td>$-0.402^{\dagger}$</td>
<td>$-0.356$</td>
</tr>
<tr>
<td></td>
<td>(0.235)</td>
<td>(0.236)</td>
<td>(0.232)</td>
</tr>
<tr>
<td>Years in neighborhood</td>
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<td>$0.006$</td>
<td>$0.006$</td>
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<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.008)</td>
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<tr>
<td>Party member</td>
<td>$0.226$</td>
<td>$0.242$</td>
<td>$0.223$</td>
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<tr>
<td></td>
<td>(0.202)</td>
<td>(0.203)</td>
<td>(0.201)</td>
</tr>
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</table>

Constituency FEs  | $Y$ | $Y$ | $Y$ |

N  | 797 | 797 | 797 |

$*** p < 0.001$, $** p < 0.01$, $* p < 0.05$, $^{\dagger} p < 0.1$. Logistic regressions partially pooled by sampling location. The outcome is 2012 vote choice for each respondent’s co-ethnic party; respondents who did not vote or for whom there is not a co-ethnic party are dropped. Akan is the omitted baseline ethnicity category. For readability, population density is scaled as 1000s / sq. km.
Table 2: NDC Vote by Percentage of Surrounding Ethnic Groups

<table>
<thead>
<tr>
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<th>1</th>
<th>2</th>
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<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neigh. Wealth (500m)</td>
<td>1.867* (0.749)</td>
<td>-0.441 (0.294)</td>
<td>-0.511 (0.508)</td>
<td>0.103 (0.431)</td>
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<tr>
<td>Akan % (500m)</td>
<td>-2.265 (2.075)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neigh. Wealth * Akan %</td>
<td>-3.808* (1.819)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern % (500m)</td>
<td></td>
<td>12.031*** (2.967)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neigh. Wealth * Northern %</td>
<td>10.162*** (1.165)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ewe + Northern % (500m)</td>
<td></td>
<td>3.691* (1.605)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neigh. Wealth * Ewe/Northern %</td>
<td></td>
<td>2.164 (1.629)</td>
<td></td>
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</tr>
<tr>
<td>Ga % (500m)</td>
<td></td>
<td></td>
<td>-1.827 (1.456)</td>
<td></td>
</tr>
<tr>
<td>Neigh. Wealth * Ga %</td>
<td></td>
<td></td>
<td>-0.115 (1.335)</td>
<td></td>
</tr>
<tr>
<td>Covariates</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Constituency FEs</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>N</td>
<td>592</td>
<td>592</td>
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</tr>
</tbody>
</table>

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, † $p < 0.1$. Logistic regressions pooled by sampling location. Non-Ga respondents only. The outcome is 2012 NDC vote choice, not ethnic voting. Coefficients for the covariates (same as Table 1) are not shown.
Table 3: NDC Presidential Vote Share, 2008 and 2012 Polling Station Results

