Crossing Party Lines: The Effects of Information on Redistributive Politics

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Abstract

Many lament that weak accountability and poor governance impede economic development in Africa. Politicians rely on ethnic allegiances that deliver the vote irrespective of performance, dampening electoral incentives. Giving voters information about candidate competence counters ethnic loyalty and strengthens accountability. I extend a canonical electoral model to show how information provision flows through voter behavior and ultimately impacts the distribution of political spending. I test the theory on data from Sierra Leone using decentralization and differential radio coverage to identify information's effects. Estimates suggest that information increases voting across ethnic-party lines and induces a more equitable allocation of campaign spending.

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Poor governance has long been considered an impediment to economic development in Africa. Weak political accountability is a prominent contributing factor, yet our understanding of how democratic safeguards break down and what can be done about the problem remains limited. One concern is that ethnic allegiances dominate politics in many African countries, enabling politicians to take the support of co-ethnics for granted and thereby weakening electoral accountability. These allegiances deliver the vote irrespective of the competence or performance of individual politicians and dictate the allocation of party spending. An explanation for such uncritical support in the face of poor government performance is that widespread illiteracy and undeveloped media markets leave citizens with little alternative information on which to base their vote. If true, the provision of better information about candidates could naturally be part of the solution.

The first contribution of this paper is building a model of political competition that incorporates information provision. I derive the equilibrium effects of information on voter behavior and link these, via the strategic response of parties, to the ultimate effects of information on the distribution of political party resources. The second, and main, contribution is a novel identification strategy and empirical test of the theoretical propositions that leverage institutional features of Sierra Leone. I use the country's decentralized political system and differential radio coverage to isolate the effects of information on vote choice and campaign spending. The data broadly confirms the theoretical predictions.

The formal model is an extension of Lindbeck and Weibull's (1987, hereafter LW) redistributive politics model. I incorporate candidate quality, which is imperfectly observed, to derive three propositions of interest. I first establish that LW's original "swing" voter result continues to hold under the addition of candidate quality, where voter willingness to trade off ideological preferences for consumption transfers leads parties to invest more resources in areas with weaker underlying party affiliation.[1] Second, I show that providing citizens with information about candidates relaxes their partisan loyalty: voters become willing to cross party lines when the rival party fields a sufficiently superior candidate, but only if the information environment is rich enough for them to detect and find the quality advantage credible. Such crossing in turn makes party forecasting of vote shares more uncertain and effectively expands the set of competitive or "swing" jurisdictions. And third, parties optimally respond to increasing uncertainty by smoothing the allocation of campaign spending more equitably across jurisdictions. I then take these three propositions to the data.

Any empirical attempt to evaluate whether political spending favors more tightly contested areas confronts the identification challenge of measuring the strength of partisanship, where the most obvious measure—actual vote shares—is endogenous to the strategic in-

[1] See also Dixit and Londregan 1996, 1998; and Bardhan and Mookherjee 2010.

vestments of parties (Larcinese, Snyder and Testa 2013). Longstanding ties between ethnic groups and political parties in Sierra Leone offer a plausible solution: they imply that ethnic composition is a strong (and easily observed) predictor of party loyalty; and, since it is largely determined by historical settlement patterns, the measure is exogenous to short term fluctuations in political patronage flows. If politicians favor "swing" jurisdictions in this context, then party investment will be decreasing in the ethnic population advantage (or homogeneity) held by either of the two major parties.

I find evidence that political investment does indeed favor more ethnically diverse and hence competitive jurisdictions in Sierra Leone. My estimates suggest that moving from a perfectly homogenous jurisdiction to one that is maximally competitive (where each party's ethnic loyalists hold a 50 percent population share) results in a 0.89 standard deviation unit (standard error 0.21) increase in the bundle of campaign goods distributed by national candidates and $19,575 (s.e. 8,757) increase in public goods investment by elected local politicians. Benefits accruing to more diverse constituencies in this way provide a counterpoint to the literature documenting the negative effects of diversity on public goods. This apparent divergence arises from a difference in perspective. While leading papers explore dynamics internal to communities—like taste differences that reduce contributions to public goods (Alesina, Baqir and Easterly 1999) or greater difficulties imposing sanctions across as opposed to within ethnic groups (Miguel and Gugerty 2005)—the outcomes here concern patronage bestowed upon communities by external political agents vying for their support.

To test the second proposition—that information relaxes partisan loyalties—I exploit the information differences created by Sierra Leone's decentralization reforms of 2004. While standard decentralization arguments focus on the information advantages held by local politicians (Oates 1999), I instead leverage the information advantages that voters have about politicians who are more proximate both geographically and within social networks. Since media coverage is limited, Sierra Leoneans rely primarily on word of mouth and interpersonal connections for information about government, and these sources tend to be richer with regard to local as compared to national politicians. For example, voters are twice as likely to be able to name and have been visited by their local representative. Using voter fixed effects to control for all other observable and unobservable determinants of individual party choice, I show that the same voters are 10.8 percentage points (s.e. 2.9) more likely to cross ethnic-party lines in local elections where they have better information about candidates. Information further encourages voters to split their ticket across different parties when voting for multiple offices simultaneously, which they are 13.1 percentage points (s.e. 3.1) more likely to do in local races. Highlighting citizen information advantages adds a new perspective to the debate about the relative merits of decentralization that is particu-

larly relevant for developing countries (Bardhan 2002; Bardhan and Mookherjee 2000, 2006; Besley and Coate 2003; Khemani 2001).

I can also leverage differences in access to the second most popular source of political information, the radio, to further substantiate that information drives these voting results. The aggregate coverage area of the dozens of community-produced radio programs overlaps with and extends beyond the reach of nationally syndicated broadcasts. This overlay enables a triple differencing empirical approach that (i) compares local and national vote choices, (ii) between radio owners and their neighbors without radios, (iii) across areas that have only community-produced versus both community and nationally syndicated radio shows. If community stations devote greater coverage to local candidates, then the knowledge premium that radio owners acquire will be larger with respect to local politicians in areas that have only community programs than in areas with access to both community and national news. Triple difference estimates establish this local knowledge premium first for the ability to correctly name politicians, and then for the willingness to vote across party lines.

To empirically link these voter-side effects back into the redistributive calculus of parties, I test for differences in the distribution of campaign spending across jurisdictions in local versus national elections. I confirm the third theoretical proposition regarding investment smoothing by showing that the allocation of campaign goods in local elections is more equitable and responds only half as strongly to underlying ethnic-party loyalties as that in national races. The result is robust to including fixed effects for the 112 Parliamentary constituencies nationwide, which control for all other factors that make these small geographic areas attractive to both politicians and migrants. I further adapt the triple differencing approach to campaign spending and generate complementary evidence for an attenuating effect of information delivered specifically via radio.

The welfare effects of providing better information about candidates in this context are unambiguous: information helps citizens make voting choices that enhance their utility, and leads to a more equitable allocation of campaign spending by political parties. Moreover, if the candidate attributes that voters respond to are in practice associated with professional competence, then increasing their salience further enhances the productivity of the public sector. Along these lines, supplemental analysis uses pre-election peer evaluations of incumbent politicians as an empirical measure of effectiveness in office, and documents greater electoral support for incumbents with stronger performance rankings, particularly among voters from rival ethnic groups.

The finding that candidate information increases citizen willingness to cross ethnic-party lines adds to the literature regarding the positive effects of supplying better information to voters in developing countries (Ferraz and Finan 2008, Beamen et al. 2009, Banerjee

et al. 2011, Enikolopov, Petrova and Zhuravskaya 2011, Fujiwara and Wantchekon 2013, Chong et al. 2015). The main contribution of this paper is integrating such voter-side partial effects into a unified model that also incorporates the investment response of parties. The subsequent result that information induces a more equitable allocation of campaign spending is the converse of Strömberg (2008), who finds that the increasing availability of opinion poll data in the United States enables parties to more precisely predict vote shares and thereby target their campaign resources more narrowly. The comparison establishes a striking non-monotonicity in the effect of information across the development spectrum: in the U.S., information helps parties become more sophisticated and tailor their spending to narrower margins of victory; while in Sierra Leone, information helps voters become more sophisticated and less predictably beholden to ethnic histories, thereby eliciting a wider targeting of party spending.[2] With the recent growth in mass media and communications technology across Africa, an optimistic implication of this result is that it may lead to a reduced reliance on ethnic politics in future.

The discussion contributes to the unsettled question of whether ethnic or caste-based political allegiances pose a threat or benefit to democratic accountability. In India, Munshi and Rosenzweig (2013) argue that sub-caste networks can solve the candidate commitment problem when political parties are weak, facilitating the election of more competent local leaders. By contrast, Banerjee and Pande (2009) posit that ethnic preferences give the numerically dominant group a competitive advantage that enables them to win even when other dimensions (like candidate quality) are weak, enabling more corrupt officials to win. Aligned more closely with the latter, this paper emphasizes how reliance on ethnic loyalties in poor information environments leads citizens to cast suboptimal votes that do not facilitate the election of the most competent individuals. At the same time, the empirical result that voters are willing to cross ethnic lines when they have better information suggests that such deeply entrenched allegiances are not in fact immutable. It further adds a new mechanism to explain the deviations from strictly ethnicity-based voting patterns found in a variety of African countries (see for example, Bratton, Bhavnani and Chen 2012, Ferree et al. 2009, and Ichino and Nathan 2013).

The rest of the paper is structured as follows. Section 1 describes the institutional framework of Sierra Leone. Section 2 presents the model and derives the three propositions of interest. Section 3 discusses the data, econometric specifications and empirical results. Section 4 considers potential alternative explanations. Section 5 concludes with policy implications.

[2]There is a related literature focused specifically on mass media as a conduit of political information, see for example, Gentzkow, Shapiro and Sinkinson (2011) on voter behavior and Strömberg (2004) on government spending. Note also the cautionary example of media manipulation in Yanagizawa-Drott (2014).

1 Institutional Context of Sierra Leone

Three aspects of Sierra Leone's political environment make it a conducive empirical setting for estimating the effects of information on redistributive politics. First, the historical association between ethnic groups and political parties creates a plausibly exogenous measure of partisan preference to test whether party spending favors "swing" jurisdictions. Second, the two tiers of decentralized government and overlapping coverage areas of radio broadcasts enable observation of the same citizens and parties acting under different information sets. Third, exit poll data reveals an empirical tradeoff between party loyalty and candidate attributes that motivates the modeling choices of Section 2.

Beginning with the correlation between ethnicity and party loyalty, the two major political parties—the Sierra Leone People's Party (SLPP) and the All People's Congress (APC)—have strong, long-standing ties to the Mende and other ethnic groups in the South and the Temne and other groups in the North, respectively. Kandeh (1992) cites ascriptive origins for this divide, including language differences, and instrumental reasons that made ethnicity a "convenient basis for political... organization." After Independence (1961), the first two Prime Ministers were Mende members of the SLPP, and the APC party was soon established in opposition to the SLPP's perceived elitism, corruption and Mende-bias in the composition of the Cabinet, as well as in reaction to the relative socioeconomic deprivation of the North. Siaka Stevens, a Limba, defected from the SLPP to lead the APC to power in 1968 on a populist platform identified with the Northern groups. Stevens abolished district-level government in 1972 and declared a one party state in 1978, allowing the APC to retain power nearly until the outbreak of civil war in 1991. After peace was declared in 2002, multi-party democracy was restored with the same two parties again in competition for state control.

As an example of the contemporary strength of these loyalties, in the 2007 Parliamentary elections the APC won 36 of 39 seats in the Northern Province, while the SLPP and its splinter party, the People's Movement for Democratic Change (PMDC), swept 24 of 25 seats in the South.[3] This implies that the ethnic composition of a jurisdiction is a strong predictor of its expected party loyalty, and is observable to both political parties and the econometrician. Regarding external validity, the roughly equal population sizes, language differences and disparate physical locations of these two broad groups form predictable minimum winning coalitions, whose persistence is supported by the first-past-the-post institutional structure (Posner 2005). One key difference between Sierra Leone and other countries is the lack of negative association between greater diversity and public goods. Glennerster, Miguel and

[3]While there are other small political parties, this paper restricts analysis to candidates from these three largest parties, grouping together candidates from the PMDC with those from its parent party, the SLPP.

Rothenberg (2013) find a precisely estimated null relationship between diversity and local public goods provision across a broad range of outcomes.

Table 1 presents summary statistics regarding the population shares and estimated party loyalties of the major ethnic groups. The first column lists the national population share of each ethnic group based on the 2004 census, where the two largest–the Mende and Temne–each account for roughly a third of the population. Column 2 estimates the partisan loyalty or "bias" of each ethnic group by taking the proportion of voters belonging to that group who reported voting for the APC in the 2007 Presidential Election and subtracting from that the proportion who reported voting for the SLPP or PMDC. The strong negative estimate of -0.63 for the Mendes indicates widespread support for the SLPP, while the strong positive estimate of 0.83 for the Temnes indicates broad allegiance to the APC. The empirical analysis uses these national level statistics to infer the party loyalty of each ethnic group as a whole, and then uses differences in local population shares to measure how the strength of the expected loyalty varies across jurisdictions (see Appendix Figure 1 for a map). Note that the raw correlation between these jurisdiction-level partisan bias measures constructed using the 1963 and 2004 censuses respectively is 0.897. This provides support for the exogeneity claim that ethnic composition is determined largely by historical settlement patterns and responds little to short term changes in the redistributive spending of candidates.

[Insert Table 1 Here]

Second, the primary identification strategy leverages differences in the amount of information citizens have about politicians operating at different levels of a decentralized state. The Local Government Act of 2004 reconstituted nineteen Local Councils over thirty years after they were abolished by Stevens. Each local politician or Councillor represents roughly 10,000 citizens living in one of the 394 local jurisdictions, called wards. Three or four of these wards nest neatly inside one of the 112 Parliamentary constituencies, which are the jurisdictions of a national politician or MP.[4] Analysis covers candidates from the 2007 national and 2008 local elections, which were the second set of elections held since the end of the war. Between the war and the preceding decades of one party rule, the experience with competitive multi-party democracy remained relatively new to most Sierra Leoneans.

Pre-election household data from 2007 confirms that citizens have more information about politicians at the local level: while 37 percent of respondents could correctly name their Councillor; only 17 percent could name their MP.[5] The different nature of the local versus national politicians' jobs creates more opportunities for interaction between citizens and their local

[4]Some large urban wards outside the capital are served by multiple Councillors.

[5]Statistics in this section draw on the National Public Services (NPS) surveys, described in Section III.A..

representatives. By law, Councillors are mandated to work and reside in their jurisdiction, while elected MPs serve in the capital. As a result, while 50 percent of communities reported being visited by their elected Councillor in the past year, only 25 percent reported a visit from their MP. Mechanically, the fact that an MP represents over four times as many people as a Councillor means that the probability of personal interaction with one's MP is likely to be far lower. These statistics collectively suggest that voters have roughly twice as much information about candidates competing for local as compared to national office.

Note how this informational framework differs from the U.S. where voters typically know more about national as opposed to state or county politics. The difference can be explained by the weak media presence in Sierra Leone: television ownership and programming are extremely limited (only 9 percent of households own a TV); high illiteracy rates mean that print media virtually does not exist outside the capital; and parts of the country are cut off even from radio coverage (and only 48 percent of households own a radio). Limited media leads voters to rely primarily on word of mouth and interpersonal exchange for information about politics: household data from 2008 shows that 57 percent of respondents hear about what the government is doing from friends and relatives, as compared to 34 percent from radio and less than 2 percent from television or newspapers. Such social networks are simply much richer with regard to local candidates, where the probability that someone within your network has a relationship or experience interacting with a local politician is higher.

To further isolate the effect of information acquisition on voting behavior, a complementary triple differencing approach works along the margin of geographic access to radio broadcasts. Nationally syndicated programs, like those of the Sierra Leone Broadcasting Corporation (SLBC), are transmitted from towers located in the country's six largest towns. Independent community radio stations are located in these towns as well as in a number of villages scattered across the country. The aggregate coverage of these local stations thus largely overlaps with and extends beyond the reach of the national towers, thereby dividing the country into three areas: places with dual (community and national) radio coverage, those with only community radio coverage, and those with no coverage.[6] Broadcast coverage provides radio owners with access to additional information about politics that their neighbors without radios do not have. Under dual coverage this information premium comes from two sources, while under only community coverage it comes from one source.

To generate descriptive evidence that these broadcasts contain information pertinent to voting choices, I conducted a nationwide survey of radio stations in 2014, reaching 6 nationally syndicated and 38 community produced stations, or 73% of all non-religious, domestically

[6]While there are places that receive only national signals, there are too few respondents in the sample used in Table 4 to meaningfully estimate how knowledge there may differ from that elsewhere.

produced stations. Station managers detailed hour by hour the typical daily programming schedule for the current week and separately for the weeks leading up to the 2012 general, 2008 local and 2007 MP elections. This generated descriptions of 719 total broadcast hours for the current period and 407 hours for the earliest election.[7] In non-election time, nationally syndicated (community-produced) stations devote 50% (39%) of programming content to news and current events, with another 4% (2%) specifically identifiable as discussing MPs (Councillors) and other elected officials. For the 2012 pre-election period, the news share remained roughly the same, however an additional 21% (17%) of programming covered the election, 22% (30%) of which clearly concerned candidates. These reported shares were nearly identical for the 2008 and 2007 pre-election periods, and suggest that radio stations devote substantial airtime to politics, including roughly 50 minutes per day focused on candidates. In a typical show, SLBC Freetown invites party executives to the station to discuss their roster of candidates. Their program, "Know Your Candidate," covers candidates' "past achievements, what they will do if voted for... [and their] personal life." Community-produced programs are more likely to host the candidates themselves in the studio, at times fielding phone calls from listeners or debating each other directly. A typical example from a local Bo Town station is "Elections Hour," where "candidates talk about their developmental plans, educational background, family and their party." Regarding candidate attributes, a majority (52 to 74%) of both station types report that they discuss candidates' educational qualifications, professional background, public office experience, and past performance.

Third, preferences reported in exit polls motivate a three factor voting model where the relative factor weights depend on information. In 2008 exit polls, voters listed the following reasons why they chose particular local candidates: i) political party (35 percent); ii) promises of development (23 percent); and iii) individual candidate characteristics such as their reputation or achievement in their previous job (17 percent), the candidate is a friend or relative (9 percent), the candidate helped the voter's family in the past (3 percent), and gender (3 percent). Importantly, while party and candidate characteristics are equally important in selecting local candidates, where 35 percent of voters cite each as the primary determinant of vote choice, party is twice as important as candidate attributes in choosing national politicians, by 46 to 21 percent (see Appendix Table 1). Looking at how the same voters behave in different elections, candidate attributes are significantly more likely to be the primary determinant of vote choice in a local versus national race (by 14.5 percentage points, s.e. 3.2) while party is less likely to matter (by 11.0 points, s.e. 3.1). Linking back to the information advantage enjoyed at the local level under decentralization, these differences preview the role information plays in encouraging voters to place more weight on candidate

[7] Half the stations opened after or did not have a staff member present who worked at the station in 2007.

characteristics and less emphasis on their ethnic-party loyalties in deciding whom to support.

2 A Model of Redistributive Politics with Information Provision

This section builds an electoral model that explores how the quality of information available to voters affects their choices and in turn the resource allocations of competitive political parties. I adapt and extend the LW model to incorporate a candidate quality factor and an information asymmetry that were not explored in their seminal work. I first show that LW's swing voter investment case still holds under the extended model, and then derive two new theoretical propositions regarding the effects of information on voting and redistributive spending. The model establishes a general tradeoff between party loyalty and candidate quality that is broadly applicable, with ethnic politics as one special case.

