

Ethnicity, Gender and the Demand for Public Goods: Experimental Evidence from Benin

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Abstract

This paper provides experimental estimates of the effect of ethnic ties between voters and candidates on the demand for public goods and redistribution. The estimates are based on voting outcomes in selected districts that were randomly assigned to “purified” public goods and redistributive platforms by candidates competing in the 2001 presidential elections in Benin. I find that ethnic ties do not weaken the demand for public goods. The effect is even positive and significant in some cases, especially among women. There is however no significant difference across ethnic groups in their response to redistributive platforms. The results suggest that ethnic ties can help secure electoral support for nation-building policies so long as such policies are adopted by political leaders.

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INTRODUCTION

There is a growing consensus among economists and political scientists that excessive and inefficient redistribution leading to underprovision of public goods is one of the prime causes of underdevelopment.¹ The literature has focused almost exclusively on the economic and political determinants of public goods supply, such as income inequality, low productivity, ethnic divisions and proportional electoral systems. Very little attention has been paid to the determinants of the *demand* for public goods.² The standard assumption in the literature is that, in the presence of ethnic divisions, voters have weak preferences for public goods.³ Summarizing this view developed in Easterly (2001), Besley and Ghatak [2003] wrote: “if externalities are limited to within ethnic groups, then the total demand for public goods that benefits all groups such as roads and education will be less. For instance, if ethnic groups are separated geographically, there will be little demand for interregional travel. If different ethnic groups speak different languages and have different cultures, they will be less willing to support investment in public education.” p.7. Since ethnic voters have weak preferences for public goods, electoral incentives drive politicians to target specific groups and divert public resources to private patronage.

Yet, demand for public goods may crucially depend on features of the political process. It may also depend on the extent to which promises of public goods provision by politicians are credible. For instance, assuming that ethnic ties enhance credibility of campaign promises, a given voter might support a public goods platform if such platform is adopted by a candidate from their own ethnic group.⁴

This paper provides experimental estimates of the effect of ethnicity on the demand for public goods and redistribution. The estimates are based on voting outcomes in selected districts that were randomly assigned to “purified” public goods and redistributive platforms by candidates competing in the 2001 presidential elections in Benin. The demand for public goods or for redistribution is measured by the dif-

¹See Alesina and Rodrik (1994), Alesina, Baqir and Easterly (1994), Alesina, Danninger and Rostagno (1999).

²See Robinson and Verdier (2000) for arguments relating income inequality and low productivity to clientelist redistribution. See Easterly and Levine (2000) on ethnic divisions, and Milesi-Ferretti, Perotti and Rostagno (2002) on proportional electoral systems.

³See Alesina, Baqir and Easterly (1999).

⁴See North, 1990, Greif, 2000 among others.

ference in voting behavior between those who were exposed to the “purified” public goods or redistributive platforms and those who were exposed to “regular” platforms. The results published in my previous paper indicated a positive effect of redistributive treatments in all regions and for all types of candidates. They also indicated that national public goods messages had a negative effects in Northern districts but positive and significant effect in the Southern districts. Finally, I found that female voters tended to have stronger preference for national public goods platforms than male voters.

This current paper concentrates on the way in which *ethnic ties* between voters and candidates affect voters’s responsiveness to public goods and redistributive platforms. In contrast with previous studies that focus on the effect of *ethnic diversity* on public goods provision, I use a micropolitical approach to the study of ethnicity by investigating the following counterfactual questions: Would voters punish a candidate from their own ethnic group if that candidate were to adopt a national public goods platform that appeals equally to voters from all ethnic groups? Alternatively, would voters from a given region punish a candidate not from their ethnic group if that candidate were to adopt a redistributive platform, stressing the needs of that region? I find that ethnic ties tend to strengthen voters’s support for public goods platforms, with the effect being particularly strong among female voters. Thus, quite surprisingly, the negative effect of public goods platforms on voting behavior is driven by voters who are *not* from the ethnic group of the candidate. There is however no significant difference between across ethnic groups in their response to redistributive platforms.