<table>
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<th>5</th>
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<tr>
<td>Akan % in 500m</td>
<td>-0.450***</td>
<td>-1.343***</td>
<td></td>
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<tr>
<td></td>
<td>(0.042)</td>
<td>(0.291)</td>
<td></td>
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<tr>
<td>Akan % (500m)*Eth. Fract. (2km)</td>
<td>1.352**</td>
<td></td>
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<td></td>
<td>(0.434)</td>
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<tr>
<td>Ga % in 500m</td>
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<tr>
<td></td>
<td>0.436***</td>
<td>0.755**</td>
<td>0.426***</td>
<td>0.438***</td>
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<tr>
<td></td>
<td>(0.043)</td>
<td>(0.236)</td>
<td>(0.045)</td>
<td>(0.044)</td>
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<tr>
<td>Ewe % in 500m</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.512***</td>
<td>0.494***</td>
<td>0.270</td>
<td>0.503***</td>
<td></td>
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<tr>
<td></td>
<td>(0.056)</td>
<td>(0.059)</td>
<td>(0.377)</td>
<td>(0.059)</td>
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<tr>
<td>Northern % in 500m</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>0.269***</td>
<td>0.210**</td>
<td>0.245***</td>
<td>1.838**</td>
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<tr>
<td></td>
<td>(0.068)</td>
<td>(0.076)</td>
<td>(0.073)</td>
<td>(0.640)</td>
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<tr>
<td>Ga % (500m)*Eth. Fract. (2km)</td>
<td></td>
<td>-0.506</td>
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<tr>
<td></td>
<td></td>
<td>(0.362)</td>
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<tr>
<td>Ewe % (500m)*Eth. Fract. (2km)</td>
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<td></td>
<td>(0.552)</td>
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<tr>
<td>Northern % (500m)*Eth. Fract. (2km)</td>
<td></td>
<td></td>
<td></td>
<td>-2.104*</td>
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<tr>
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<td>(0.839)</td>
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<tr>
<td>Ethnic Fractionalization (2km)</td>
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<td>-0.498**</td>
<td>0.237†</td>
<td>0.025</td>
<td>0.238*</td>
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<tr>
<td></td>
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<td>(0.186)</td>
<td>(0.139)</td>
<td>(0.150)</td>
<td>(0.111)</td>
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<tr>
<td>Other Groups % in 500m</td>
<td>-0.060</td>
<td>-0.023</td>
<td>0.414***</td>
<td>0.353***</td>
<td>0.384***</td>
<td>0.369***</td>
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<td>(0.073)</td>
<td>(0.080)</td>
<td>(0.080)</td>
<td>(0.090)</td>
<td>(0.090)</td>
<td>(0.089)</td>
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<tr>
<td>Neigh. Wealth (500m)</td>
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<td>-0.009</td>
<td>-0.010†</td>
<td>-0.012†</td>
<td>-0.011†</td>
<td>-0.012†</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.007)</td>
<td>(0.005)</td>
<td>(0.007)</td>
<td>(0.007)</td>
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<tr>
<td>Neigh. Wealth (2km)</td>
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<td>0.003</td>
<td>0.000</td>
<td>-0.002</td>
<td>-0.000</td>
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<td></td>
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<td>(0.008)</td>
<td>(0.008)</td>
<td>(0.008)</td>
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<tr>
<td>Population Density at PS</td>
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<td>0.001***</td>
<td>0.001***</td>
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<td>0.001***</td>
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<td></td>
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<td>Registered Voters at PS</td>
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Constituency-Year FEs: Y Y Y Y Y Y

N: 834 834 834 834 834 834

R²: 0.442 0.449 0.451 0.453 0.452 0.456

***p < 0.001, **p < 0.01, *p < 0.05, †p < 0.1. OLS regressions with parliamentary constituency-year fixed effects (not shown). The outcome is NDC presidential vote share in the 2008 or 2012 election at the polling station level for Greater Accra, with missing data as described in the text. Polling stations that share the same location are collapsed into a single observation. For readability, population density is scaled as 1000s per sq. km and total registered voters per polling station scaled to 100s per station.
Figure 2: Greater Accra urban area: (a) the top panel shades the 238 urban Electoral Areas (or wards) by their majority ethnic group; (b) the bottom panel shades Electoral Areas by 2008 presidential vote share. “Strong” areas are where each party received more than 65%, “lean” where each received between 55% and 65%, and “competitive” where neither received more than 55%. Points in each panel show the centroids of the clusters of survey respondents. Gray shading indicates missing data.
Figure 3: Co-ethnic Party Vote on Change in Ethnic Fractionalization. Panel (a): First differences in the probability of voting for a co-ethnic party after a 1 standard deviation increase in ethnic fractionalization, across neighborhood wealth, with 95% confidence intervals. From column 2 in Table 1. Panel (b): First differences in the probability of voting for the co-ethnic party after the same increase in fractionalization, against the proportion of respondents in each location reporting that the NDC government was distributing jobs, loans, or other private patronage benefits, with 95% confidence intervals.
Figure 4: *NDC Vote on Neighborhood Group Shares, by Neighborhood Wealth*: For non-Ga respondents only, first differences in the probability of voting for the NDC after a 1 standard deviation increase in the neighborhood population share from each of the listed ethnic groups, with 95% confidence intervals. \( N = 592 \).
Figure 5: Co-ethnic Party Treatment Effects for Club and Private Goods: Panel (a): First differences for the co-ethnic party treatment effect for the questions about club goods as ethnic fractionalization increases around each respondent \((N = 510)\), with 95% confidence intervals. This is for both poor and rich neighborhoods. Panel (b): First differences for the co-ethnic party treatment effect for the questions about private goods only as the percentage of each respondent’s own ethnic group in the surrounding neighborhood changes \((N = 345)\), with 95% confidence intervals. This is estimated for neighborhoods with below average wealth only. See SI for tables.
References