2.1 Jurisdictions and Political Transfers

The basic intuition of the LW model is that if voters are willing to tradeoff ideological loyalties for consumption transfers, political parties will strategically allocate resources towards areas where their investments will "buy" them the most votes. More formally, voters are partitioned into J disjoint subsets ($\mathcal{I}_j$) or jurisdictions, which are defined geographically and contain n_j residents, where the total population is $\sum_j n_j = n$. Each jurisdiction elects one politician to represent them in the national Parliament. Two political parties ($p \in \{A, B\}$) compete for votes by allocating transfers to each jurisdiction (t_{pj}), where they must treat every voter within a jurisdiction identically. Parties allocate transfers to maximize the expected number of seats they win in Parliament.[8] An exogenous per capita tax levied equally on voters (τ) determines the total amount of transfers either party promises to distribute upon winning the election (where $\sum_j n_j t_{pj} = n\tau$).

While this set up models the allocation of post-election transfers, the bulk of my empirical analysis uses pre-election campaign expenditures. For simplicity, therefore assume that the campaign budget for each candidate is proportional to the transfer earmarked by his party for his jurisdiction. I provide evidence in Section 3.2 that this assumption is plausible in my empirical setting where both campaign patronage and post-election investments in public

[8] Note that the LW model concerns a single unitary election, akin to a Presidential race, where the parties maximize their expected vote shares in each jurisdiction. Modifying the party objective function from vote shares to seats won leads to a better match with my empirical case of many simultaneous Parliamentary elections. See Appendix D for derivation of the model under the maximization of vote share case.

goods by elected officials favor more competitive "swing" jurisdictions. Strömberg (2008) provides a precedent for testing this sort of probabilistic voting model on campaign data.

The timing of the game proceeds as follows. Each political party chooses a vector of transfers that maximizes the total number of Parliamentary seats they expect to win, taking voter ideology as given. Nature draws candidate quality for each party in all races.[9] Voters then choose the party plus candidate package that maximizes their utility. Candidates who receive the most votes in each jurisdiction win that seat and the party that wins the most seats implements its transfer vector. I solve for the equilibrium of this political game through backward induction, beginning with the voter's decision.

2.2 Voter Choice

In the LW model voters value consumption, determined by their exogenous post-tax income (ω) and the political transfers; and party identity (p_i), which reflects their ideological preference or, in my application, ethnic allegiance. To this I add candidate quality (q_{pj}), which is shorthand for any bundle of characteristics specific to the individual running for office. Utility of voter i in jurisdiction j if party p wins is additively separable in its components:

$$u_{ijp} = v\left(\omega + t_{pj}\right) + p_i + q_{pj} \tag{1}$$

where $v\left(\cdot\right)$ is a concave function capturing utility derived from consumption.

For each race, the two parties receive random draws from a common pool of potential candidates. I assume that relative candidate quality ($\Delta q_j = q_{bj} - q_{aj}$) looking across jurisdictions or within the same jurisdiction over time is normally distributed with mean zero and variance σ_q^2. This assumption reflects the idea that the parties have access to the same candidate recruitment technology, yet face some randomness in the actual characteristics of any particular candidate selected for a given race.

While voters know the transfer allocation from parties and their own relative party loyalty ($\Delta p_i = b_i - a_i$), they only imperfectly observe candidate quality. Introducing this uncertainty on the voter's side allows me to explore the effect of information on voting choice and the equilibrium allocation of transfers. Each voter receives a noisy signal (θ_{ij}) that combines true candidate quality difference with a mean-zero, normally distributed disturbance term:

$$\theta_{ij} = \Delta q_j + \upsilon_{ij} \text{ where } \upsilon_{ij} \sim N\left(0, \sigma_\upsilon^2\right) \tag{2}$$

[9] The sequencing assumption that parties have no information about how voters evaluate the quality draws when making transfer decisions is stronger than necessary, but simplifies the exposition. I need only assume some degree of asymmetry in that parties cannot perfectly anticipate how voters will respond to candidates.

Under Bayesian updating, voters form an expectation about which candidate is superior that weighs the content of the noisy signal against their prior beliefs. Since the distribution of relative quality is mean zero, all voters hold the prior belief that the two candidates are of equal quality. Given the signal, the expected quality difference favoring Party B is thus:

$$E(\Delta q_j|\theta_{ij}) = \delta\theta_{ij} + (1-\delta)\,0 \text{ where } \delta = \frac{\sigma_q^2}{\sigma_q^2 + \sigma_v^2} \tag{3}$$

Note that the weight placed on the quality signal (δ) depends inversely on the amount of noise in the signal, implying that voters place more weight on candidate quality when they have better information about candidate characteristics. Voters straightforwardly choose Party A if their party loyalty and the perceived candidate quality advantage favoring Party B are less than the consumption advantage they will enjoy under A:

$$\text{Vote A if}: \Delta p_i + \delta\theta_{ij} \leq v\left(\omega + t_{aj}\right) - v\left(\omega + t_{bj}\right) \tag{4}$$

2.3 Political Equilibrium

Now consider the perspective of political parties. In localities where voters are largely indifferent between parties (Δp_i is small), promising a transfer that is even slightly larger than your rival's offer can swing a large number of voters toward your party. This implies that parties court jurisdictions where residents have weak party loyalties or ideological preferences.

A key feature of the model is that parties cannot directly observe the loyalty factor, so treat the differential as a random variable in devising their investment strategies. For concreteness, suppose that both parties assume that underlying party loyalty (Δp_i) is normally distributed with jurisdiction-specific mean α_j and variance σ_p^2.[10] Thus the only factor that distinguishes one jurisdiction from the next is the mean of this bias distribution: jurisdictions with voters loyal to Party B have a positive value of α_j, while those loyal to A have a negative value. Each jurisdiction-specific density of party loyalty $f_j(\cdot)$ is thus a translate of a common normal density $f(\cdot)$, where the common density shifts further to the left or right as the expected party bias of voters inside a given jurisdiction becomes more extreme (i.e. $f_j(t) = f(t+\alpha_j)$). Since parties must treat every voter within a given jurisdiction identically, it is this expected bias of the jurisdiction overall that ultimately determines the amount of transfers allocated to a given area.

Turning to the quality term, suppose that parties know the distributions of candidate quality and the noisy signals (but not their realizations) when determining transfer alloca-

[10] LW refers more generally to the class of distributions that is unimodal and symmetric.

tions.[11] Parties thus treat voter perception of candidate quality as a mean preserving spread of the estimated party loyalty distribution. From the parties' perspective the left hand side of the Vote A expression in Equation (4) is the sum of two normally distributed random variables. Breaking $\delta\theta_{ij}$ into its two components and collecting all the individual-level terms to the left of the inequality in (4) generates:

$$\Delta p_i + \delta v_{ij} \leq v\left(\omega + t_{aj}\right) - v\left(\omega + t_{bj}\right) - \delta\Delta q_j \text{ where } \Delta p_i + \delta v_{ij} \sim N(\alpha_j, \sigma_p^2 + \delta^2\sigma_v^2) \quad (5)$$

The vote share for A can be expressed as the standardized cumulative density function of the distribution in (5) evaluated at the transfer differential minus the quality shock. Party A wins seat j if its vote share is at least one half, or:

$$\Phi\left(\frac{v\left(\omega + t_{aj}\right) - v\left(\omega + t_{bj}\right) - \delta\Delta q_j - \alpha_j}{\left(\sigma_p^2 + \delta^2\sigma_v^2\right)^{1/2}}\right) \geq 1/2 \quad (6)$$

Thus Party A wins when the quality shock and party loyalty favoring B are not large enough to outweigh the transfer differential favoring A, or when:

$$\delta\Delta q_j + \alpha_j \leq v\left(\omega + t_{aj}\right) - v\left(\omega + t_{bj}\right) \quad (7)$$

The probability of this event is:

$$F_j\left[v\left(\omega + t_{aj}\right) - v\left(\omega + t_{bj}\right)\right] \text{ where } F_j\left(\cdot\right) \sim N_j\left(\alpha_j, \delta^2\sigma_q^2\right) \quad (8)$$

The key insight of the extension is that the variance of this distribution is increasing in the clarity of the candidate quality signal. This means that when voters have better information, they place more weight on individual candidate characteristics that are unobservable to parties, thereby making party forecasting of expected vote shares and the associated probability of winning particular seats more uncertain.

The assumed objective of political parties is to maximize the expected number of seats they win in Parliament, subject to the budget. From the perspective of Party A, it does so by choosing a vector of transfers that maximizes the probability of winning each jurisdiction:

$$\max_{t_{aj}} \sum_{i \in \mathcal{I}_j} F_j\left[v\left(\omega + t_{aj}\right) - v\left(\omega + t_{bj}\right)\right] - \lambda\left[\sum_j n_j t_{aj} - n\tau\right] \quad (9)$$

Party B solves a symmetric problem with respect to t_{bj}, with corresponding Lagrange mul-

[11] An interesting extension for future work would be to endogenize candidate quality as another type of investment that parties make in trying to win close elections.

tipliers denoted by μ. Comparing this extended model with the original LW two factor case, adding the quality term and revising the objective function affects only the variance of F_j and has no impact on the jurisdiction-specific means, α_j. As such, it does not substantively alter LW's derivation of a swing voter Nash equilibrium. I relegate the details to the Appendix and restate their main comparative static here.

Proposition 1 *Spending by competitive political parties in a given jurisdiction is decreasing in the expected loyalty or ideological advantage held by either party (denoted α_j).*

Proof: see Appendix A. Party strategy in equilibrium is intuitive. The symmetric nature of the problem implies that each party allocates the same transfer to a given jurisdiction ($t_{aj} = t_{bj} = Y_j \ \forall \ j$). The solution to the optimization problem in (9) can thus be expressed by the general first order condition:

$$v'(\omega + Y_j) = \frac{\lambda}{f(\alpha_j)} \tag{10}$$

This yields the familiar prediction that transfers from parties (Y_j) are decreasing in the absolute value of expected party loyalty ($|\alpha_j|$), or that both parties favor "swing" jurisdictions where party affiliations are weakest. To see this, note that the density $f(\cdot)$ falls in the tails, where α_j is large and positive (indicating a Party B stronghold) or negative (a Party A stronghold). In these areas, the right hand side of Equation (10) becomes large, and thus the value of Y_j in the left hand side must fall to trigger a corresponding increase in the marginal utility of voter consumption. We have thus shown that LW's central theoretical result continues to hold under the extended information model. The first empirical contribution of this paper will be a novel test of this proposition in the context of ethnic politics, where favoring "swing" jurisdictions implies spending that is decreasing in the population advantage (i.e. ethnic homogeneity) that favors one party over the other.

2.4 Information and Voter Choice

The second objective is to derive the effect of better information on voting behavior. Since in equilibrium the two parties promise the same vector of consumption transfers, the voter's choice reduces to a tradeoff between party loyalty and the relative quality of the two candidates. Intuitively, where there is no information about candidate quality, voters never cross party lines: they know their preferred party and simply select the affiliated candidate on the ballot. As better information becomes available, voters begin to cross over when confronted

with an extreme draw from the quality distribution favoring the rival party's candidate. Thus the willingness to vote across traditional loyalties should be increasing in information.

Proposition 2 *Voters are more likely to cross party lines when they have better information about individual candidate characteristics.*

Proof: see Appendix B. The proof of Proposition 2 is straightforward. Since voters are allocated the same transfer by both parties, the voter will choose Party A if the perceived quality advantage of candidate B is not large enough to outweigh the voter's party loyalty to A. Viewed over multiple elections, the probability that the voter chooses Party A in any particular election can thus be written as the standardized cumulative density function of perceived candidate quality evaluated at the voter's own party preference:

$$\Pr\left(\text{Vote } A\right) = \Phi\left(\frac{-\Delta p_i}{\left(\sigma_q^4/\left(\sigma_q^2+\sigma_v^2\right)\right)^{1/2}}\right) \tag{11}$$

What this paper is specifically interested in is the willingness of voters to move away from their traditional party allegiances when they have better information. Crossing party lines—i.e. choosing a high quality candidate from the rival party—is a vote for Party A if the voter is Type B (i.e. $\Delta p_i > 0$), which is exactly the probability in (11).

The key question is how information affects this probability. Note that improving the quality of the signal (by reducing the noise σ_v^2) increases the variance of the perceived quality distribution, as better information enables the voter to detect even subtle differences between candidates. Strengthening the signal thus increases the denominator of the argument in (11). Since the numerator for a Type B voter is less than zero, this increases the argument overall. Because the CDF is increasing in its argument, conclude that for a given level of party preference, improving information increases the probability that a voter will cross party lines. (The argument is symmetric for a Type A voter.) In the context of ethnic politics and decentralization, this implies that voters are more willing to cross traditional ethnic-party allegiances in local elections where they have better information about candidates.

2.5 Information and the Allocation of Political Transfers

The third objective is to derive how the quality of information available to voters affects the equilibrium redistributive strategy of competitive parties. As shown earlier, Proposition 1 implies that electoral pressures tilt the distribution of party spending away from areas where either party holds a popular advantage. Parties must estimate the underlying advantage—which is a combination of voter ideology and voter opinions of the relative quality of the

candidate draws—based on what they know about voter preferences in a given jurisdiction. Proposition 2 further suggests that voters place more weight on quality (which is assumed to be unobservable to parties) when they have better information about candidates. This in effect makes the parties' assessment of the underlying margin more uncertain, as it increases the weight on the component of advantage that from their perspective is a disturbance term. Greater uncertainty in turn induces parties to allocate transfers more evenly across jurisdictions. Taken to a logical extreme, if voters cared only about candidate quality, parties would optimally divide the budget equally across all jurisdictions.

Proposition 3 *By making parties' assessment of competitiveness more uncertain, providing voters with better information attenuates the slope of party spending with respect to the expected advantage held by either party.*

Proof: see Appendix C. Intuitively, where expected advantage is positive (the case for negative is symmetric), Proposition 1 implies that the derivative of party spending with respect to expected bias in jurisdictions is negative ($\frac{\partial Y_j}{\partial \alpha_j} \leq 0$). Proposition 2 states that providing better information increases voter responsiveness (δ) to candidate quality. The effect of information on spending in Proposition 3 can thus be expressed as the cross derivative of the spending slope with respect to responsiveness:

$$\frac{\partial}{\partial \delta}\left(\frac{\partial Y_j}{\partial \alpha_j}\right) = \frac{-\lambda \alpha_j \left(2\pi\right)^{1/2} \left(\alpha_j^2 + \delta^2 \sigma_q^2\right)}{v''\left(\omega + Y_j\right) \delta^4 \sigma_q^3 \exp\left(\frac{-\alpha_j^2}{2\delta^2 \sigma_q^2}\right)} \geq 0 \tag{12}$$

The positive sign on the cross derivative implies that better information attenuates the negative relationship between spending and expected bias.

In the context of ethnic politics and decentralization, Proposition 3 predicts that party spending will fall less steeply with respect to the population advantage favoring either party in local as compared to national elections. Regarding interpretation, in national elections citizens know little about candidates so vote predominantly in accordance with their ethnic-party loyalty. Even an extremely unbalanced quality draw would have little impact on their choice since voters cannot clearly perceive the differences between candidates. Ethnic composition is thus a fairly certain predictor of competitiveness in national races and encourages parties to aggressively target their spending toward more ethnically diverse, and hence competitive, jurisdictions. By contrast, in local elections voters consider a number of different things they know about candidates—like how successful they were before they became a politician or their family's reputation in the area—that are difficult for parties to observe, making ethnic composition a noisier predictor of competitiveness. Parties anticipate that

an unbalanced quality draw could make a local race in even a fairly homogenous stronghold area competitive, so smooth their transfers across a wider range of ethnic compositions.

3 Empirical Application

3.1 The Data

The first empirical innovation of this paper is estimating the expected party loyalty or relative partisan bias of a jurisdiction based on its ethnic composition. Given the multiplicity of ethnic groups in Sierra Leone, the measure takes the absolute value of the sum of the population share of each ethnic group residing in the jurisdiction (π_{ej}) multiplied by the national partisan bias of that group toward Party A over Party B (α_e):

$$|E\left(bias\right)_j| = |\alpha_j| = |\sum_e \pi_{ej}\alpha_e| \tag{13}$$

Demographic data on ethnic composition comes from the 2004 Population and Housing Census conducted by Statistics Sierra Leone.[12]

Voting data come from two sources. First, the Decentralization Stakeholder Survey (DSS) exit polls were conducted by the Government of Sierra Leone's Institutional Reform and Capacity Building Project (IRCBP) with financial support from the National Bureau of Economic Research. Designed by the author, the polls surveyed 1,117 voters in 59 randomly selected local government jurisdictions on Local Council Election Day in 2008. The polls collected demographic characteristics and self-reported voting choices for both the local and the earlier national races. Section 4 crosschecks the accuracy of these self-reported votes against the official voting returns using data from the National Electoral Commission. Similar voting questions were then included in IRCBP's 2008 National Public Services (NPS) household survey, which covered a nationally representative sample of over 6,300 citizens in 634 census enumeration areas (slightly larger than village). As each source has its advantages[13], the preferred measure of bias used in (13) takes the average across these two datasets. As a robustness check, results are re-run without reference to reported voting behavior by simply classifying each ethnic group as either pro-party A (bias = -1), pro-party B (bias = 1) or unaffiliated (bias = 0), based on historical accounts (Kandeh 1992) and author interviews with government officials (see Table 1, Column 3). Expected bias is then calculated as the

[12]Recall that partisan bias is the proportion of voters of a particular ethnicity who voted for the APC minus the proportion who voted for the SLPP (or its splinter, the PMDC) in the 2007 Presidential election.

[13]The exit polls have no recall problems for local votes as respondents were surveyed immediately upon leaving the polling station; however the sample is small. The later household sample is much larger, however responses likely suffer recall problems and post-election re-evaluation of party support.

absolute value of the difference in population shares of groups A and B: $|(ShrA - ShrB)_j|$. This measure yields similar results in magnitude and significance.

Information is measured in two ways. The first is an indicator variable, L, which equals one if the candidate or vote is for Local Council and zero if for national Parliament. Since Section 1 demonstrates that voters have significantly more information about candidates in local elections, $L = 1$ signals the better quality information case. The second measure concerns radio coverage, which uses data collected in the community module of the 2008 NPS survey. A focus group discussion with village leaders elicited a list of all radio programs that could be received in the community and the corresponding quality of reception. Coverage by community radio was coded to one if the village reported "good" or "very good" reception of any one of 38 locally produced radio stations; and national coverage was similarly coded to one for reception of any of the five domestically produced and nationally syndicated radio programs.[14] These reports align reasonably well with the crosscheck of GIS-estimated distances to nearest national and community radio transmitter (see Appendix Figures 2 and 3). The geographic overlay of these two broadcast areas delineates places where radio ownership affords access to one versus two additional sources of political information.