This study contributes to the current debate on ethnicity and public goods provision. Easterly and Levine [1997] and Alesina, Baqir and Easterly [1999] present evidence indicating that ethnic divisions increase the demand for redistribution and adversely affect levels of public of goods in Africa and in several US cities.⁵ Bates [1983] argues that ethnic ties and spatial concentration of ethnic groups make it eas-

⁵In a related paper, Erzo Luttmer (2001) shows that the support of a given individual for welfare spending decreases as the number of welfare recipients in his or her community increase. However, the support increases as the number of recipients from his or her own racial group increases. Miguel and Gugerty (2002) also find a negative correlation between ethnic diversity and public school funding in Kenya. They attribute the result to the fact that collection action is hard to sustain in heterogeneous communities.

ier for local citizens to lobby for local public goods or projects of regional interest. For Fearon and Laitin [1996] and Fearon [1999], a greater level of interaction may increase trust among co-ethnics and facilitate coalition building along ethnic lines, which make lobbying more effective. The politics of exclusion that goes together with the formation of ethnic coalitions also leads to a higher demand for “pork” or projects of local interest. The evidence presented here indicates that ethnic solidarity can increase the demand for both “pork” and public goods. The effect of ethnic divisions on public goods provision may depend crucially on demographic and political characteristics such as the existence of incentives for coalition formation among ethnic parties, and the degree of fluidity between such coalitions.⁶

In addition, this study contributes to experimental research in the social sciences by extending randomized experiments to the analysis of voting behavior and the evaluation of political platforms. I provide ways to ensure the external and internal validity of such experiments without affecting the integrity of the election.⁷ For example, electoral districts were stratified according to key political characteristics (e.g. incumbent versus opposition districts, northern versus southern districts), and experimental platforms or treatments were restricted to “strongholds”, (i.e. districts dominated by one candidate). Moreover, the two types of treatments (public goods and redistribution) have opposing effects and were applied in relatively distant villages.

⁶To see why, assume that the provision of local public good requires the support of voters or a political party from another jurisdiction, which cannot be obtained unless some local public goods are provided in that jurisdiction as well. It is clear that, under these conditions, the demands for local public goods are strategic complements. The optimal strategy for a politician in such an environment would be to run on a platform for local public goods provision in both jurisdictions. The candidate could even use ethnic ties to credibly communicate to his constituency the extent to which policy interests in the jurisdictions are complementary. In other words, if ethnic voters from different jurisdictions are involved in some form of coordination game because of external effects, ethnic cooperation will improve and as a result, voters could in fact be more responsive to public goods platforms than to redistributive platforms.

⁷Indeed, the greatest challenge of the experiment is to make sure that it does not affect the result of the election at the national level.

THE CONTEXT

The Republic of Benin (formerly Dahomey) is a former French colony, located in West Africa between Togo and Nigeria. Benin became independent in 1960 but the first twelve post-independence years were characterized by political instability with alternation of civilian and military rule. The country experienced its fifth and last military coup in 1972. The coup paved the way for a dictatorial regime led by Mathieu Kerekou, that lasted for 18 years. In February 1990, mass protests and economic pressure from France led the military regime to convene a national conference (a gathering of representatives from all of the political groups of that time) that gave birth to a new democratic government (Heilburnn [1993], Nwajiaku [1994]). The new constitution, written by the transitional government and approved by referendum, provided for a multiparty democracy. Since then, Benin has experienced three parliamentary and two presidential elections.⁸ The president is elected through simple majority rule with run-off elections.⁹

There are twenty nine ethnic groups in the country and they fall into four major ethnolinguistic groups (Adja-Fon, Bariba, Otamari, Yoruba). Democratic reforms in the early 1990s led to a proliferation of ethnic parties: there are up to 80 ethnic parties with 16 of them effectively represented in the National Assembly. The main government parties are the Action Front for Renewal and Development (FARD-Alafia) led by Saka Salley, which provides the main grassroots support for the current government in the northern region; the Social Democratic Party (PSD) which is led by Bruno Amoussou and the African Movement for Democracy and Progress (MADEP) led by Sefou Fagbohoun. The opposition coalition is comprised of the Benin Renaissance party (RB) based in the south and central regions and led by the former presidential couple Nicephore and Rosine Soglo; the Union of Democracy and National Solidarity (UDS) led by Saka Lafia based in the north-east region and finally the Party for the Democratic Renewal (PRD) led by the current National Assembly President Adrien

⁸The country's first presidential election took place in 1991 and was won by Nicéphore Soglo, a former World Bank official. The country had its second regular presidential contest on 3 March 1996 and Nicephore Soglo lost to Mathieu Kerekou, the former autocrat. Kerekou won again in March 2001 for what will be his last term in office.