Data on party spending concerns two sets of outcomes: i) campaign spending by national and local candidates during the 2007 and 2008 elections, respectively; and ii) public investments made by the first cohort of elected Local Councillors over the period 2004-2007. The first set was collected in the community module of the 2008 NPS survey and recorded seven different measures of campaign spending by each local and national candidate in the village: the distribution of cash, t-shirts, posters, handbills and food; personal candidate visits; and the hosting of a political rally. Table 1, Panel B presents summary statistics. The second set connects the spending by candidates on the campaign trail to public investments by elected politicians. For this, the Local Government Development Grants (LGDG) program, financed by the World Bank and Government of Sierra Leone, provided several million US dollars in discretionary grants to the first cohort of Local Councils to fund development initiatives. LGDG accounts for one fifth of the total vertical transfer from central to local government, and is by far the most significant source of discretionary spending, as the rest of the transfer is tied to specific functions and allocated in collaboration with line ministries (Whiteside 2007). These resources are spent primarily on the construction of local public goods, in areas like roads, agriculture, and markets. Information on the budget and location of funded projects was compiled from the Local Government Finance Department and the Decentralization Secretariat, who provide technical assistance to the Councils.[15] This

[14] Programs that are religious in nature or international relays, as classified by the Independent Media Commission of Sierra Leone, are excluded.

[15] Note the time period disconnect: while ideally I would use campaign spending and public investments

paper focuses primarily on the allocation of campaign spending. The purpose of the LGDG estimates is to show that a similar pattern of swing voter favoritism exists for public goods expenditures. Without data on a national government counterpart, this public investment data can only be used to test Proposition 1, and cannot directly test the effect of information on redistribution.[16]

3.2 Investment across Jurisdictions

The first theoretical prediction is that political competition, and hence investments by parties, will be decreasing in the expected partisan bias of jurisdictions. Testing this proposition requires estimation of the following equation:

$$Y_{ij} = \beta_0 + \beta_1 |\alpha_j| + \mathbf{X}_j' \Gamma + \mathbf{d}_j + \varepsilon_{ij} \tag{14}$$

where Y_{ij} is the investment on behalf of candidate i in jurisdiction j, $|\alpha_j|$ is the absolute value of the expected bias toward Party A of the jurisdiction, $\mathbf{X}_j$ is a vector of jurisdiction-level factors that may also affect transfers, $\mathbf{d}_j$ is a set of district fixed effects, and ε_{ij} is an idiosyncratic error term. The theoretical model predicts $\beta_1 < 0$ indicating that campaign spending and public investment are decreasing in the expected local advantage held by either party. I provide estimates for each of seven campaign items individually as well as a mean effects index that summarizes how ethnic composition affects campaign investment overall. Following Kling, Liebman and Katz (2007), the index is an equally weighted composite of the individual items expressed in standard deviation units.

Jurisdictional controls include population density to accommodate urban/rural differences, and the population per seat to account for candidates having to spread resources across differing numbers of voters. All results are robust to their exclusion (not shown). All specifications further include fixed effects for the country's 14 districts, which control for any extra-electoral value of particular geographic areas, for example the attractiveness of controlling the diamond mining areas in the East. For the analysis of local spending, these fixed

by the *same* individuals, I have data only on *earlier* public investment by the first cohort of elected Councillors (who were campaigning in 2004) and *later* campaign spending by the second cohort of Local Council candidates. Since different cohorts of politicians are playing the same game under the same constraints, and ethnic-party bias is largely fixed over time, I assume that the pattern of targeting is stationary.

[16] Appendix Table 2 provides suggestive evidence in support of Proposition 3 applied to investments in primary health and education. As decentralization proceeded faster for healthcare, the Local Councils gained relatively more influence (*vis-à-vis* the central government) over primary health facilities than schools in the early stages of devolution. A double difference empirical strategy over sector and time suggests that the distribution of improvements in household access to primary health facilities was less responsive to electoral competition than that for primary schools between 2005 and 2007, consistent with an attenuating effect of information on local government spending.

effects further demarcate the distinct local government markets, each with its own party committees and resources.[17] The model predicts that spending by local politicians should favor jurisdictions with lower bias relative to the other jurisdictions within their district.

I present robust standard errors clustered by jurisdiction and accompanying p-values for all campaign estimates. As a robustness check on potential differential sampling error by ethnic group in the survey data used to estimate partisan bias, I further include p-values from a two-step bootstrapping procedure.[18] Note that this procedure is not relevant for the alternative measure of bias that relies only on population shares and does not use survey data to calibrate the strength of bias by ethnic group.

Before examining the regression output, Figure 1 nonparametrically graphs the relationship between campaign spending and the expected party bias of jurisdictions. Each dot represents the coefficient on absolute partisan bias from a regression of money distributed by national candidates on 34 equally sized bins of bias, where the omitted reference bin is the most biased constituency in the right tail. As predicted, the coefficients reveal a downward sloping trend in investment with respect to bias, where the point estimates and the 95% confidence intervals are fully above zero for 24 of the first 26 lowest bias bins. Appendix Figure 4 replicates the graph for the six other campaign items. While precision varies by outcome, the fitted linear prediction in all seven graphs is clearly downward sloping. Appendix Figure 5 presents this relationship in map form for constituencies in one particular district. The gradation of color is inverted when comparing Panel A to B, suggesting that as one moves eastward, partisan bias increases (in A) while mean campaign spending decreases (in B).

[Insert Figure 1 Here]

The first two panels of Table 2 present the ordinary least squares results for campaign spending by national candidates only. In Panel A the coefficient on the preferred party bias measure is negative for all seven outcome variables and statistically significant for six. Regarding interpretation, the coefficient on absolute expected bias in the first column implies that moving from a perfectly competitive jurisdiction where each party expects to win 50 percent of the votes to one that is expected to vote uniformly for one party is associated

[17] As a point of clarification, there are 19 Local Councils, corresponding to the 14 districts mentioned plus an additional 5 "city" councils representing small urban areas outside the capital that are surrounded by the larger rural council for that district. Since the political parties are organized at the district level, I aggregate these "co-located" urban and rural councils together into unified districts for all campaign spending analyses.

[18] I first draw 10,000 samples with replacement by ethnic group and survey to compute the $\widehat{\alpha_e}$ vector, and merge these estimates into the census data on population shares (π_{ej}) to construct 10,000 jurisdiction-level bias measures, $\widehat{\alpha_j}$. In the second step, I pair the b^{th} replication of $\widehat{\alpha_j}$ with a draw from the campaign data, sampling jurisdiction-level clusters with replacement, and estimate the coefficients of interest for each of 10,000 subsamples (following the pairs cluster bootstrap-t procedure in Cameron, Gelbach and Miller 2008).

with candidates passing out 18.30 fewer US dollars (s.e. 6.47) during a typical community visit. This is a significant transfer in a country where gross national income per capita is only $320 and average rural communities contain fewer than 50 households (World Bank 2008). Column 2 suggests that this move translates into candidates making 2.52 fewer visits (s.e. 1.50) to communities in the jurisdiction.

Grouping the individual items together, the mean effects index in Column 8 implies that moving from a maximal to minimally competitive jurisdiction is associated with a 0.89 standard deviation unit (s.e. 0.21) decrease on average across the bundle of seven campaign goods, significant at 99% confidence. Using estimates of the value of each item (excluding visits) and of the probability an individual receives them, a back-of-the-envelope calculation places the total value of this difference at 7 times the daily agricultural wage. As a robustness check, Panel B presents results for the population share measure of bias that abstracts away from voting data. Here the coefficients reflect the difference in spending when moving from a perfectly competitive area where each party holds an equal population share to one that is completely homogenous. All estimates are comparable in magnitude and precision.

[Insert Table 2 Here]

Repeating the same series of specifications for local candidates, Panels C and D reveal a similar pattern of estimates that are somewhat less pronounced than the results for national candidates (previewing the role of Proposition 3). In both panels six of the first seven coefficients on expected bias are negative, and four are statistically significant; and the mean effects indices in Column 8 are again negative and highly significant. The index coefficient in Panel C (based on the preferred bias measure) implies that moving from a maximal to minimally competitive jurisdiction is associated with a 0.47 standard deviation unit (s.e. 0.13) average decrease in the bundle of campaign goods, significant at 99% confidence.[19]

The LGDG data allows us to turn from campaign spending to public goods provision by the first cohort of elected Local Councils (2004-07). Running a similar specification to those in Panel C, the coefficient of interest on expected bias suggests that moving from a maximally to minimally competitive jurisdiction results in a $19,575 (s.e. 8,757) reduction in public goods investments by the governing district Council, which is significant at 95% confidence.[20] Repeating the specification with the population share measure of bias generates a coefficient

[19] These results are robust to including whether or not a candidate holds a professional job and its interaction with competitiveness (results available upon request).

[20] The specification is the same as that in Table 2 Panel C, save the unit of observation is now the Local Council ward (N=330), standard errors are clustered by district, and an additional control for Council headquarters is included. Analysis excludes the city councils; results are similar with their inclusion (-$15,693, s.e. 9,133, N=394).

estimate that is qualitatively similar yet somewhat attenuated in magnitude and significance (-$9,166, s.e. 4,321).

3.3 Information and Voter Choice - Decentralization

I test Proposition 2 using two distinct identification strategies to isolate the role of information in voting: one leveraging differences across tiers of government and another across the coverage areas of radio broadcasts. Beginning with the former, since voters have better information about local as compared to national politicians, the signal of relative candidate quality is likely less noisy with respect to local candidates, leading voters to place greater weight on expected candidate quality in local elections. To test the hypothesis that information advantages thereby make individuals more willing to cross partisan lines in local races, this section estimates:

$$CPL_{vi} = \gamma_0 + \gamma_1 L_v + \mathbf{f}_i + \varepsilon_{vi} \tag{15}$$

where the unit of observation is the vote, indexed by v, and there are two votes cast—one for local and another for national candidates—by each individual i. The outcome CPL_{vi} indicates a vote that crosses party lines, or a vote for a party other than the one historically associated with the voter's ethnic group as listed in Column 3 of Table 1 (I drop all respondents from unaffiliated groups). As an example, the outcome would equal one for a voter from the Temne ethnic group traditionally associated with the APC casting her vote for the SLPP candidate. L_v is an indicator variable signaling that the vote was for a local office, $\mathbf{f}_i$ is a set of individual voter fixed effects, and ε_{vi} is an idiosyncratic error term. The voter fixed effects mean that the analysis compares how the same person votes at the two distinct levels of election, thereby controlling for all other observable and unobservable individual determinants of party choice. The coefficient of interest is γ_1, which the theory predicts will be positive, indicating greater willingness to cross party lines for local candidates. Data for this specification comes from the 2008 DSS exit polls.

In Panel A of Table 3, Column 1 shows that voters are 10.8 percentage points (s.e. 2.9) more likely to vote for a party not traditionally affiliated with their ethnic group in local as opposed to national elections, a difference that is significant at 99 percent confidence. Combined with the constant term, this suggests that while 85 percent of voters supported their ethnic-party in national races, only 74 percent did so in local. Column 2 tests for an asymmetric response for voters in the groups associated with the SLPP/PMDC compared to those in groups associated with the APC. The coefficient on the interaction between membership in SLPP-affiliated groups is positive but not statistically significant (7.4, s.e.

5.6). These estimates reflect a broad interpretation of voting against traditional loyalties that includes votes for minor parties and Independent candidates.[21] As a robustness check, Columns 3 and 4 narrow the interpretation of crossing party lines to only votes for the major rival and thus exclude voters who chose a minor party or Independent candidate in either election. This restriction reduces the magnitude of the crossing party lines effect to 5.0 percentage points (s.e. 1.6) as expected, but the coefficient remains highly significant. While noisier than those of Column 2, estimates in Column 4 also suggest no differential effect for SLPP-affiliated groups.

[Insert Table 3 Here]

Columns 5 through 7 evaluate alternative explanations for greater voting across party lines in local elections. The first is that voters may be more willing to cross over to re-elect incumbents, so if there are more incumbents at the local level, this could explain the results above. Note that the proportion of races with an incumbent seeking re-election is roughly comparable across level of election: 32% for local and 29% for national. Moreover, Column 5 excludes jurisdictions where an incumbent ran for re-election at either level and finds that voters remain significantly more likely to cross party lines in local races by 9.8 percentage points (s.e. 3.7). The finding that local crossing remains significant in this sample further suggests that any potential asymmetry across level of government in citizen ability to infer politician competence from observation of public goods[22] cannot fully explain these results, as existing public goods provide no information on the competence of these new entrant candidates. Column 6 again finds no significant difference across the two sets of groups.

Column 7 tests a second alternative proposed by Ichino and Nathan (2013) in the context of Ghana. They argue that when politicians provide locally nonexcludable goods and locate them geographically to favor their ethnic loyalists, voters are "more likely to support a party associated with another group, when the local ethnic geography favors the other group." Consistent with this rationale, the cross-sectional correlation between voting for rival party candidates and the local population share of rival groups is also positive in Sierra Leone, for both local and national races (0.12 and 0.19 respectively). Yet for this mechanism to explain the differential willingness to cross ethnic lines in local elections, voters would need to view the provision of public goods as more important for local as compared to national politicians and to thus respond more strongly to the ethnic advantage of rival parties in local races. Contrary to this view, the coefficient on the interaction between the local population share

[21] These findings hold despite the fact that there are more minor party and Independent candidates to choose from in national elections.

[22] Due, for example, to differential visibility (Mani and Mukand 2007) or project complexity (Keefer and Khemani 2011).

of groups associated with the rival party (i.e. the share of the three groups associated with the SLPP if the voter is Temne, or the six associated with the APC if the voter is Mende) is negative and statistically insignificant. Reassuringly, the coefficient on local election remains positive and significant (6.7, s.e. 2.1) even after controlling for the rival population share.

Returning to the main specifications, if better information encourages voters to place greater weight on individual candidate characteristics, they should also be more likely to split their ticket across candidates from different parties when voting for multiple offices simultaneously. Panel B of Table 3 explores this possibility of choosing different parties when voting for Local Councillor and Council Chairman in local elections, and for Parliamentarian and President in national elections. Column 1 shows that voters are 13.1 percentage points (s.e. 3.1) more likely to split their ticket across parties in local as compared to national races, significant at 99 percent confidence. Implementing the same series of specifications as above, Columns 2 and 4 reveal an insignificant difference in the effect for the two sets of ethnic groups: a coefficient of 3.3 (s.e. 5.6) for the SLPP-affiliated groups when minor parties are included and -0.5 (s.e. 3.7) when only major parties are considered. Pooling all ethnic groups, Column 3 shows that excluding voters who selected a minor party or Independent in any of the four races considered reduces the magnitude (to 8.5, s.e. 1.9) but not the significance of the information effect on ticket splitting.

3.4 Information and Voter Choice - Radio Coverage

For the second empirical test of Proposition 2, recall from Section 1 that radio is the second (after friends and relatives) most important source of information about politics in Sierra Leone, and that the coverage of community-produced radio overlaps with and extends beyond the reach of nationally syndicated stations. Under the minimally restrictive assumption that community radio shows devote greater airtime to local politicians than nationally syndicated programs, the differential knowledge premium regarding local versus national candidates held by radio owners should be larger in areas with only community coverage than in areas under dual coverage. This intuition suggests a triple differencing approach to identify the role of information in voting: compare differences in local versus national political knowledge (and voting behaviors), between those who own and do not own radios, across areas with only community radio versus dual coverage.[23] Table 4 presents summary statistics for each of the

[23] More formally, suppose that community stations devote π_c proportion of programming time to discussing local politicians (and $1 - \pi_c$ to national); while national programs devote $\pi_n < \pi_c$ to local politicians. Normalizing the amount of time citizens listen to the radio to 1, suppose that citizens in dual coverage areas on average allocate ρ of their listening time to community programming and $(1-\rho)$ to national. Compared to their neighbors without radios, radio owners in areas covered only by community programming have access to extra information about local politicians via radio proportional to π_c, and under dual coverage proportional

eight corresponding cells of voters, and transparently builds up the single, double and triple differences of interest, estimated without any controls. Table 5 then estimates the regression counterpart under a rich set of controls and individual fixed effects.

The regression framework for outcome Y (i.e. political knowledge) is:

$$Y_{kiv} = \beta_0 + \beta_1 L_k + \beta_2 C_v + \beta_3 R_i + \beta_4 L_k \times C_v + \beta_5 L_k \times R_i + \beta_6 C_v \times R_i + \beta_7 L_k \times C_v \times R_i + \varepsilon_{kiv} \quad (16)$$

where Y_{kiv} concerns politician k and is measured for individual i living in village v; L_k is an indicator variable equal to one if the outcome concerns a local politician and zero if national; C_v is an indicator equal to one if the village receives only community radio coverage and zero if dual coverage (villages with neither are excluded); R_i is an indicator equal to one if the household owns a radio and zero if not; and ε_{kiv} is the usual error term. To address the concern that respondent characteristics that correlate with radio ownership and predict political knowledge may differ systematically across coverage areas, specifications in Columns 3 through 6 of Table 5 further include a vector of such characteristics (gender, age, years of schooling, membership in a ruling house[24] and a principal components score of household assets) and their corresponding interaction terms in exactly the same manner as done for radio ownership. All specifications in Table 5 include individual fixed effects, which absorb the radio and demographic terms, as well as their interaction with community coverage (the corresponding double interaction terms with local politician are suppressed to conserve space). The coefficient of interest on the triple difference, β_7, is expected to be positive. My empirical strategy is to first establish this positive triple difference for an outcome concerning knowledge of specific politicians (the ability to correctly name them) and then repeat the test for voting across party lines. Since the exit polls did not include radio ownership or coverage, data for these specifications comes from the 2008 NPS survey (implemented several months after the 2008 election and accompanying exit polls). As such, knowledge questions refer to recently elected politicians and voting questions regard choices made in the immediately preceding election, when these politicians were candidates.

Note that the NPS survey covers a different subsample of races and may also suffer greater

to $\rho\pi_c + (1-\rho)\pi_n$. To account for selection into radio ownership, consider the difference in the amount of radio information about local versus national politicians received by the same individual. All else equal, comparing local versus national political knowledge, across radio and non-radio owners, inside areas with only community coverage, generates a difference-in-difference in knowledge proportional to $2\pi_c - 1$. This same difference-in-difference among residents of dual coverage areas is proportional to $\rho(2\pi_c - 1) + (1-\rho)(2\pi_n - 1)$. The triple difference of interest across these two coverage areas is $2(1-\rho)(\pi_c - \pi_n)$ which is nonnegative given the assumption $\pi_n < \pi_c$.

[24] Ruling house membership denotes eligibility to stand for election in the traditional chieftaincy system and is an indicator of local political connectedness.

reporting error due to its later field date. To thus first establish comparability across the two datasets, we can replicate the base crossing party lines specification found in Column 1 of Table 3 Panel A using the NPS data. The estimated frequencies of crossing party lines in both national (10.2 percent) and local races (13.8 percent) are smaller than their counterparts in Table 3, which would be consistent with greater measurement error in the NPS survey. Reassuringly, however, the coefficient on local election remains positive and highly significant (3.61, s.e. 1.16).