⁹That is, if no candidate obtains a majority during the first round, a second round is organized for the top two candidates on the list and the plurality winner is elected.

Houngbedji based in the south-east region. The main feature of ethnic politics in Benin is that ethnic coalitions in government and opposition are very unstable.

Benin has recorded a remarkable 4.9% average annual economic growth over the last 12 years (World Bank estimates). Despite this positive economic outlook, the GDP per-capita is only \$430 and an estimated 65% of the population lives below the poverty line. Currently, only 50% of the population has access to drinking water and 18% to basic health care. The rate of schooling is 34% and the literacy rate is 29%. According to a World Bank report (1997) , “achieving higher levels of economic growth and poverty reduction will require dramatic improvement in the effectiveness of public service delivery through public expenditure reform, decentralization and reduced corruption”. Yet the state payroll consumes between 65 and 90% of government budget. An estimated 50% of public services jobs are pure patronage redistribution and could be suppressed without a decline in the quality of public services (Decalo, 1990 and World Bank report, 1997).

Benin presents a number of advantages for a political experiment. It is considered one of the most successful cases of democratization in Africa. Thus, elections are meaningful and voters’ policy preferences can be inferred from their behavior at the polls. Benin is perceived by many political scientists as the “democracy laboratory of Africa” because its political elite has the reputation to be open to political experiments.¹⁰ Finally, the distribution of votes in previous elections in the country is such that the risk of a field experiment seriously affecting the outcome of the 2001 election was non-existent. This is because (1) nationwide election outcomes have always revealed a significant gap between the top two candidates (Kerekou and Soglo) and the remaining candidates and (2) electoral support for those top two candidates has always been between 27 to 37%.¹¹ As a result, a second round election posing Kerekou against Soglo in the 2001 presidential elections was a near certainty.

¹⁰For instance, the political leaders in Benin were the first to introduce the rotating presidency formula to curb ethnic strife in 1969. This formula was later adopted by leaders of the former Yugoslavia in 1980 following Tito’s death. Benin also invented the national conference formula in 1989 as a way of facilitating a peaceful post-authoritarian transition (Boulaga [1993])

¹¹In 1991, Soglo obtained 27.2% of the vote, Kerekou 36.30 and the next candidate Tevoedjre 14.21%. In 1996, Soglo received 35.69% of the vote, Kerekou 33.94% and Houngbedji 19.71%.

EXPERIMENT DESIGN

The Benin experiment is a randomized evaluation of electoral platforms. It differs from the standard field experiments in many regards. The standard field experiment involves an experimenter who draws subjects from the population and separates them randomly into treatment groups and control groups. Then the treatment groups are treated by some policies, while the control group remains untreated. Finally, some outcomes of interest are observed. A distinctive feature of the current experiment is that political parties have an interest in the outcome of the election. As result, cooperation with an experimental protocol is unexpected. In other words, positive response by a treatment group to treatment from candidate A (i.e. more votes for A) could adversely affects candidate B (less votes for B). The effect could be direct if the candidates are competing for votes in the same district or could be indirect if there are significant disparities in response to treatments and these disparities favor one candidate over the other. This could generate serious ethical concerns and make the experiment less agreeable for political parties. In order to deal with these issues, there was a careful balance between regions and types of candidates (opposition versus government; local versus national). In addition the experimental districts were restricted to strongholds so that large political gains and losses were not expected.

Preliminary steps

The first step consists of selecting and contacting political parties that will be involved in the experiment. In order to limit threats to external validity, that is to facilitate the generalizability of the results to the entire country, I chose parties from various regions and with various political characteristics. There are six major parties in the country. I first separated them into two groups, the Northern parties and the Southern parties. There are two government parties among the Northern parties. Among them, one is a local or regional party. There are two opposition parties among the southern parties with one being local. I eliminate the local southern candidate from the opposition and the local northern candidate from the incumbent coalition. I was then left with four parties: one local opposition from the North (UDS), one local incumbent party from the South (PSD), one national incumbent party from the South

(RB) and one national incumbent party from the North (FARD). Later, I contacted the four parties selected in order to secure their participation in the subsequent stages of the experiment.

The second step consists of a thorough survey of the country’s electoral history, including socio-demographic characteristics and the spatial distribution of the voting population. The goal is to identify districts that are clearly strongholds of a party and districts that are competitive. A district is a stronghold of a party if the candidate endorsed by the party has won at least 70% of the vote in the past two presidential or legislative elections; otherwise, it is competitive.

There are 77 electoral districts in the country. Most districts are ethnically homogeneous and are dominated by one political party. For instance, RB dominates in 10 districts where the ethnic composition is up to 90% Fon. UDS and FARD have 14 and 4 strongholds respectively, dominated up to 90% by the Bariba ethnic group. Finally, the PSD is clearly dominant in 6 districts where the population is 80% Adja.

Randomization

In the presence of representatives of each candidate, eight districts were selected, two per candidates. The RB was assigned Abomey and Ouidah, the UDS was assigned Bembereke and Perere, FARD was assigned Nikki and Kandi, and finally PSD, Aplahoue and Dogbo. Then all the villages in each of them were listed and two of them were randomly picked. The two of the selected villages were assigned to the treatment groups and the rest of the district served as the control group. One village will be assigned to the distributive policy treatment and the other to public goods treatment. The control villages were exposed to the regular campaign, which is a combination of public goods and distributive policy messages.

Furthermore, in order to limit threats to internal validity, and to avoid a mix up of the two types of treatment, I made sure that parties only selected villages that were at least 25 miles apart with 4 to 10 other villages separating them. The aggregate sample of the population under treatment is 6,633 registered voters for distributive policy treatment group, 6,983 voters for “public goods” villages, and about 220,000 for the control group.

More formally, denote by N the number of political units involved in the ex-

periment. We divide N into $S = 4$ strata on the basis of political characteristics (incumbent-dominated or opposition dominated, northern or southern, and “national” or “local”). There are N_s political units in stratum $s \in \{1, 2, 3, 4\}$ so that $N = \sum N_s$. In fact, N_s is the number of political units (electoral districts) controlled by a given candidate, s . Within each political unit (electoral district), there are several subunits (villages). The randomization process consists of the following four steps:

Step 1. Complete randomization among districts, i.e. given the number of districts N_s , candidate s draws randomly 2 districts (say j and k) out of the population to be part of the experiment.

Step 2. Given the number n_j and n_k of villages or subunits in district j and k , candidate s randomly draws one village among the n_j and one among the n_k .

Step 3. Eliminate some villages (say 5 to 10) among the $n_j - 1$ remaining villages in district j and the $n_k - 1$ remaining villages in district k (the villages that are eliminated are contiguous or in the immediate vicinity of the village picked in stage 2). Then draw randomly one village from each population.

Step 4. Randomly assign one of the two villages chosen in step 2 and step 3 to redistributive treatment, and the other village to public goods treatment. The remaining $n_j - 1$ villages in district j and $n_k - 1$ in district k are assigned to control groups.

Thus, the experiment is a *randomized block experiment* with treatments being assigned to subunits (villages) as within some randomly chosen units (electoral districts).

Design of experimental platforms

After the selection of the villages was completed, the two types of messages were designed with the active collaboration of the campaign managers of the parties and based on the platforms that the parties have adopted. A public goods message raised issues pertaining to poverty alleviation, public health and education reform, agricultural and industrial development. A distributive policy message, in contrast, took the form of a specific promise to the village. It took the form of promised government patronage jobs or local public goods such as establishing a new local

university, financial support for local fishermen or cotton producers. Thus, by in large, a public good message and a distributive policy message stressed the same issues. However, the former stressed the issue as part of a national programme, while the latter stressed the issue as a specific project to transfer government resources to the region or the village. In order to facilitate a clear distinction between the two types of messages and enhance the *internal validity* of the experiment, a public goods message never promised patronage jobs and a redistributive policy message never promised education reform or a vaccination campaign. In addition, while campaign workers stressed the need for ethnic cooperation and harmony when they deliver the public goods messages, they outline (whenever possible) the ethnic ties of the candidate with the local voters.¹²