Before estimating (16), consider the summary statistics in Table 4. Consistent with the basic information premise, radio owners are generally better able to correctly name politicians than their neighbors without radios; and all respondents are better able to name local as compared to national politicians. Specifically, the first row of Panel A shows that radio owners are better able to name national politicians than their neighbors under dual coverage areas, by 4.4 percentage points. Row 3 suggests that they are equally able to name local politicians. Counterparts in Panel B suggest that radio owners are somewhat better able to name national politicians than their neighbors under only community coverage (by 4.5 percentage points), and markedly better able to name local politicians (by 17.0). These patterns are consistent with nationally syndicated shows devoting little, and community shows devoting substantial, coverage to local politicians; and with radio owners under dual coverage listening predominantly to national shows. The key trend to notice is that voting across party lines tracks the differences in knowledge premiums: the differential willingness of radio owners to cross party lines is more pronounced at the national level under dual coverage (by 3.4 compared to 0.6 percentage points); and more pronounced at the local level under community only coverage (2.0 compared to -3.0 percentage points). While the last negative estimate is not strictly what we would expect, the difference is not statistically distinguishable from zero. Column 4 presents the theoretically predicted sign for each single, double and triple difference. Twelve of 14 empirical estimates are in the predicted direction, and the triple differences of interest in the final rows are both significant at 95% confidence.[25]

[Insert Table 4 Here]

In Table 5, Column 1 estimates the triple difference for correctly naming individual local versus national politicians using individual fixed effects. As predicted, the triple difference

[25] Comparing these 2008 estimates to those from 2007 discussed in Section I reveals an increasing trend: for the full national 2008 sample (including areas with no radio coverage that are excluded from Table 4), 58% could name local and 54% could name national incumbent politicians, compared to 37% and 17% in 2007. This increase is likely due to the fact that the 2007 survey referred to incumbents elected 3 to 4 years prior, while the 2008 survey closely followed the elections. Reassuringly, while knowledge rose and the gap across levels narrowed substantially over time, the local knowledge premium remained highly statistically significant (coefficient 3.61, s.e. 0.68).

coefficient is positive (17.3, s.e. 6.3) and significant at 99% confidence, indicating that the local versus national knowledge premium that radio owners gain under only community coverage is larger than the same premium under dual coverage. Having established a triple difference regarding knowledge, Column 2 repeats the specification for the outcome of crossing party lines. The positive and significant triple difference coefficient suggests that the knowledge premium translates into a greater willingness to vote across party lines for local candidates, equal to 7.8 percentage points (s.e. 3.6). Columns 3 and 4 implement robustness tests that include demographic correlates of radio ownership and their interaction terms. To maintain a constant sample across specifications, missing values are imputed at enumeration area-gender means for the 5.6% of respondents missing a demographic term, and an imputation dummy with corresponding interactions is also included.[26] The point estimates on the triple difference for naming politicians and crossing party lines change only marginally, although the latter diminishes in significance to 91% confidence.

Columns 5 and 6 present placebo tests on outcomes concerning general perceptions of local versus national government that are less likely to respond to marginal changes in the types of radio broadcast received. Column 5 concerns opinions of whether local (central) government "listens to what people in this town/neighborhood say or what they need," while Column 6 concerns the proportion of voters who said that "promises of development" (akin to transfers in the model) was the most important determinant of their vote at the local (national) level. Reassuringly, the coefficient on the triple difference in both columns is small and statistically insignificant. The fact that voting across party lines tracks changes in knowledge about specific politicians over radio coverage areas, while general perceptions of government do not, lends confidence to the idea that it is information about individual candidate characteristics that drives the differential voting behavior. Note further in the first row of Column 6 that voters do not see promises of development as being more or less important at the local versus national level. This null result is not consistent with alternative explanations that involve voters being more willing to cross party lines in local races because they perceive the role of local government as being more focused on delivering public goods.

[Insert Table 5 Here]

What types of candidate characteristics are voters responding to when they have better information and choose to cross party lines? While the model places no restrictions on the candidate attributes that voters value, it is natural to ask empirically whether these characteristics correlate with performance in office. To do so, Appendix Table 3 exploits

[26] Excluding all imputed observations does not substantively affect the results: the triple difference in Column 3 for naming becomes 13.02 (s.e. 7.01) and in Column 4 for crossing becomes 8.67 (4.96), N=3,766.

cross sectional variation in local incumbent peer rankings, and links these measures of on-the-job effectiveness to subsequent re-election success. Specifically, all sitting Local Councillors anonymously ranked three randomly selected peers on measures of effectiveness in office (i.e. committee membership, project implementation and fundraising) before the 2008 elections. These measures were standardized into a seven point scale with respect to three vignettes to account for respondent-specific biases in what constitutes effectiveness (following Banerjee and Pande 2008). The positive and significant coefficients in Appendix Table 3 suggest that incumbents with higher peer assessments were more likely to win re-election. Regarding magnitude, a one point increase in the average peer rank is associated with a 10.82 percentage point (s.e. 3.50) increase in the probability of re-election, suggesting that citizens respond to productive attributes of candidates when making voting decisions. Similar results hold for voting across party lines, where a one point increase in peer rank is associated with a 6.51 percentage point (s.e. 3.05) increase in the proportion of respondents from a rival group, i.e. an ethnic group historically associated with the party challenging the incumbent, who voted to re-elect the incumbent. Appendix Table 4 validates these peer effectiveness ranks by showing that they robustly negatively correlate with peer corruption ranks and positively correlate with other measures of competence regarding the evaluated Councillor.

3.5 Information and the Allocation of Political Transfers - Decentralization

The first test of Proposition 3—that the effect of information passes through voting behavior to ultimately affect the redistributive strategies of parties—requires estimation of the following equation on the pooled sample of campaign spending by both local and national candidates:

$$Y_{ij} = \beta_0 + \beta_1|\alpha_j| + \beta_2 L_i \times |\alpha_j| + \mathbf{X}_j'\Gamma + \mathbf{d}_j + L_i \times \mathbf{d}_j + \varepsilon_{ij} \tag{17}$$

where Y_{ij} is campaign spending by candidate i in jurisdiction j, $|\alpha_j|$ is the absolute value of the expected bias toward Party A of the jurisdiction, L_i is an indicator variable equal to one if the candidate is competing for local office, $\mathbf{X}_j$ is a vector of jurisdictional controls, $\mathbf{d}_j$ is a set of district fixed effects, $L_i \times \mathbf{d}_j$ is a set of local government fixed effects that define the 14 political markets for local candidates, and ε_{ij} is an idiosyncratic error. As before, $\beta_1 < 0$ indicates that campaign spending is decreasing in the absolute value of expected party bias. The coefficient of interest is β_2, which the model predicts will be positive, indicating that party spending in local elections responds less strongly to ethnic-party bias than in national.

Regarding the two sets of fixed effects, the first ($\mathbf{d}_j$) captures district-level factors that

affect local and national candidates similarly, like higher transport costs in districts with rugged terrain. Their inclusion further eliminates any inter-district targeting by national politicians, thereby limiting analysis to the remaining variation within districts. The second set $(L_i \times \mathbf{d}_j)$ delineates the distinct local government markets and district-level budgets that apply only to local candidates, where the reference group is the national budget that applies to all national candidates. This distinction is important given that fiscal federalism uses transfers from central to local governments in part to increase the equity of resource allocation across districts (Oates 1999), which would automatically lead to a smoother allocation of spending by local as compared to national government. These local government fixed effects thus allow the intercept for each district-level budget line to shift independently for local candidates, as opposed to fitting a single (falsely flattened) line across all districts. They further absorb any general differences between local and national candidates. The evidence for Proposition 3 thus draws on a comparison of the average slopes of the local versus national intra-district campaign spending lines, and evaluates whether national spending responds more strongly to ethnic diversity net of any differences in targeting across districts.

Consider first Figure 2, which graphs the relationship between campaign spending and partisan bias for national and local candidates separately. The solid dots represent estimated coefficients on expected partisan bias from a regression of cash distributed by national candidates on bins of bias, exactly as seen earlier in Figure 1. The hollow dots correspond to coefficients from the same specification for local candidates. Comparing the two fitted linear projections it is immediately clear that spending by national candidates is more strongly downward sloping in bias than that of local candidates, consistent with Proposition 3. Appendix Figure 6 replicates this graph for each of the other six campaign items.

[Insert Figure 2 Here]

Panels A and B of Table 6 present regression estimates using the preferred bias measure and robustness check population share measure, respectively. Supporting earlier findings, the sign of the coefficient on the expected party bias term is negative for all seven outcome variables and statistically significant for at least six in both panels. This suggests that parties allocate greater campaign resources to low-bias swing jurisdictions, or those that do not have strong ethnic-party allegiances. As predicted by Proposition 3, the coefficient on the interaction term between local election and expected bias is positive for all outcomes and statistically significant for three in both panels, indicating that campaign spending responds less strongly to differences in expected party bias for local elections. The mean effects indices in Column 8 are consistent with the individual outcome results: in both panels the sign on the index for expected bias is negative and highly significant; and the local interaction term

is positive and at least marginally significant. The negative coefficient on the expected bias index in Panel A implies that moving from a maximal to minimally competitive area results in a 0.92 standard deviation (s.e. 0.22) reduction in average campaign spending by national candidates. At the same time, the positive index coefficient on the interaction term (0.44, s.e. 0.22) implies that this slope is half as steep in local elections.

[Insert Table 6 Here]

One may be concerned that local and national politicians are responding to omitted attributes of particular constituencies and that these features are in fact driving the results. In response, the next specification includes fixed effects for all 112 Parliamentary constituencies nationwide ($\mathbf{c}_j$) to examine how the responsiveness of campaign spending to bias varies across the level of election for the same constituency:

$$Y_{ij} = \beta_0 + \beta_2 L_i \times |\alpha_j| + L_i \times \mathbf{d}_j + \mathbf{c}_j + \varepsilon_{ij} \tag{18}$$

The new $\mathbf{c}_j$ vector controls for all other observed and unobservable characteristics that make particular constituencies more attractive for both political parties and migrants from different ethnic groups. It absorbs the expected bias term, the vector of constituency-level controls and the district fixed effects in (17); however, the local government fixed effects still vary across local and national candidates within a given constituency, so remain in the regression. The coefficient of interest is again on the interaction between local election and the expected party bias of the constituency. While taxing on the data, this is the more rigorous test of whether the ethnic composition matters less in local than national elections.

Panels C and D of Table 6 present results of the constituency fixed effects specification using the preferred bias measure and robustness check measure, respectively. The coefficient on the interaction between local election and expected party bias is positive in sign for all seven outcome equations and statistically significant for two using either measure of bias. It is marginally significant for one additional outcome when using the preferred bias measure. Reassuringly, the mean effects index is positive and significant at 99% confidence in both panels. These results support the pass through effect of information that equalizes the distribution of campaign spending by local as compared to national candidates, where the former responds significantly less strongly to ethnic composition.

3.6 Information and the Allocation of Political Transfers - Radio Coverage

We can extend the triple differencing logic seen for voter knowledge in Section 3.4 to provide a complementary test of Proposition 3 focused on information conveyed specifically via radio. At the village-level, coverage by the two types of radio broadcasts combined with the share of households owning a radio jointly determine how well informed a community is likely to be about candidates at different levels of government. The expected partisan bias of a jurisdiction should be a weaker driver of campaign patronage in better informed areas. Compared across level of election, the attenuating effect of information should be stronger for the spending of local as compared to national candidates under reception of only community-produced radio programs, where voter knowledge gains with respect to local candidates were particularly pronounced in Table 4. As the relevance of this coverage distinction is increasing in the share of voters with access to a radio, we should only expect candidates to adjust their spending in response to this divide where a substantial fraction of households own radios.

To test this idea empirically, Table 7 compares the slope of campaign spending with respect to partisan bias for national versus local candidates in each of four areas: dual (community-only) radio coverage, with high (low) radio ownership. I calculate the slope in each cell by combining coefficient estimates from a regression of the campaign spending index on partisan bias ($|\alpha_j|$) and indicator variables for community-only radio coverage (C_v from 16), local election (L_i from 17), and above median share of households owning a radio (measured at the chiefdom level in the 2004 census). The specification further includes the jurisdictional controls and fixed effects ($\mathbf{X}_j$, $\mathbf{d}_j$ and $L_i \times \mathbf{d}_j$) exactly as defined for (17). Theory predicts a positive triple difference coefficient, implying that the slope of local candidate spending is relatively more equitable compared to that of national candidates in community-only (versus dual) coverage areas, where radio ownership is high (versus low).

Consistent with earlier results, the negative slope estimates in rows 1 and 5 of Table 7 support Proposition 1, where the campaign spending by national candidates is decreasing in the expected bias of the jurisdiction in all four areas. The positive differences in slope between local and national candidates in rows 3 and 7 support Proposition 3, where the general information advantage citizens gain under decentralization flattens the slope of spending with respect to bias for local candidates in all areas. Comparing community-only to dual coverage areas, the double difference estimates in Panel C suggest that concentrated exposure to local broadcasting has an attenuating effect on the spending of local relative to national candidates, but only where radio ownership is prevalent. Specifically, the null estimate in Column 1 suggests that local candidates do not differentially adjust their allocation strategy

over coverage areas where few households (on average 3 in 10) own radios. By contrast, the positive estimate in Column 2 suggests that they switch to a relatively more equitable allocation compared to their national counterparts under community-only coverage areas where radio ownership is widespread (on average 7 in 10 households). The key estimate of interest in the final row suggests that this attenuating response of local candidates to information delivered via radio broadcasts tracked over coverage areas and radio ownership shares is positive and highly significant (1.16, s.e. 0.38).[27]

[Insert Table 7 Here]

4 Robustness Checks and Alternative Explanations

Beyond differences in information, what other factors might explain the observed greater willingness of voters to cross party lines and the more equitable allocation of campaign resources in local versus national elections? One concern is that voters may have systematically misrepresented their local voting choices in the exit polls. As a robustness check, we can compare the exit poll data to the official voting returns that were released by the National Electoral Commission (NEC) a few weeks later. Appendix Table 5 presents results from regressing the actual jurisdiction-level vote share for the APC party in the NEC data on the APC vote share calculated from the exit polls, pooling Local Council and MP races together. The coefficient on the exit poll vote share is 0.73 (s.e. 0.05) and highly significant, indicating that the exit polls strongly predict the official returns. Moreover, the coefficient on the interaction term between exit poll vote share and local race is small in magnitude and not statistically distinguishable from zero, providing no evidence that reporting error in the exit polls varies systematically by level of election. As a further "reality check" on my main argument, comparing official voting returns to demographic data suggests that local races are less of an "ethnic census" than national races. Considering the universe of all MP and Council races, the correlation between the vote share for the APC party in official NEC returns and the corresponding jurisdiction-level population share of the six APC-affiliated ethnic groups in the census data is 0.96 for national races, compared to 0.75 for local (for the SLPP/PMDC and three affiliated groups, the correlations are 0.92 in national and 0.86 in local).

Since the local elections studied occurred several months after the national elections, voters may have strategically chosen to align local representatives with the party that won

[27] Note that these results do not depend on splitting the sample at median ownership shares: the triple difference in slope estimate using a continuous measure of radio ownership is 2.36 (s.e. 0.79).

control of the central government, thereby relaxing partisan loyalties in the subsequent local races. If this were the case, there should be systematically more local crossing of party lines by the ethnic groups associated with the party that lost both its majority in Parliament and the Presidency in 2007, the SLPP. Columns 2, 4 and 6 of Table 3 test whether members of the three SLPP-affiliated groups exhibit more local crossing as compared to those of the six APC-affiliated groups. While 4 of the 5 coefficients on the interaction between SLPP-affiliation and local election are positive, none of them are statistically significant at conventional levels. Moreover, the coefficient on local crossing for APC-affiliated groups, who are effectively voting out of alignment, remains positive and significant for 4 of 5 specifications. Thus strategic alignment between local and national representatives does not appear to fully explain the reduced salience of party affiliation in local voting choices.

Voter turnout is lower in local than in national elections (as is true for most countries), which could create selection bias in the composition of voters or trigger a change in political party strategy. Individual fixed effects address selection into voting by comparing how the same voters behave in local versus national races. For parties, low turnout might trigger a "get out the base" strategy for local races, pushing their campaign resources into more homogenous areas. Incorporating endogenous turnout into the model is beyond the scope of this paper. As it stands, so long as differential abstention does not change the partisan leaning of the jurisdiction overall, it would not alter the identity of the most competitive jurisdictions nor the predicted redistribution strategies. It could be a problem, however, if abstention increased disproportionately among members of (local) majority ethnic groups living in stronghold areas, as it would make these jurisdictions more competitive in local elections. Appendix Figure 7 presents nonparametric graphs of the difference in national versus local turnout against the constituency population share of ethnic groups loyal to each party respectively. Both graphs appear fairly flat, save the upturn in abstention in APC-stronghold areas of around 5 percentage points. This magnitude is not too worrisome, as to bring an 80/20 APC stronghold into maximal competition would require 75% of the 80% APC supporters to abstain in local elections. While possible, it seems unlikely that differential partisan turnout was large enough to fully explain the results above.

By reducing the distance between citizen and state, decentralization may make the transfer promises of local politicians more credible or easier to hold to account and thus enable them to more effectively "buy" votes across ethnic lines. This would suggest that local candidates could offer a more attractive transfer package that persuades even quite partisan rivals to forego their ideological loyalties for greater consumption. While this is not inconsistent with the information story, the theoretical model predicts that both parties promise the same amount to each jurisdiction, so a credibility difference by level would not lead to a

corresponding difference in the probability of crossing party lines. Along similar lines, voters may value attributes like candidate integrity more strongly where their ability to monitor politician actions is weaker. In this case, willingness to cross party lines should be higher in national elections, which is the opposite of the findings above.

Finally, suppose that ideology matters more or the party system is stronger in national politics. If so, voters could rely more heavily on parties to set the agenda they prefer and constrain the behavior of their elected national as compared to local representatives. In local races, voters would instead rely on the preferences or character of the individuals competing for office to ensure that they will enact their favored policies. One driver of differential party strength could be the amount of financing available at each tier of government. Theoretically modeling and empirically validating this potential divergence is beyond the scope of this paper. While thus more difficult to rule out conclusively, differential party strength would not explain why changes in voting behavior track differences in knowledge about individual politicians—but not differences in general perceptions of local versus national government—across radio coverage zones in Section 3.4. It is further important to note that there are not clear ideological differences between the two major parties in Sierra Leone: one is not more liberal and one more conservative; and they do not fall on opposite sides of key policy debates like the optimal size of government or social issues as they do in the U.S. While the district-level party committees may well be weaker than their national counterparts, it does not appear that their ideological orientation plays a significant role in setting policy.

5 Conclusion

This paper provides evidence that politicians distribute more campaign goods and invest greater public resources in areas where electoral competition between parties is more intense. It further demonstrates how providing voters with better information about individual candidates relaxes their partisan loyalties. Two distinct empirical strategies identify variation in information, one that works across levels of government and another across radio coverage areas, and produce similar results. When citizens become willing to cast votes across party lines, politicians respond by attenuating their redistributive strategies in favor of a more equitable allocation of resources across jurisdictions. These three findings carry policy implications for ethnicity-based politics and the relative merits of decentralized governance.

Adapting the swing voter hypothesis to ethnic politics implies that more diverse jurisdictions, where neither party holds a population advantage, enjoy greater political patronage than their more homogenous neighbors. The idea that diversity creates political competition and thus attracts resources adds a new perspective to the literature linking ethno-linguistic

fractionalization to the provision of local public goods. Yet this kind of identity politics can also be destructive, violent and inefficient. As a counterpoint, this analysis suggests that giving voters better information about candidates shifts the focus from party affiliation to individual competencies. A speculative implication of this result is that the expansion of mass media and communications technology has the potential, over time, to reduce the salience of ethnicity in African politics. Greater voter responsiveness to individual competence could further strengthen incentives for parties to invest in recruiting higher quality candidates.