It is worth stressing the fact that a typical platform is a mixture of redistributive and public goods messages on public health, education, etc... For the purpose of the experiment, the parties kindly offered to “purify” their platforms in the treatment districts into ones which were purely redistributive or purely public goods. In other words, just like in any regular political campaign, the parties involved in the experiment are running on their own platforms. The only difference here is that they slightly adapted the campaigns that they intended to run in some villages to fit the objectives of the experiment. Thus, there is no real risk of Hawthorne and John Henry effects because treatments were imbedded in regular political campaigns.¹³

Formally, denote by d_k the redistributive content of candidate k 's platform, and by p_k the equilibrium public goods content of the platform adopted by candidate k . The experimental platform presented in the redistributive treatment villages is $(d_k, 0)$ and the experimental platform in the public goods village is $(0, p_k)$ or even $(0, p_k)$. We have $(d_k, 0) = T_D^k$ (distributive treatment by k), $(0, p_k) = T_P^k$ (public goods treatment by k) and $(d_k, p_k) = C^k$ (the control platform of k).

Following the design of the campaign messages, teams of campaign workers are created and trained. Each team is composed of two members, one a party activist and the other a research assistant on the project with no party affiliation. The

¹²The experiment would have been more informative if the platforms were focussed on one or two policies, say education, health care and patronage jobs. This was not possible this time because the platform has to reflect the actual electoral strategies of the candidates.

¹³Hawathrone and John Henry occur when the difference between control and treatment groups is essentially due to the fact that the subjects are aware that they are being observed.

training consists of a presentation of the goal of the project, and an exposition of the different types of messages and campaign techniques. The training, monitoring and supervising of the campaign workers is provided by a four-member team of supervisors and consultants. Two of the consultants are statisticians; the other two are graduate students in the social sciences.

The teams of campaign workers were assigned to villages depending on their ethnic origin and their ability to speak the local languages. The activists sent individual weekly reports of their campaign activities to the team of supervisors. The team of supervisors then visited them three to four times a month to make sure that the two types of treatments were not confused.

Treatments

During each week for three months before the election, the campaign workers contact voters in their assigned villages. With the help of the local party leader, they first settle in the village, and then contact the local administration, religious or traditional authorities, and other local political actors. They contact individuals known to be influential public figures at home to deliver their campaign messages. They meet groups of 10 to 50 voters at sporting and cultural events. They also organize public meetings of 50-100 people. On average, visits to households last about half an hour and large public meetings about two hours.

A typical distributive policy meeting starts with the following introduction by our local team:

“We are the representatives of the candidate (say) Saka, who is running for president in the upcoming election. As you know, Saka is running because our region lags behind in nearly all indices of economic development: literacy, infrastructure, health care, etc. If elected, he will help promote the interests of the region, by building new schools, hospitals, roads and more importantly, by hiring more people from the region in the public administration.”

In contrast, a typical public goods meeting starts with the following introduction:

“We are representative of (say) Saka, our party stands for (say) democracy

and equality. Candidate Saka is running as the opposition/incumbent candidate. If elected, he will engage in a nation-wide reform of the education and health care system placing an emphasis on building new schools, new hospitals and vaccination campaigns. In conjunction with other opposition leaders, we will fight corruption and promote peace between all ethnic groups and all the regions of the country.”

After the introductory statement, a discussion period ensues during which detailed explanations will be provided on the relevant type of platform. Thus, a distributive policy message highlights the candidate’s ethnic affiliation, singles out the interests of the region, and promises pork barrel projects and patronage jobs. Meanwhile, a public goods message emphasizes the candidate’s affiliation to the incumbent or opposition coalition, and outlines a socio-economic and political project for the country as a whole.