Finally, as decentralization brings government closer to the people, it enhances the amount of information available to citizens in electing their local as compared to national politicians. This information advantage implies that local politics and patronage may be less dominated by ethnicity- or partisan-based swing voter redistribution. To the extent that the candidate attributes voters find attractive are productive, which the analysis linking incumbent performance to re-election success suggests may be the case, voting choices and political favoritism based on these individual factors is likely welfare enhancing compared to that based on partisan loyalty or ethnic identity. Yet even if they are not, the allocation of resources by local government remains more equitable than that by their national counterparts. Bringing these ideas together, this paper adds to the growing evidence that information plays a powerful role in politics, influencing both the voting choices of citizens and the investment strategies of politicians.

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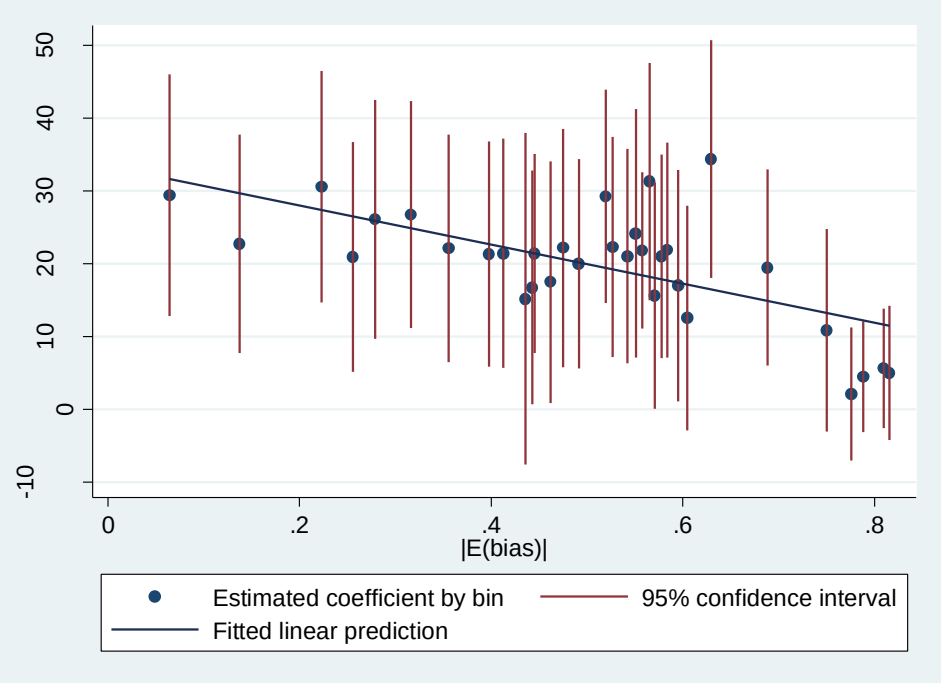

FIGURE 1. NATIONAL CAMPAIGN SPENDING BY BINS OF ABSOLUTE PARTISAN BIAS

Notes: The downward sloping fitted line suggests that national candidates distribute less cash when campaigning in jurisdictions where the ethnic composition favors one party over the other, consistent with Proposition 1. In this analysis: i) each dot represents the estimated coefficient on absolute partisan bias from a regression of money distributed by national candidates on 34 equally sized bins of bias, controlling for district fixed effects, population density and population per seat, with robust standard errors clustered by constituency; ii) average bias in the final reference bin is 0.83; and iii) the underlying unit of observation is the candidate-community pair, N=2,123.

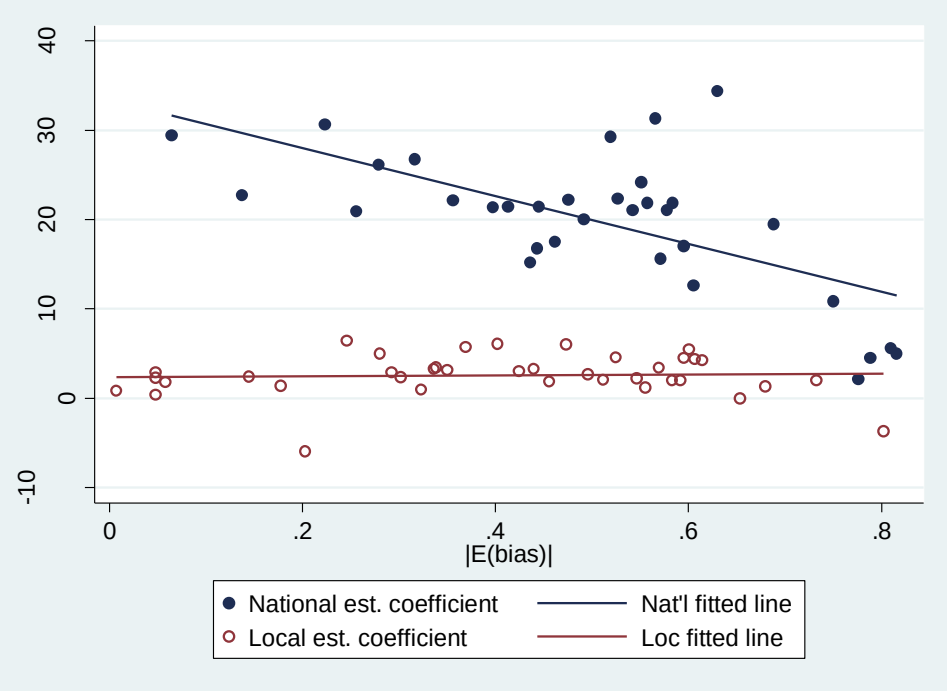

FIGURE 2. CAMPAIGN SPENDING BY BINS OF ABSOLUTE PARTISAN BIAS AND LEVEL OF ELECTION

Notes: Compared to national, the attenuated slope of the fitted line for local candidate spending suggests that campaign expenditure responds less strongly to the ethnic composition of jurisdictions in local elections where voters have better information about candidates, consistent with Proposition 3. In this analysis: i) each dot represents the estimated coefficient on absolute partisan bias from a regression of money distributed by candidates on 34 (39) equally sized bins of bias, controlling for district fixed effects, population density and population per seat, with robust standard errors clustered by constituency (ward), conducted separately for national (local) candidates; ii) average bias in the final reference bin is 0.83 for national and 0.82 local; and iii) the underlying unit of observation is the candidate-community pair, N=2,123 national, N=2,191 local.

TABLE 1—SUMMARY STATISTICS

	Population share (percent)	Raw expected bias	Party affiliation
	(1)	(2)	(3)
Panel A. Partisan bias by ethnic group			
Mende	32.2	-0.63	SLPP/PMDC (bias = -1)
Kissi	2.5	-0.50	SLPP/PMDC (bias = -1)
Sherbro	2.3	-0.25	SLPP/PMDC (bias = -1)
Mandingo	2.4	0.05	Unaffiliated (bias = 0)
Kono	4.4	0.06	Unaffiliated (bias = 0)
Fullah	3.7	0.17	Unaffiliated (bias = 0)
Susu	2.9	0.19	Unaffiliated (bias = 0)
Krio	1.4	0.43	APC (bias = +1)
Loko	2.6	0.68	APC (bias = +1)
Koranko	4.1	0.68	APC (bias = +1)
Yalunka	0.7	0.81	APC (bias = +1)
Temne	31.8	0.83	APC (bias = +1)
Limba	8.3	0.89	APC (bias = +1)

	Mean local (standard deviation)	Mean national (standard deviation)	Observations
Panel B: Community-level campaign spending by local and national candidates			
Money distributed (in US$)	$2.43	$4.91	4,314
	(10.84)	(21.80)	
Number of candidate visits	3.24	2.75	3,738
	(5.29)	(5.17)	
Distribution of t-shirts	0.45	0.44	4,751
	(0.50)	(0.50)	
Distribution of posters	0.84	0.75	4,757
	(0.36)	(0.43)	
Distribution of handbills	0.42	0.41	4,748
	(0.49)	(0.49)	
Distribution of food	0.36	0.30	4,747
	(0.48)	(0.46)	
Hosting a political rally	0.52	0.41	4,721
	(0.50)	(0.49)	

Notes: Panel A orders ethnic groups by the strength of their historic ties to political parties, where negative estimates in Column 2 indicate loyalty to the SLPP and positive estimates signal allegiance to the APC. Panel B compares average campaign spending in communities by candidates for local office (Column 1) to those for national office (column 2). In Panel A: i) Column 1 lists the national population share of the ethnic group from the 2004 Census; ii) Column 2 estimates the raw expected bias as the (Proportion of the ethnic group who reported voting for the APC) - (Proportion of the ethnic group who reported voting for the SLPP/PMDC) in the 2007 Presidential Elections, computed as an average value of four self-reports in the DSS and NPS datasets; and iii) as a robustness measure Column 3 maps each ethnic group directly to a party based on a historical accounts (Kandeh 1992) and author interviews with government officials. In Panel B: i) the unit of observation is the candidate-community pair in the nationally representative 2008 NPS community module; ii) the sample excludes minor party and Independent candidates; and iii) the last five measures are binary variables equaling 1 if anyone in the community received the item from the candidate or their campaign.

TABLE 2—SWING VOTER CAMPAIGN SPENDING BY NATIONAL AND LOCAL CANDIDATES

	Money (1)	Visits (2)	T-shirts (3)	Posters (4)	Handbills (5)	Food (6)	Rally (7)	Index (8)
Panel A. Spending by national candidates, preferred bias measure								
$\lvert E(bias)_c \rvert$	-18.299***	-2.520*	-0.711***	-0.422***	-0.245	-0.556***	-0.509**	-0.890***
Standard error, OLS	(6.465)	(1.496)	(0.175)	(0.104)	(0.151)	(0.194)	(0.199)	(0.212)
P-value, OLS	0.005	0.092	0.000	0.000	0.104	0.004	0.010	0.000
P-value, bootstrap	0.001	0.015	0.000	0.000	0.064	0.004	0.004	0.000
Panel B. Spending by national candidates, robustness check on bias measure								
$\lvert (Shr\ A - Shr\ B)_c \rvert$	-14.708***	-1.964*	-0.546***	-0.272***	-0.166	-0.413***	-0.421***	-0.673***
Standard error, OLS	(4.878)	(1.083)	(0.143)	(0.087)	(0.120)	(0.146)	(0.157)	(0.168)
P-value, OLS	0.003	0.070	0.000	0.002	0.167	0.005	0.007	0.000
Panel C. Spending by local candidates, preferred bias measure								
$\lvert E(bias)_w \rvert$	1.127	-0.713	-0.491***	-0.155**	-0.127	-0.283**	-0.471***	-0.472***
Standard error, OLS	(2.125)	(1.111)	(0.131)	(0.071)	(0.118)	(0.115)	(0.137)	(0.134)
P-value, OLS	0.596	0.521	0.000	0.028	0.282	0.014	0.001	0.000
P-value, bootstrap	0.471	0.549	0.000	0.007	0.222	0.001	0.000	0.000
Panel D. Spending by local candidates, robustness check on bias measure								
$\lvert (Shr\ A - Shr\ B)_w \rvert$	0.670	-0.970	-0.392***	-0.100**	-0.103	-0.215***	-0.381***	-0.374***
Standard error, OLS	(1.498)	(0.847)	(0.092)	(0.051)	(0.077)	(0.081)	(0.095)	(0.094)
P-value, OLS	0.654	0.252	0.000	0.050	0.179	0.008	0.000	0.000
Observations, Panels A B	2,123	1,765	2,275	2,277	2,270	2,271	2,265	2,295
Observations, Panels C D	2,191	1,973	2,476	2,480	2,478	2,476	2,456	2,489

Notes: Negative coefficient estimates on expected bias indicate that campaign spending is decreasing in the extent to which the ethnic composition of a jurisdiction favors one party over another. This is consistent with Proposition 1, where party spending favors more competitive (less ethnically homogenous) "swing" jurisdictions. In this analysis: i) the unit of observation is the community-candidate pair; ii) OLS robust standard errors clustered by jurisdiction; iii) bootstrap p-values adjust first for survey sampling error in the measure of partisan bias and second for the jurisdiction clusters of the campaign dataset using 10,000 replications; iv) all specifications include fixed effects for the 14 districts, jurisdictional population density and population per seat; v) bias and jurisdictional controls are measured for the geographic area defined by the MP constituency in panels A and B and the Local Council ward in panels C and D; vi) sample excludes candidates who withdrew from the race or ran uncontested; vii) Columns 1 to 7 refer to individual campaign outcomes distributed by major party candidates and Column 8 presents the corresponding mean effects index in standard deviation units; and viii) the money variable refers to cash passed out during community visits and is demarcated in US dollars.

*** Significant at the 1 percent level, corresponding to OLS p-value estimates.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 3—PROBABILITY OF CROSSING ETHNIC-PARTY LINES IN LOCAL VERSUS NATIONAL RACES

	Cross party lines (percent)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Are voters more likely to cross party lines in local elections?							
Local race	10.81***	7.21**	5.01***	2.52	9.80**	4.95**	6.68***
	(2.91)	(3.29)	(1.59)	(1.61)	(3.71)	(2.19)	(2.07)
SLPP-affiliated		7.42		5.14		9.85	
× local race		(5.59)		(3.45)		(6.66)	
Share rival groups							-0.13
× local race							(0.11)
Constant	14.70***	14.70***	13.54***	13.54***	16.83***	16.83***	13.54***
	(1.46)	(1.37)	(0.80)	(0.74)	(1.85)	(1.62)	(0.82)
Observations	1,184	1,184	1,078	1,078	796	796	1,078
Minor parties?	Yes	Yes	No	No	Yes	Yes	No
Incumbents?	Yes	Yes	Yes	Yes	No	No	Yes

	Split ticket (percent)			
Panel B: Are voters more likely to split their ticket in local elections?				
Local race	13.06***	11.33***	8.47***	8.71***
	(3.06)	(2.76)	(1.90)	(2.24)
SLPP-affiliated		3.31		-0.48
× local race		(5.58)		(3.73)
Share rival groups				
× local race				
Constant	6.72***	6.72***	5.44***	5.44***
	(1.53)	(1.50)	(0.95)	(0.95)
Observations	1,072	1,072	992	992
Minor parties?	Yes	Yes	No	No
Incumbents?	Yes	Yes	Yes	Yes

Notes: Positive coefficient estimates in the first row of each Panel indicate that voters are more likely to vote across historic ethnic-party lines in local as compared to national elections. This is consistent with Proposition 2, where the richer information environment of local elections facilitates greater crossing of party lines to support high quality rival party candidates. In this analysis: i) robust standard errors clustered by Local Council ward (the unit of sampling); ii) the unit of observation is the vote, where there is one local and one national observation for every individual; iii) all specifications include individual voter fixed effects; iv) the sample of voters is restricted to those from ethnic groups affiliated with a party in Table 1 who reported their party choice in both the local and national elections (where "cross party lines" requires both of 2 votes and "split ticket" requires all of 4 votes); v) the sample of wards excludes multi-seat LC wards, where voters can choose candidates from multiple parties, and wards where one of the two rival parties did not contest the race (i.e. those missing either an APC or SLPP/PMDC candidate); vi) Column 1 is the preferred specification, which pools voters historically affiliated with both parties together and includes votes for minor parties and Independent candidates; vii) Columns 2, 4 and 6 test for differential effects for the three ethnic groups affiliated with the SLPP/PMDC as compared to the 6 groups affiliated with the APC; viii) Columns 3, 4 and 7 limit analysis to individuals who voted for one of the three major parties for all races considered, thereby excluding anyone who voted for a minor party or Independent candidate in either of the 2 (4) races of interest for crossing party lines (splitting ticket); ix) Columns 5 and 6 are robustness checks on the potential role of incumbency that excludes all areas where an incumbent ran for re-election at either level of election; and x) Column 7 is a robustness check on the potential role of residing in jurisdictions with larger population shares of ethnic groups affiliated with the rival party.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 4—SUMMARY STATISTICS BY RADIO COVERAGE, RADIO OWNERSHIP AND LEVEL OF ELECTION

	Mean, no radio		Mean, owns radio	Difference Col (2)-(1)	Theoretical prediction
	(1)		(2)	(3)	(4)
Panel A: Dual (national and community) radio coverage areas					
Correctly name national politician	68.1	<	72.6	4.4	+
				(2.9)	
Vote across party lines for national race	9.1	<	12.4	3.4**	+
				(1.7)	
Correctly name local politician	73.4	>	73.0	-0.4	+
				(2.7)	
Vote across party lines for local race	14.0	<	14.7	0.6	+
				(2.2)	
Double difference (local – national), naming				-4.8*	(-)
				(2.7)	
Double difference (local – national), crossing				-2.8	(-)
				(1.7)	
Number of respondents in subsample	684		860		
Panel B: Only community radio coverage areas					
Correctly name national politician	61.4	<	65.8	4.5	+
				(4.8)	
Vote across party lines for national race	8.6	>	5.6	-3.0	+
				(2.4)	
Correctly name local politician	66.9	<	83.9	17.0***	+
				(4.3)	
Vote across party lines for local race	11.0	<	13.0	2.0	+
				(3.5)	
Double difference (local – national), naming				12.5**	+
				(5.8)	
Double difference (local – national), crossing				5.0	+
				(3.0)	
Number of respondents in subsample	290		161		
Panel C: Triple difference Panel B – Panel A					
Triple difference, naming politicians				17.3***	+
				(6.4)	
Triple difference, crossing party lines				7.8**	+
				(3.6)	

Notes: Positive triple difference estimates at the bottom of the table indicate that voters who own radios (versus their neighbors without radios) are more likely to correctly name politicians and vote across ethnic party lines in local (versus national) elections, in areas that receive only community radio signals (versus both community and national radio signals). This provides a complementary test of Proposition 2 using radio coverage as another source of variation in the amount of information available to voters. In this analysis: i) the sample of respondents is restricted to those from ethnic groups affiliated with a party in Table 1, who reported their vote choice and ability to name politicians at both the local and national level, and whose claim of voting was verified by their voter ID card with the hole punch made by polling center staff; ii) the sample excludes multi-seat LC wards, where voters can choose candidates from multiple parties, and wards where one of the two rival parties did not contest the race (i.e. those missing either an APC or SLPP/PMDC candidate); iii) estimates in column 3 are from regression analysis with robust standard errors clustered at the enumeration area level, the unit of sampling in the NPS survey; and iv) theoretical predictions in column 4 regarding the sign of coefficients in column 3 are based on the model in footnote 23 under stronger assumptions that national (community) stations devote *strictly* more coverage to MPs (LCs) (or $\pi_n<1/2$ and $\pi_c>1/2$) and that radio owners in dual coverage listen *more* to national than community stations ($\rho<1/2$).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 5—TRIPLE DIFFERENCING VOTER KNOWLEDGE BY RADIO COVERAGE, OWNERSHIP AND LEVEL OF ELECTION