A potential problem for the internal validity of the experiment is the diffusion of non-experimental messages by radio and television. Indeed during the elections there were 15 radio stations that covered about 80% of the country and two television stations covering about 75% of the country. However, government statistics suggest that only 1 out of 5 rural voters possesses a radio and 1 out of 50 possesses a television set (INSAE report 2001). In addition, the fact that less than 30% of the rural population is literate and that over 80% of the radio and TV programs are in French seriously limit voters’ access to campaign messages. It is not surprising then that the most dominant form of political communication is canvassing, large meetings and rallies.¹⁴ This implies that there is not much risk (if at all) that radio and TV messages would “corrupt” the delivery of the experimental messages and therefore affect the internal validity of the experiment. Moreover, since radio and TV messages were broadcast in all villages, both control and treatment groups would have been equally affected by them. Thus, those messages would introduce no bias in the treatment effect.

¹⁴See Banegas (1998).

Data Collection¹⁵

After the elections, a survey was conducted in all treatment districts. In each district, a representative sample of voters were interviewed in the two treatment villages and from the control villages. The data have three main components. The first component included demographic characteristics such as gender, marital status, education, income and ethnic affiliation. The second component comprised the degree of exposure to the messages in order to estimate the contact rate. Finally, and more importantly, data on voting behavior were collected. For instance, questions were asked about turnout, knowledge of the main candidates, preferences for candidates, and vote choice in the previous presidential or legislative elections.

In a given district, the experimental villages have similar political and economic characteristics with control villages and have been randomly assigned to treatments. This helps limit or even eliminate potential bias originating from ignoring village fixed effects. Thus if a woman from a treatment village in a given district is say 20 percent more likely to vote for the candidate involved in the experiment than a woman from the control village, then we can assert that this is due to the fact that the former was exposed to the treatment and the latter was not.

Finally, since the main goal of the paper is to investigate the *conditional effect of treatments given individual traits* such as gender and ethnicity, the unit of my econometric analysis is the individual voter not the village, even if treatments were assigned to villages, that is to groups of individual voters.

ESTIMATION OF THE TREATMENT EFFECTS

The random assignment of villages to treatments makes the estimation of treatment effects fairly straightforward. The effect of T_P^k and T_D^k can be obtained by simply taking the difference in empirical means of an outcome of interest, i.e. voting behavior between the relevant treatment group and the control group. More precisely, denote by y_i^k the probability that voter i votes for k where $0 \leq y_k \leq 1$. Denote also by $(d_k, 0) = T_D^k$ (redistributive treatment by k), $(0, p_k) = T_P^k$ (public goods treatment by k) and $(d_k, p_k) = C^k$ (the control platform of k). T_D^k , T_P^k and C^k are dummy

¹⁵This section draws from Wantchekon (2003).

variables that are assigned a value of 1 if the voter is in the redistributive, public goods and control group respectively, and 0 otherwise. Let $\widehat{E}(\cdot)$ be the estimated conditional mean of y_k . The average redistributive treatment effect is given by

$$\widehat{E}(y_k | T_D^k = 1) - \widehat{E}(y_k | C^k = 1).$$

The difference-in-means analysis is complemented by a probit analysis of voting behavior. The analysis uses both the vote and the rank-order of the candidates or the preference data. “Preference” takes a value of 1 if the voter ranks the candidate as the top candidate and 0 otherwise.¹⁶

In the basic specification, we have

$$y_i^{*k} = \alpha + X_i' \beta + \gamma_1 T_D^k + (X_i * T_D^k)' \gamma_2 + \varepsilon_i$$

where y_i^{*k} is a latent, unobserved and continuous variable that determines the value of the dependent variable y_i^k .

$$y_i^k = 1 \text{ if } y_i^{*k} > 0 \text{ and } y_i^k = 0 \text{ if } y_i^{*k} \leq 0.$$

X_i is a vector of individual traits such as gender, and age, i.e. $X = \{\text{Age, Male, Ethnic Ties}\}$ where “male” denotes the gender of the voter and takes the value 1 if the voter is male and 0 if she is female; Age is a continuous variable and Ethnic Ties measures ethnic ties between the voter and the candidate and takes a value 1 if the voter is from the same ethnic group as the candidate and 0 otherwise. T_P^k and T_D^k capture the use of a distributive or public goods treatment. $T_D^k * X_i$ is a vector of interaction terms that allows us to test whether the impact of the treatment is conditional or changes systematically by gender, age or ethnic affiliation. ε_i is the random disturbance term. In addition, the coefficients β indicate the effect of individual traits. γ_1 indicates the causal effect of the treatment when age, gender or ethnic group is 0. The estimated causal effect of the treatment is $\gamma_1 + \gamma_2 * X_i$. The estimated causal effect of the individual traits $\beta + \gamma_2 * T_i^k$.