	Name	Cross	Name	Cross	Listen	Develop-ment
	(1)	(2)	(3)	(4)	(5)	(6)
Local politician	5.263**	4.971***	7.712	3.532	9.004*	1.526
	(2.155)	(1.804)	(5.214)	(3.559)	(5.416)	(4.769)
Only community radio	0.254	-2.557	5.052	9.713	0.616	-16.554
coverage × local	(5.001)	(2.861)	(11.429)	(8.849)	(11.985)	(11.633)
Owns radio ×	-4.798*	-2.761	-1.149	-1.633	-2.205	-0.127
local	(2.683)	(1.745)	(2.844)	(2.144)	(3.142)	(2.699)
Only community cover	17.293***	7.801**	15.177**	7.901*	1.177	4.045
× local × owns radio	(6.349)	(3.557)	(6.806)	(4.493)	(6.664)	(6.105)
Only community cover			-2.775	-2.012	1.397	3.952
× local × female			(5.827)	(3.644)	(5.645)	(5.243)
Only community cover			-0.026	-0.214	-0.120	0.004
× local × age			(0.206)	(0.151)	(0.195)	(0.181)
Only community cover			-1.263*	-1.449**	-0.274	0.036
× local × schooling			(0.726)	(0.580)	(0.774)	(0.924)
Only community cover			8.116	0.541	24.938***	3.151
× local × ruling house			(6.437)	(5.080)	(7.230)	(7.096)
Only community cover			1.144	0.455	-0.102	-3.964
× local × assets			(3.046)	(1.806)	(3.045)	(2.603)
Only community cover			-21.407**	1.815	-5.156	4.430
× local × imputed			(10.579)	(4.453)	(10.829)	(9.434)
Constant	68.872***	10.175***	68.872***	10.175***	60.325***	20.040***
	(0.744)	(0.578)	(0.743)	(0.573)	(0.719)	(0.628)
Observations	3,990	3,990	3,990	3,990	3,803	3,741

Notes: Positive triple difference estimates in row 4 indicate that voters who own radios (versus their neighbors without radios) are more likely to correctly name politicians and vote across ethnic party lines in local (versus national) elections, in areas that receive only community radio signals (versus both community and national radio signals). By adding controls, this analysis enhances the test of Proposition 2 outlined in Table 4. In this analysis: i) robust standard errors clustered by enumeration area (EA), the unit of sampling of the NPS survey; ii) there are two observations - one local and one national - for every individual; iii) all specifications include individual voter fixed effects; iv) all outcomes expressed as percent; v) the sample of respondents is restricted to those from ethnic groups affiliated with a party in Table 1, who reported their vote choice and ability to name politicians at both the local and national level, and who could verify their claim of voting by producing a voter identification card with the corresponding hole punch made by polling center staff; vi) the sample excludes multi-seat LC wards, where voters can choose candidates from multiple parties, and wards where one of the two rival parties did not contest the race (i.e. those missing either an APC or SLPP/PMDC candidate); vii) membership in a ruling house denotes eligibility to stand for election in the traditional chieftaincy system and is an indicator of local political connectedness; viii) assets is a principal components analysis of all seven household assets collected in the NPS (excludes radio) and the construction materials used in the walls, floor and roof of the respondent's dwelling; ix) imputed is a dummy for whether a value for age, schooling, ruling house or assets was missing and thus imputed at the relevant EA-gender level mean, which affects 5.6% of the sample in Columns 3-6 (excluding these observations does not substantively change the results, which are reported in footnote 26); x) all specifications include interaction terms for local politician and each of the demographic controls; and xi) Columns 5 and 6 are placebo tests on general voter opinions regarding whether the local/central government listens to people in their area and on whether promises of development was the primary determinant of voting choice.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 6—EFFECTS OF INFORMATION ON SWING VOTER REDISTRIBUTIVE CAMPAIGN SPENDING

	Money (1)	Visits (2)	T-shirts (3)	Posters (4)	Handbills (5)	Food (6)	Rally (7)	Index (8)
Panel A. Spending by all candidates, preferred bias measure, district fixed effects								
$\lvert E(bias)_j \rvert$	-17.993***	-2.888*	-0.719***	-0.428***	-0.281*	-0.578***	-0.504***	-0.919***
Standard error, OLS	(6.388)	(1.538)	(0.184)	(0.105)	(0.162)	(0.201)	(0.195)	(0.222)
P-value, OLS	0.005	0.060	0.000	0.000	0.082	0.004	0.010	0.000
P-value, bootstrap	0.001	0.006	0.000	0.000	0.051	0.002	0.003	0.000
$\lvert E(bias)_j \rvert$ × Local candidate	19.448***	2.080	0.239	0.277**	0.143	0.278*	0.026	0.439**
Standard error, OLS	(6.242)	(1.692)	(0.165)	(0.115)	(0.176)	(0.152)	(0.161)	(0.217)
P-value, OLS	0.002	0.219	0.146	0.016	0.417	0.068	0.873	0.043
P-value, bootstrap	0.000	0.090	0.069	0.013	0.271	0.035	0.878	0.020
Panel B. Spending by all candidates, robustness check on bias measure, district fixed effects								
$\lvert (Shr\ A - Shr\ B)_j \rvert$	-14.306***	-2.265**	-0.549***	-0.276***	-0.196	-0.431***	-0.414***	-0.694***
Standard error, OLS	(4.762)	(1.095)	(0.146)	(0.088)	(0.125)	(0.150)	(0.152)	(0.172)
P-value, OLS	0.003	0.039	0.000	0.002	0.116	0.004	0.007	0.000
$\lvert (Shr\ A - Shr\ B)_i \rvert$ × Local	15.262***	1.256	0.166	0.180**	0.086	0.205*	0.030	0.318*
Standard error, OLS	(4.627)	(1.177)	(0.121)	(0.090)	(0.137)	(0.114)	(0.121)	(0.164)
P-value, OLS	0.001	0.286	0.170	0.046	0.532	0.071	0.805	0.053
Panel C. Spending by all candidates, preferred bias measure, constituency fixed effects								
$\lvert E(bias)_c \rvert$ × Local candidate	16.911***	0.986	0.117	0.064	0.211*	0.254***	0.114	0.326***
Standard error, OLS	(6.316)	(1.790)	(0.114)	(0.110)	(0.115)	(0.077)	(0.104)	(0.126)
P-value, OLS	0.007	0.582	0.307	0.560	0.067	0.001	0.270	0.010
P-value, bootstrap	0.002	0.419	0.240	0.527	0.038	0.000	0.266	0.006
Panel D. Spending by all candidates, robustness check on bias measure, constituency fixed effects								
$\lvert (Shr\ A - Shr\ B)_c \rvert$ × Local	11.604**	0.495	0.090	0.082	0.119	0.178***	0.104	0.237***
Standard error, OLS	(4.641)	(1.187)	(0.084)	(0.074)	(0.079)	(0.057)	(0.082)	(0.085)
P-value, OLS	0.012	0.677	0.284	0.264	0.134	0.002	0.201	0.005
Observations	4,314	3,738	4,751	4,757	4,748	4,747	4,721	4,784

Notes: Positive estimates on the interaction between bias and local candidate suggest that campaign spending is less driven by ethnic composition in local versus national elections, consistent with the attenuating effect of information on swing voter investment captured by Proposition 3. In this analysis: i) unit of observation is the community-candidate pair; ii) OLS robust standard errors clustered by MP constituency; iii) bootstrap p-values adjust first for survey sampling error in the measure of partisan bias and second for clustering in the campaign dataset using 10,000 replications; iv) Panels A and B include fixed effects for the 14 districts and local*district interactions, population density and population per seat; v) Panels C and D include fixed effects for the 112 MP constituencies; vi) mean effects indices in Column 8 are in standard deviation units; and vii) in Panels A and B the relevant geographic area is the MP constituency (ward) for national (local) candidates, in Panels C and D it is the MP constituency for all candidates.

*** Significant at the 1 percent level, corresponding to OLS p-value estimates.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 7—CAMPAIGN SPENDING ON BIAS DIFFERENCED OVER RADIO OWNERSHIP, COVERAGE AND LEVEL OF ELECTION

	Slope, low radio share	Slope, high radio share	Theoretical prediction
	(1)	(2)	(3)
Panel A: Dual (national and community) radio coverage areas			
Slope of campaign spending index by national candidates	-0.43	-0.82	(-)
Slope of campaign spending index by local candidates	0.05	-0.65	(-)
Difference in slopes (local – national)	0.48	0.17	+
	(0.27)	(0.26)	
Number of observations in subsample	1,390	1,795	
Panel B: Only community radio coverage areas			
Slope of campaign spending index by national candidates	-0.25	-2.00	(-)
Slope of campaign spending index by local candidates	0.06	-0.84	(-)
Difference in slopes (local – national)	0.30	1.15***	+
	(0.25)	(0.38)	
Number of observations in subsample	785	379	
Panel C: Differences over Panels A and B			
Double difference in slopes (community only – dual cover)	-0.18	0.98***	0, +
	(0.23)	(0.31)	
Triple difference in slopes (high – low radio share)		1.16***	+
		(0.38)	
Mean household radio ownership share by area	0.29	0.67	

Notes: The positive triple difference in slope estimated at the bottom of the table suggests that the ethnic composition of a jurisdiction is a weaker driver of campaign spending in local (versus national) elections, in areas that receive only community radio coverage (versus both community and national radio coverage), but only for areas where a high (versus low) share of households own radios. This provides a complementary test of Proposition 3 exploiting radio coverage as another source of variation in the information available to voters. In this analysis: i) the unit of observation is the community-candidate pair; ii) slope estimates calculated from a quadruple difference regression specification of the mean campaign spending index on partisan bias, radio ownership share, radio station coverage and level of election; iii) robust standard errors clustered by MP constituency; iv) high/low household radio ownership share is split at the sample median (0.44) as measured at the chiefdom-level in the 2004 census (results are robust to using a continuous measure and are reported in footnote 27); v) specification includes fixed effects for the 14 districts and local*district interactions that define the 14 local governments, as well as jurisdictional controls of population density and population per seat; vi) analysis uses the preferred bias measure; and vii) bias and jurisdictional controls are measured for the geographic area defined by the MP constituency for national candidates and the Local Council ward for local candidates.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Online Appendix for Crossing Party Lines: The Effects of Information on Redistributive Politics

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February 24, 2015

Appendix A. Proof of Proposition 1

Let $t_j = v(\omega + t_{aj}) - v(\omega + t_{bj})$ denote the consumption utility differential for jurisdiction j in Equation (9). The first order conditions for Party A and B respectively are:

$$v'(\omega + t_{aj}) f_j(t_j) = \lambda \tag{19}$$

$$v'(\omega + t_{bj}) f_j(t_j) = \mu \tag{20}$$

Constant shadow prices indicate that gains in expected votes with respect to marginal shifts in transfers should be equal across jurisdictions. The ratio of the scalars (λ/μ) holds constant, while exhausting the budget, only if each party promises the same amount to any given jurisdiction ($t_{aj} = t_{bj} = Y_j \ \forall \ j$). Voter consumption is thus identical under either party and implies $t_j = 0$. By the translate assumption, rewrite each jurisdictional density as a function of the common density, $f_j(0) = f(0 + \alpha_j)$, for the general first order condition:

$$v'(\omega + Y_j) = \frac{\lambda}{f(\alpha_j)} \tag{21}$$

The concavity of $v(\cdot)$ and the unimodal and symmetric nature of $f(\cdot)$ imply that transfers (Y_j) are decreasing in the absolute value of the expected bias of jurisdictions $(|\alpha_j|)$. Assume that $v'(0)$ is sufficiently high to generate an interior solution.

To establish uniqueness, the concavity of $v(\cdot)$ implies that for any two solutions (λ, Y) and (λ', Y') to (21) that are not equal, $\lambda < \lambda'$ implies $Y > Y'$ in all jurisdictions, which violates

the budget constraint. LW further prove that $|f'(0)|/f(0) \leq |v''(\omega + Y)|/(v'(\omega + Y))^2$ is a necessary condition for existence, which is satisfied given the symmetry of $f(\cdot)$ (as $f'(0) = 0$).

Appendix B. Proof of Proposition 2

Set the consumption differential in the right hand side of Equation (4) to zero. The voter chooses Party A if the perceived quality advantage of candidate B is not large enough to outweigh the voter's party loyalty to A (recalling that $\Delta p_i = b_i - a_i$):

$$\text{Vote A if}: \delta\theta_{ij} \leq -\Delta p_i \tag{22}$$

For voters, party preference is a known scalar, while relative candidate quality is based on a random draw from the quality distribution. Considering the same voter over multiple elections, the probability that the voter chooses Party A in any particular election is thus:

$$\Pr(\text{Vote } A) = \Pr[\delta\theta_{ij} \leq -\Delta p_i] \tag{23}$$

This probability is the cumulative density function of perceived quality advantage (of candidate B over A, from Equation (3)) evaluated at the voter's own party preference (for party A over B). Standardizing this distribution yields:

$$\Pr(\text{Vote } A) = \Phi\left(\frac{-\Delta p_i}{\left(\sigma_q^4/\left(\sigma_q^2 + \sigma_v^2\right)\right)^{1/2}}\right) \tag{24}$$

Crossing party lines is a vote for Party A if the voter is Type B (i.e. $\Delta p_i > 0$) and a vote for Party B if the voter is Type A ($\Delta p_i < 0$). Thus for a Type B voter, the probability of crossing party lines is simply (24). (The argument is symmetric for Type A.) Improving signal quality increases the variance of the perceived quality distribution, thereby increasing the denominator of the argument in (24). Since the numerator for a Type B voter is less than zero, this increases the argument overall. As the CDF is increasing in its argument, conclude that improving information increases the probability of crossing party lines.

Appendix C. Proof of Proposition 3

Consider the case of positive expected jurisdictional bias (the case for negative is symmetric). Recall that Proposition 1 implies spending that is decreasing in partisanship. Applying the Implicit Function Theorem to the first order condition in (10) generates a general expression for this derivative and one specific to the normal distribution case:

$$\frac{\partial Y_j}{\partial \alpha_j} = \frac{-\lambda \frac{\partial f(\alpha_j)}{\partial \alpha_j}}{v''(\omega + Y_j) f(\alpha_j)^2} = \frac{\lambda \alpha_j (2\pi)^{1/2}}{v''(\omega + Y_j)\, \delta\sigma_q \exp\left(\frac{-\alpha_j^2}{2\delta^2\sigma_q^2}\right)} \leq 0 \tag{25}$$

The sign of this derivative is nonpositive for the normal distribution and holds quite generally: $f(\alpha_j)$ is decreasing in its argument for any unimodal distribution; $v''(\cdot)$ is negative given the concavity assumption; and $f(\alpha_j)$ is positive by definition.

Providing better information ($\sigma_\nu \to 0$) increases voter responsiveness (δ) to candidate quality (as $\frac{\partial \delta}{\partial \sigma_\nu} < 0$), which increases the variance of the parties' estimated distribution of advantage. Taking the derivative of (25) with respect to δ shows how spending changes with information provision:

$$\frac{\partial}{\partial \delta}\left(\frac{\partial Y_j}{\partial \alpha_j}\right) = \frac{-\lambda\left[\frac{\partial^2 f(\alpha_j)}{\partial \delta \partial \alpha_j} f(\alpha_j) - 2\frac{\partial f(\alpha_j)}{\partial \delta}\frac{\partial f(\alpha_j)}{\partial \alpha_j}\right]}{v''(\omega + Y_j) f(\alpha_j)^3} = \frac{-\lambda \alpha_j (2\pi)^{1/2}\left(\alpha_j^2 + \delta^2 \sigma_q^2\right)}{v''(\omega + Y_j)\delta^4 \sigma_q^3 \exp\left(\frac{-\alpha_j^2}{2\delta^2\sigma_q^2}\right)} \geq 0 \quad (26)$$

As the cross derivative is nonnegative for the normal distribution, conclude that information provision attenuates the slope of party spending with respect to jurisdictional bias.

The generality of this result is less clear than that of (25). Without assuming a specific functional form, the sign of the expression in (26) depends on which term within brackets dominates (the signs on the other terms remain as above and are together a positive multiplier of the expression in brackets). This is nonnegative for the assumption of normally distributed partisan loyalties and candidate quality. If we revised the model to instead incorporate the (also) common assumption of uniformly distributed loyalties and perceived quality, $f(\cdot)$ would take the triangular distribution and (26) would again be unambiguously nonnegative.

Appendix D. Derivation of Propositions 1 to 3 under an alternative objective function

A closer match to the original LW framework would be to assume that parties maximize the expected number of votes they receive within each constituency, as opposed to number of seats won in Parliament. This reformulation does not affect the set up of the voter's decision (Equations 1 through 4) nor the assumptions regarding what parties know about the distributions of party loyalty, candidate quality and the noisy quality signals.

Recall that from the parties' perspective the left hand side of the Vote A expression in Equation (4) is the sum of two normally distributed random variables:

$$\Delta p_i + \delta \theta_{ij} \sim F_j(\cdot) = N_j\left(\alpha_j, \sigma_\alpha^2\right) \text{ where } \sigma_\alpha^2 = \sigma_p^2 + \left(\frac{\sigma_q^2}{\sigma_q^2 + \sigma_v^2}\right)\sigma_q^2 \quad (27)$$

The assumed objective of political parties is now to maximize the total number of votes they receive in each jurisdiction, subject to the budget constraint.[1] Party A does so by

[1] LW show that the first order condition for the alternative objective of maximizing the probability of winning collapses to that of the plurality case if both parties are equally popular.

choosing a vector of transfers that maximizes the sum of expected votes for A. Notice that the probability a voter chooses A is the probability that the random variable in (27) is less than the promised consumption utility differential. Party A thus maximizes this probability with respect to the budget constraint:

$$\max_{t_{aj}} \sum_{i \in \mathcal{I}_j} F_j \left[v\left(\omega + t_{aj}\right) - v\left(\omega + t_{bj}\right) \right] - \lambda \left[\sum_j n_j t_{aj} - n\tau \right] \tag{28}$$

Party B solves a symmetric problem with respect to t_{bj}, with corresponding Lagrange multipliers denoted by μ. The first order conditions for Party A and B respectively are the same as in Equations (19) and (20), where the rationale above again applies and produces the general first order condition of Proposition 1:

$$v'\left(\omega + Y_j\right) = \frac{\lambda}{f\left(\alpha_j\right)} \tag{29}$$

where transfers are decreasing in the absolute value of expected party loyalty ($|\alpha_j|$).

The derivation of Proposition 2 is unaffected.

To prove Proposition 3 again consider the case where the expected advantage is positive (the case for negative is symmetric). Apply the Implicit Function Theorem to (29) to generate a general expression for the derivative and one specific to the normal distribution:

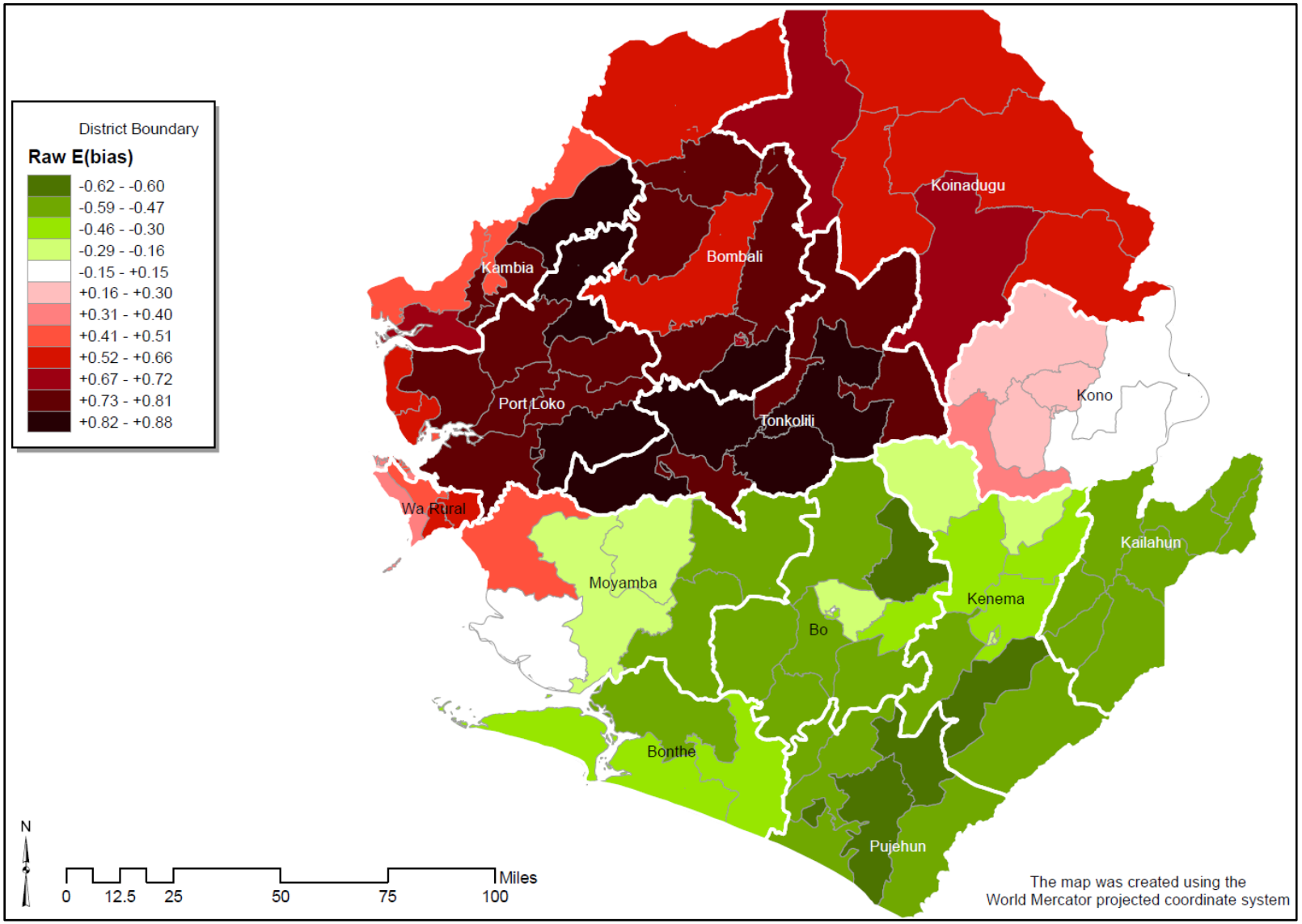
$$\frac{\partial Y_j}{\partial \alpha_j} = \frac{-\lambda \frac{\partial f(\alpha_j)}{\partial \alpha_j}}{v''\left(\omega + Y_j\right) f\left(\alpha_j\right)^2} = \frac{\lambda \alpha_j \left(2\pi\right)^{1/2}}{v''\left(\omega + Y_j\right) \sigma_\alpha \exp\left(\frac{-\alpha_j^2}{2\sigma_\alpha^2}\right)} \leq 0 \tag{30}$$

Recall that providing better information to voters increases the variance of the parties' estimated distribution of advantage. Taking the derivative of expression (30) with respect to the variance shows how spending changes when voters have access to better information about candidate quality:

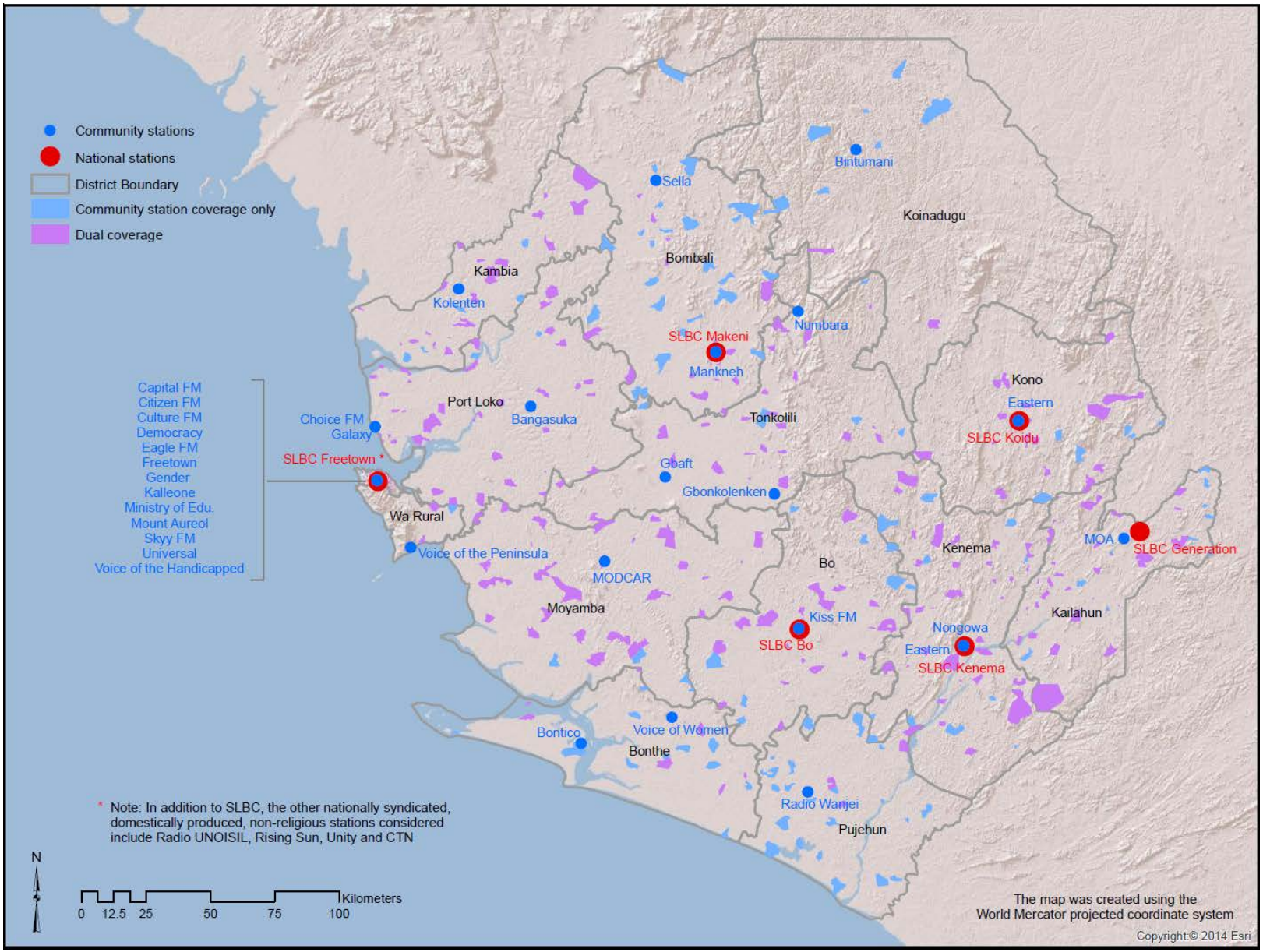
$$\frac{\partial}{\partial \sigma_\alpha^2}\left(\frac{\partial Y_j}{\partial \alpha_j}\right) = \frac{-\lambda \left[\frac{\partial^2 f(\alpha_j)}{\partial \sigma_\alpha^2 \partial \alpha_j} f\left(\alpha_j\right) - 2\frac{\partial f(\alpha_j)}{\partial \sigma_\alpha^2}\frac{\partial f(\alpha_j)}{\partial \alpha_j}\right]}{v''\left(\omega + Y_j\right) f\left(\alpha_j\right)^3} = \frac{-\lambda \alpha_j \left(2\pi\right)^{1/2}\left(\alpha_j^2 + \sigma_\alpha^2\right)}{v''\left(\omega + Y_j\right) 2\sigma_\alpha^5 \exp\left(\frac{-\alpha_j^2}{2\sigma_\alpha^2}\right)} \geq 0 \tag{31}$$

For the normal distribution case the sign is nonnegative, indicating that supplying better information to voters attenuates the slope of party spending with respect to the underlying bias of jurisdictions.

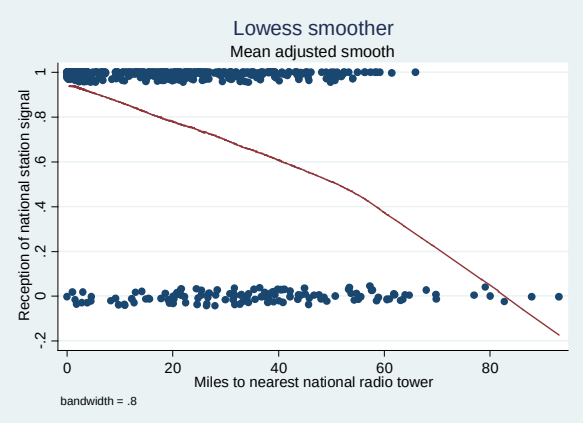
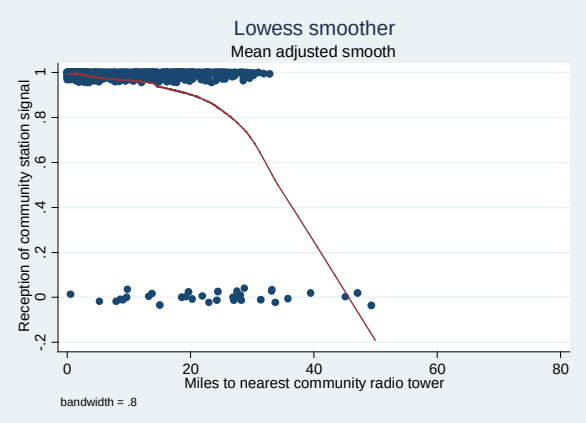
Appendix Figure 1: Map of Raw Expected Partisan Bias at the Constituency Level



Appendix Figure 2: Map of 2008 Radio Stations and EA-level Coverage in the NPS Sample

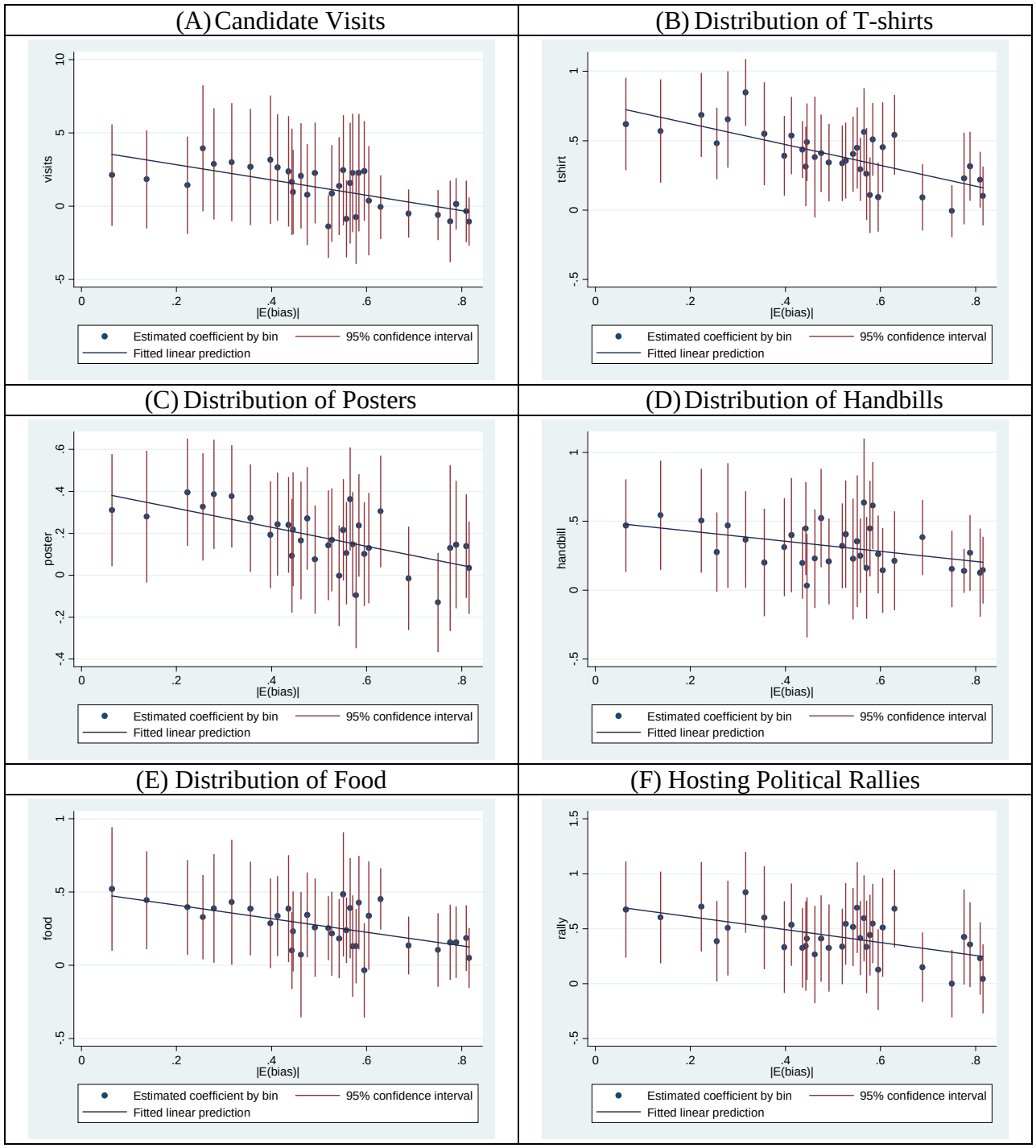


Appendix Figure 3: Correlation between Radio Coverage and Distance to Nearest Tower

(A) National station towers	(B) Community station towers
	

Notes: In Panel A, the downward sloping fitted line suggests that reception of nationally syndicated radio programs, as reported by village leaders in the community module of the 2008 NPS, is negatively correlated with distance to the nearest national radio transmission tower, calculated using GPS coordinates. Panel B presents a similar relationship for the reception of community-produced programs and distance to the nearest community radio station tower.

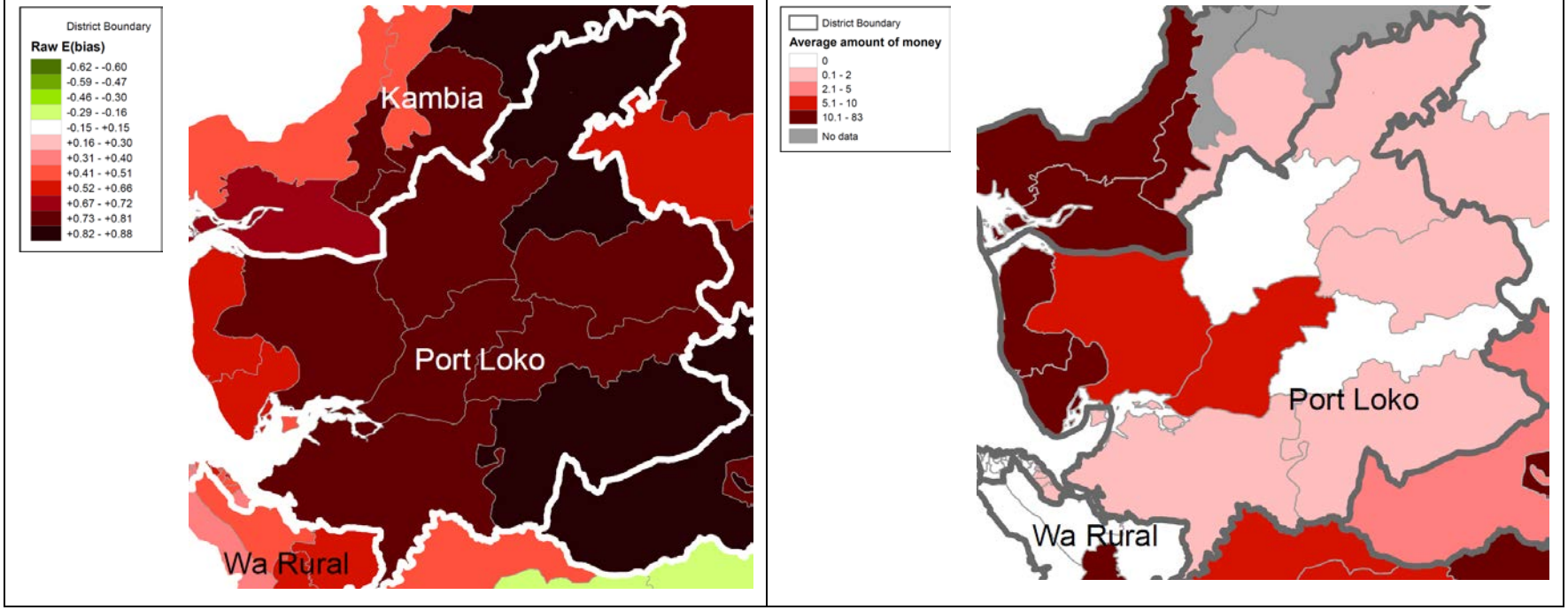
Appendix Figure 4: National Campaign Spending by Bins of Absolute Partisan Bias



Notes: The downward sloping fitted lines suggest that campaign expenditure by national candidates is lower in more ethnically homogeneous, and hence less competitive jurisdictions, which is consistent with Proposition 1. In this analysis: i) each dot represents the estimated coefficient on absolute partisan bias from a regression of the specified campaign item distributed by national candidates on 34 equally sized bins of bias, controlling for district fixed effects, population density and population per seat, with robust standard errors clustered at the constituency level; ii) average bias in the final reference bin is 0.83; and iii) the underlying unit of observation is the candidate-community pair, where N varies by outcome, ranging from 1,765 for visits to 2,277 for posters, exactly as for the regression counterparts in Table 2, Panel A.