¹⁶Note that by simply comparing the voting preference data, one can measure sincere and strategic voting. A voter is said to vote sincerely for candidate k , if k is also his most preferred candidate and he is voting strategically.

ETHNICITY AND TREATMENTS

Table I displays differences in voting behavior across treatment and control groups. Column (1) presents the 8 districts. We first have the four Northern districts (Kandi, Nikki, Bembereke and Perere), followed by the four Southern districts (Abomey, Ouidah, Aplahoue and Dogbo). Column (2) presents the candidates running experiments in the districts. Column (3) and (4) indicate the number of registered voters in redistributive, public goods and control groups respectively. Column (5) presents number of voters from each group and in each district who participated in the post-election survey. Finally, column (6) presents the mean of the vote in the sample of voters surveyed in each group (standard error in parentheses) and column (7) the mean of the vote of in the population of registers voters, based on actual election returns collected from the National Election Commission (CENA).

In each district the estimated mean of the vote in the redistributive treatment village is greater than or equal to the mean in the control village. The results hold both in the sample and the population with one exception, Dogbo. In contrast, the sample mean of the vote in public goods treatment groups is lower than the sample mean in the control group in all but 3 districts (Dogbo, Abomey-Bohicon and Ouidah). The results are however more mixed in the population at large, which indicates that the survey-based estimates *underestimate* the actual effect of the public goods treatment! The vote outcome is lower in only 3 out of 8 districts. The countrywide outcome indicates that the average redistributive treatment effect is positive ($0.84 - 0.74 = 0.10$) and the average public goods treatment effect is negative ($0.69 - 0.74 = -0.05$).

Table II presents the estimation results using the individual survey data. The first column presents the types of candidates, the following three columns the means of voting behavior in the public goods and the redistributive treatment groups and the control groups respectively. Sample sizes are indicated right below the means and standard errors are in parentheses. The last two columns present the average public goods treatment effect and the average redistributive treatment effect.

The results also indicate a positive and significant distributive treatment effect and a negative public goods treatment effect on average. In addition, the distributive treatment effect is positive and significant for all types of candidates. The public goods treatment effect is negative and significant for regional candidates, northern

and incumbent candidates, but positive for southern candidates. A direct comparison of the treatment effects, i.e. distributive versus control (not shown) reveal that redistributive platforms are much more effective for northern candidates.

Tables III presents the probit analysis of the effects of ethnic ties and treatments with and without interaction effects. The interaction terms allow for an examination of how the impact of the treatments is modified by ethnic ties. Column (1) presents results in the voting model without the interactions between ethnic ties and treatments and column (2) the marginal effects of the independent variables on voting outcomes. Column (3) and (4) present the coefficients and marginal effects with the interaction terms. Finally, column (5), (6), (7) and (8) replicate the same analysis for the “preference model”.¹⁷ In the models without the interaction terms, the point estimate and the marginal effect are positive and significant for ethnic affiliation, positive and significant for redistribution, negative and significant for public goods treatments. Thus, there is significant ethnic voting. In addition, voters in the redistributive treatment groups are more likely to vote for and to prefer the experimentalist candidate than those in the control group. In contrast, those in the public goods treatment groups are less likely to vote for or to prefer the experimentalist candidate than those in the control group. Redistributive treatments have a positive and significant effect for all types of candidates (not shown) and public goods treatments is negative for all types except for the southern candidates but are not significant (not shown).

The Modifying Effect of Ethnicity

I now provide a probit analysis of the effect of ethnic ties given that the voter has been exposed to public goods platforms. In the voting model with interactions (columns (3) and (4)), the effect of public goods treatment when Ethnic Ties is 0 (i.e. when the voter is not in the same ethnic group as the candidate), is negative and significant. However, when Ethnic Ties is set to 1, I find that the conditional effect of public goods treatments when ethnic ties is set to 1, is not statistically different from zero. Similar results hold in the preference model (columns (7) and (8)), except that the effect of the interaction term between public goods and the treatment is

¹⁷Again, “preference” is the dependent variable that takes a value 1 if the respondent ranks the candidate as his or her top candidate in the election and 0 otherwise.

not significant. The results also hold and are particularly strong for the national candidates (not shown). Thus, ethnic ties do not weaken the demand for public goods (by ethnic affiliates). In fact, the negative effect of public goods treatment is driven by the voting behavior of voters from ethnic groups other than that of the candidate!