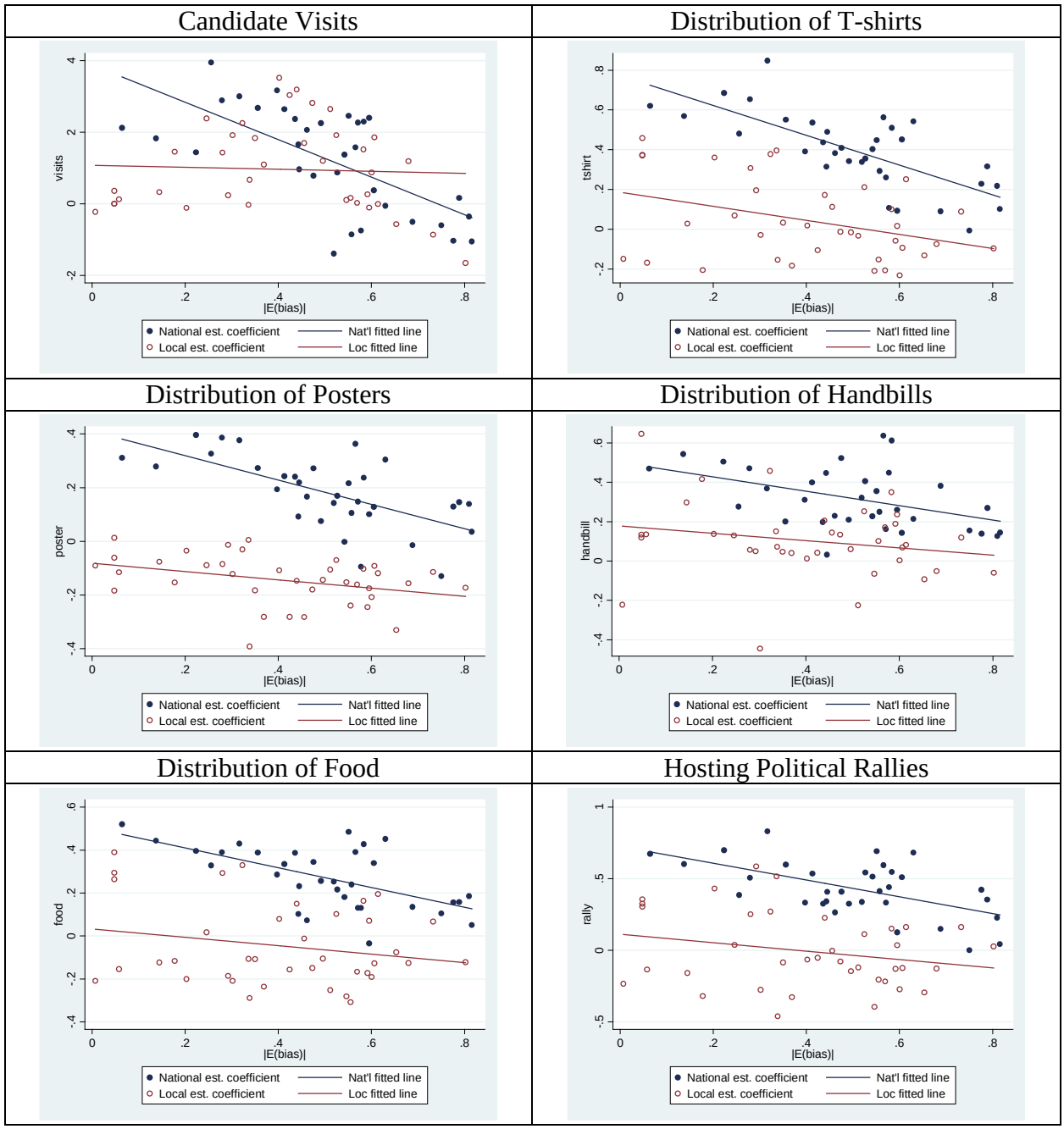
Appendix Figure 5: Maps of Partisan Bias and Campaign Spending at the Constituency-level for Port Loko District

(A) Raw Expected Partisan Bias	(B) Mean Cash Distributed by National Candidates from All Parties (demarcated in US$)



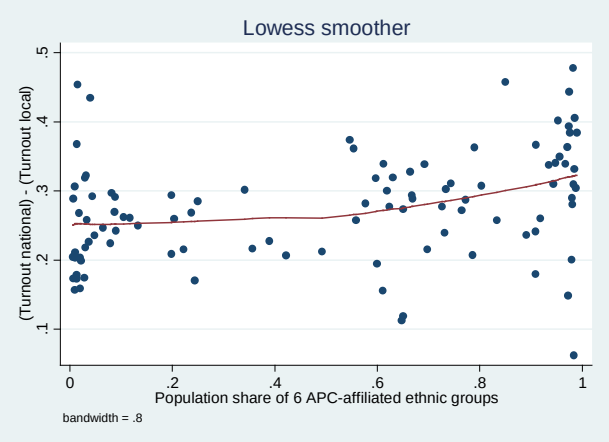
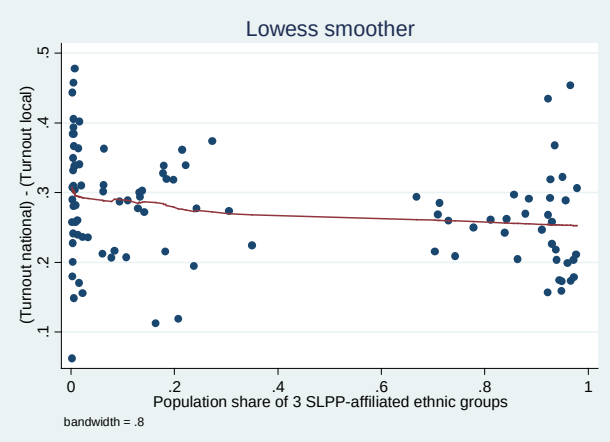
Notes: Panel A shades constituencies with respect to their expected partisan bias, calculated using ethnic population shares from the 2004 Census and the estimated strength of each ethnic group's party loyalty reported in Table 1. Panel B shades constituencies based on the average amount of cash distributed by national candidates, as reported in the community module of the 2008 NPS survey. The maps focus on one particular district, Port Loko, and show that when moving from West to East, the partisan bias favoring the APC party in Panel A increases, while campaign spending in Panel B decreases, consistent with Proposition 1.

Appendix Figure 6: Campaign Spending by Bins of Absolute Bias and Level of Election



Notes: The relatively flatter fitted lines for local (compared to national) elections suggest that campaign spending responds less strongly to the ethnic composition, and hence competitiveness, of jurisdictions in local elections. Given the information advantages voters have with respect to local candidates, these differences are consistent with Proposition 3. In this analysis: i) each dot represents the estimated coefficient on absolute partisan bias from a regression of the campaign spending item on 34 (39) equally sized bins of bias, controlling for district fixed effects, population density and population per seat, with robust standard errors clustered by constituency (ward), conducted separately for national (local) candidates; ii) average bias in the final reference bin is 0.82-0.83 at both levels; and iii) the underlying unit of observation is the candidate-community pair, N varies by outcome and level between 1,765 and 2,480 (see regression counterparts in main text Table 2 for exact N by outcome and level).

Appendix Figure 7: Differential Turnout by Level of Election and Constituency Ethnic Population Shares

(A) Differential turnout by share loyal to the APC	(B) Differential turnout by share loyal to the SLPP
	

Notes: Panel A plots the difference in turnout across level of election against the population share of the six APC-affiliated ethnic groups listed in Table 1. Panel B plots differential turnout against the population share of the three SLPP-affiliated ethnic groups. Both lines are relatively flat, suggesting that differential turnout is not strongly correlated with the ethnic composition of jurisdictions, and is thus unlikely to provide an alternative explanation for Proposition 1. Data on turnout comes from the National Electoral Commission and constituency population shares by ethnicity are calculated using the 2004 Census.

Appendix Table 1: Self-Reported Primary Determinant of Vote Choice by Level of Election

Level of election	Political party	Candidate characteristics	Difference across factors: Column (1) - (2)
	(1)	(2)	(3)
Local Council races	34.46	35.47	-1.01
			(2.53)
National MP races	45.66	20.94	24.72***
			(2.39)
Difference across levels (local - national)	-11.03***	14.54***	
	(3.07)	(3.16)	
Number of observations	2,151		

Notes: Estimates in the first row show that political party and candidate characteristics are equally likely to be the primary determinant of vote choice in local elections, while the second row shows that party is much more important than candidate attributes in determining vote choice in national races. In this analysis: i) significance levels indicated by $*p<0.10$, $**p<0.05$, $***p<0.01$; ii) the unit of observation is the vote; iii) outcomes in Columns 1 and 2 reflect responses to the question "What was your first most important reason for choosing this candidate?" collected in the 2008 DSS exit polls; iv) candidate characteristics include the following responses: reputation / achievement in previous job, from same / nearby village, candidate is friend or relative, same religion, same "secret" or traditional social society, candidate's gender, candidate's education, and helped me / my family before; and v) the local - national difference estimates in row 3 are from regression analysis with individual voter fixed effects and robust standard errors clustered at the level of Local Council ward (the unit of sampling).

Appendix Table 2: Access to Public Infrastructure Differenced over Sector and Time

Dependent variable:	Household access to primary facility within 15 minutes walking			
	Education	Health	Education	Health
	(1)	(2)	(3)	(4)
$\lvert E(bias)_j \rvert$	-0.002	0.143		
	(0.110)	(0.096)		
Post (= 2007)	0.260***	0.110***	0.223***	0.090***
	(0.039)	(0.033)	(0.039)	(0.030)
Post × $\lvert E(bias)_j \rvert$	-0.263***	-0.120**	-0.255***	-0.101**
	(0.066)	(0.053)	(0.066)	(0.046)
Number of observations	9,229	7,290	9,229	7,290
Level of fixed effects	District	District	EA ~ village	EA ~ village
SUR estimation of difference in Post × $\lvert E(bias)_j \rvert$ for health compared to education				
Coefficient		0.144*		0.154**
Chi squared		3.33		4.24
P>chi squared		0.068		0.040
National mean household access in 2005	0.437	0.194		
National mean household access in 2007	0.554	0.242		

Notes: This table analyzes a natural policy experiment that occurred in Sierra Leone's decentralization reform program between 2005 and 2007, where devolution of administrative and financial control over public services to local government proceeded faster for health than education. Local Councils (LCs) thus gained relatively more influence (*vis-à-vis* the central government) over primary health facilities than schools in the early reform years: e.g. while the first financial transfers to LC accounts for management of primary health were sent in 2005, devolution of primary education was delayed until June 2007 with no transfers made before then (Whiteside 2007). During the intervening two years, LCs acquired political authority and access to finances to make improvements in healthcare, and acquired neither for education. MPs retained an oversight role for both ministries throughout the period. This table thus estimates a difference-in-differences test of Proposition 3, which predicts that the relative gain in influence of the LCs compared to MPs should result in a more equitable allocation of investment with respect to the political competitiveness of jurisdictions when comparing health to education over time. Analysis explores changes in household access to primary health clinics and schools collected in the February 2005 and May 2007 waves of the NPS panel survey.

Coefficients on expected partisan bias in the first row show that the inherited stock of primary health and education facilities was not systematically related to the competitiveness of constituencies. The positive and significant coefficients on the Post dummy in the second row show that household access to primary schools and primary health clinics both increased substantially from 2005 to 2007. The negative and significant coefficients on the interaction term in the third row suggest that these new investments favored lower bias (more competitive) jurisdictions in both sectors, which is consistent with Proposition 1 on swing voter incentives facing politicians at both levels of government. The positive seemingly unrelated regression (SUR) system estimates in the lower half of the table suggest that investments in health responded less strongly to the competitiveness of the jurisdiction when compared to education, consistent with the information premise of Proposition 3 dampening the swing incentives for local as compared to national government. The result is even stronger under the inclusion of enumeration area fixed effects, where the confidence level of the SUR estimate comparing Columns 3 and 4 is 96%. These estimates, however, should be interpreted with caution given the unresolved identification challenges for this exercise: i) the plausibility of the parallel trends assumption is questionable given that the delay in devolution of education was not random, and there is no earlier pre-experiment period of democratic rule (or data) to at least establish similar pre-trends; ii) the structure and wording of the survey questions changed over time; and iii) survey responses were conditional on having a school age child in the household or usage of government health facilities.

Significance levels indicated by *p <0.10, **p <0.05, ***p <0.01.

Appendix Table 3: Voter Response to Candidate Quality Using Peer Rankings of Local Incumbents

Dependent variable:	Re-elected, given incumbent		Voted for incumbent, all voters		Voted for incumbent, given from rival tribe	
	(1)	(2)	(3)	(4)	(5)	(6)
Effectiveness peer rank of incumbent	10.82***	11.82**	12.49***	11.23***	6.51**	3.46
	(3.50)	(5.00)	(3.49)	(4.09)	(3.05)	(3.87)
Mean of dependent variable	60.47	63.38	63.75	65.16	13.47	14.07
Unit of observation	Incumbents		Voters		Voters	
Number of observations	129	71	960	709	193	135
Number of races covered	115	71	86	62	37	29

Notes: This table exploits cross sectional differences in local incumbent peer rankings to provide suggestive evidence that voter choice responds to productive attributes of candidates. Following Banerjee and Pande (2009), all sitting Local Councillors ranked three standard vignettes that described the activities of hypothetical Councillors of varying degrees of effectiveness as well as three randomly selected peers (2008 DSS Wave 1). Peer rankings were translated into a seven point scale with reference to the vignettes (see details below). Each Councillor was ranked by multiple peers and I use the average across rankings. Appendix Table 4 validates this measure by showing that it negatively correlates with peer corruption rankings and positively correlates with other competence measures regarding the evaluated Councillor. Analysis considers races where one of these incumbents ran for re-election, controlling for incumbent party.

Column 1 shows that a one point increase in average peer effectiveness ranking was associated with a 10.8 percentage point (s.e. 3.5) increase in the probability of re-election. The effect is large in real world magnitude, where the predicted difference in re-election probabilities for incumbents with the worst observed peer ranking (equal to 1) and the best (6.4) is 58 percentage points. Column 3 uses the 2008 NPS household data to show a similar increase in support among voters, where a one point increase in peer rankings is associated with a 12.5 percentage point (s.e. 3.5) increase in the proportion of respondents who reported voting for the incumbent. Column 5 turns more directly to the phenomenon of crossing party lines by limiting the voter sample to respondents from a rival group, i.e. an ethnic group historically associated with the party challenging the incumbent. While support for the incumbent amongst rival groups is much lower than in the general population (13 versus 64 percent), the coefficient on peer effectiveness ranking is again positive and statistically significant (6.5, s.e. 3.0), indicating that these voters were more likely to cross party lines to support incumbents with higher peer rankings. Columns 2, 4 and 6 repeat these analyses on a restricted sample of wards that more closely mirrors the exit poll sample of Table 3, with similar results save the loss of significance in Column 6.

In this analysis: i) significance levels indicated by $*p<0.10$, $**\ p<0.05$, $***p<0.01$; ii) Column 1 covers all wards where a Local Councillor ran for re-election (due to redistricting, in a few wards multiple incumbents ran); iIi) Columns 3 and 5 include all wards covered by the NPS household sample where a single incumbent ran for re-election; iv) Columns 2, 4 and 6 exclude multi-seat LC wards, where voters can choose candidates from multiple parties, and wards where one of the two rival parties did not contest the race (i.e. those missing either an APC or SLPP/PMDC candidate); v) the sample of voters in Columns 3 through 6 is restricted to those who could verify their claim of voting by producing a voter identification card with the corresponding hole punch made by polling station staff; vi) the sample of voters in Columns 5 and 6 regarding crossing party lines is restricted to those from ethnic groups affiliated with a party in Table 1; and vii) the text of the anchoring vignettes in order of increasing effectiveness was as follows: *"Councillor X has attended council meetings and been a member of the development planning committee but has not been active in other ways as a councillor." "Councillor Y was an active member of the development planning committee and got one of the RRI projects (a market) constructed in his ward." "Councillor Z was an active member of the development planning committee and got one of the RRI projects (a market) constructed in his ward. Also, he worked with the Paramount Chief to mobilize labor and an NGO to provide funds to repair roads and culverts in the ward."* Councillors rated each vignette and then three randomly assigned peers on a scale of 1 to 10. The peer rankings were standardized to a 7 point scale ranging from 1 if the peer was ranked lower than Councillor X, 2 if equal to Councillor X and so on up to 7 if ranked higher than Councillor Z.

Appendix Table 4: Correlates of the Peer Effectiveness Rank

Dependent variables by category	Mean	Coefficient on rank	Standard error
	(1)	(2)	(3)
Corruption, mean effects index	0.000	-0.130**	(0.054)
Peer corruption ranking (7 point scale)	2.481	-0.125**	(0.052)
Quiz questions, mean effects index	0.000	0.034**	(0.017)
Knows exact date of election	0.990	-0.009	(0.007)
Correctly names District Medical Officer	0.829	0.048**	(0.022)
Correctly names Deputy District Director of Education	0.728	0.043*	(0.025)
Correctly names District Director of Agriculture	0.734	0.014	(0.023)
Estimates amount of Council 2007 FY budget	0.079	0.032**	(0.015)
Estimates amount of Council 2007 FY tied health grants	0.067	0.008	(0.014)
Identifies share of local tax as Council funding source	0.895	-0.001	(0.019)
Identifies central gov't transfers as Council funding source	0.903	0.007	(0.018)
Identifies Council own revenue as funding source	0.769	0.003	(0.024)
Identifies World Bank decentralization as funding source	0.445	0.044	(0.028)
Estimates amount of FY2007 Council money given to chiefdom	0.180	-0.019	(0.023)
Correctly names Paramount Chief	0.948	-0.001	(0.014)
Correctly names Chiefdom Speaker	0.920	0.015	(0.016)
Committee membership, mean effects index	0.000	0.042	(0.038)
Member of how many committees in total (of 5)	1.403	-0.017	(0.057)
Chairs a committee	0.570	0.049*	(0.027)
Oversight visits, mean effects index	0.000	0.024	(0.039)
Number of oversight visits to schools in past month	3.781	-0.012	(0.217)
Number of oversight visits to clinics in past month	1.707	0.090	(0.089)
Political network, mean effects index	0.000	0.016	(0.041)
Member of ruling house	0.508	0.009	(0.030)
Family relationship to town or section chief	0.655	0.005	(0.027)
Family relationship to Paramount Chief	0.382	0.000	(0.029)
Family relationship to Member of Parliament	0.211	0.015	(0.023)
Number of observations, range		[263, 278]	
Average peer effectiveness rank of APC members (7 point scale)	3.830		
Average peer effectiveness rank of SLPP members (7 point scale)	3.843		

Notes: This table validates the peer effectiveness rank used in Appendix Table 3 by showing that it robustly negatively correlates with peer corruption rankings (row 1) and positively correlates with other competence measures regarding the evaluated Councillor that were captured in the DSS Wave 1 (quiz questions, committee membership and oversight visits). Sitting Councillors completed corruption rankings in the same manner as for effectiveness (although note that the scores were generally much more favorable and exhibited less variation - i.e. nearly half of all peers were ranked on par with the least corrupt vignette - and thus held little predictive power for re-election rates). The quiz questions gauge knowledge of key line ministry counterparts and local leaders, as well as familiarity with the Council budget and sources of finance. Estimates at the bottom of the table provide no evidence that the peer rankings simply reflect connections to clientelist networks as measured by familial relationships to other political leaders nor that they vary systematically by party.

In this analysis: i) significance levels indicated by $*p<0.10$, $**p<0.05$, $***p<0.01$; ii) robust standard errors; iii) the first row of each category reports the mean effects index coefficient on rank following Kling and Liebman 2004 expressed in standard deviation units; iv) all remaining rows report the coefficient on the peer effectiveness rank from a regression of the individual outcome on the rank in units natural to the outcome; v) all specifications include demographic controls for the politician evaluated (age, gender, years of schooling, ethnicity, religion and a principal components score of assets); and vi) sample excludes rankings of Local Council Chairs / Mayors.

Appendix Table 5: Robustness Comparison of Exit Polls to Official Voting Returns

Dependent Variable:	APC party vote share in NEC official returns
	(1)
APC party vote share in exit polls	0.734***
	(0.048)
Local race	0.115**
	(0.051)
Local race × APC party vote share in exit polls	-0.0008
	(0.083)
Constant	0.035
	(0.025)
Number of observations	107

Notes: This table investigates the accuracy of self-reported vote choices recorded in the DSS exit poll by comparing them to official electoral returns published by the National Electoral Commission. The large (maximum possible value equal to 1) and highly significant coefficient estimate in row 1 suggests that APC party vote shares aggregated from the exit polls strongly predict those in the official returns. The null result in row 3 suggests that this predictive power is no better or worse for local as compared to national vote choices. In this analysis: i) significance levels indicated by *p <0.10, **p <0.05, ***p <0.01; ii) robust standard errors; and iii) the unit of observation is the jurisdiction, of which there are 57 Local Council wards and 50 Parliamentary constituencies with nonmissing vote choices in the exit poll sample.