Next, I turn to the effects of ethnicity given that the subject has been exposed to redistributive platforms. In the voting model, the effect of redistributive treatment is positive and significant when Ethnic Ties is 0, positive but insignificant when Ethnic Ties is 1. However, in the preference model, the redistributive treatment is negative but insignificant when Ethnic Ties is 0 but positive and significant when Ethnic Ties is 1. This indicates that the demand for redistribution is largely driven by ethnic ties, which is consistent with standard theories of ethnic voting (see Alesina, Baqir and Easterly [1999] and Nielsen [1985].) The results are very transparent in the “preference” estimation, but much less so in the voting estimation. Since the preference variable can be seen as a proxy for sincere voting, this could indicate that electoral systems that are more likely to generate sincere voting in ethnically divided countries (e.g. proportional representation), are more likely to be associated with a stronger ethnic demand for redistribution.¹⁸

To make sense of the results, let us first note that redistributive platforms are targeted promises of local public goods and ethnically driven patronage jobs, while public goods platforms are essentially general and perhaps vague promises of some social welfare maximizing distribution of local or national public goods across the country. The fact that co-ethnic voters tend to be supportive of both types of treatments may be because they believe that even a national programme of public goods provision should to some extent benefit them since it will be implemented by one of theirs. In addition, co-ethnic voters have a slight preference for targeted redistribution perhaps because accountability mechanisms work better with redistributive platforms than with public goods platforms. The same might be true for non ethnic affiliates. They reject broad-based appeals perhaps because they have not been made by one of theirs and therefore are not credible. They prefer redistribution because it includes targeted local public goods, a promise that has better chances of being

¹⁸This conclusion is consistent with Milesi-Ferretti, Perotti and Rostagno (2002).

implemented.¹⁹

ETHNICITY, GENDER AND TREATMENTS

I now investigate the combined causal effect of ethnic ties and gender on the demand for redistribution and public goods. The goal is to examine the claim that, together with ethnic ties, gender considerations mitigate the negative effect of public goods treatments. I therefore include the interactions terms between ethnic ties and treatments, gender and treatments, and ethnic ties, gender and treatments. As before, I extend the scope of the analysis by using both the aggregate voting data and the preference for candidate data.

Based on our discussion above, we should expect at the very least that (1) the coefficient on the interaction term for public good, ethnic ties and female (i.e. when male is 0) to be positive and (2) the coefficient on the interaction term for public goods, ethnic ties and male to be negative. Tables IV indicates that both those interactions terms have the right signs and are significant either in the voting model or the preference model.

Insert Table IV here

Interestingly, female voters from ethnic groups other than those of the candidate seem to be aligned with male voters in their aversion for public goods messages. The effect for public goods interacted with no ethnic ties and female is negative in both the voting and the preference analysis. In addition, the conditional effect of public goods treatment when both ethnic ties and male are set to 1 is negative and significant. The effect is much larger when ethnic ties is set to 0, which indicates that, even among male voters, ethnic ties have a mitigating effect on public goods treatment. This result is confirmed by the fact that the effect of ethnic ties is positive and significant when both public goods and male are set to 1. As for female voters (i.e. male = 0), the effect of public goods when ethnic ties is 0 is zero (as opposed to positive for male voters) and the effect of public goods when ethnic ties is 1 is positive and significant. Thus the introduction of the ethnic ties variable makes the gender gap result in the public goods treatment effect more transparent.

¹⁹This is because, as I mentioned earlier, accountability mechanisms are more effective with targeted transfers than with national public goods.

To further identify the gender gap on public goods treatments, I compute the conditional probabilities of the vote when male is set at 1 and 0. I find that when all other independent variables have been set at their means or mode, a male voter will vote for the (experimentalist) candidate with probability 0.025 when exposed to public goods treatments as opposed to 0.272 for a female voter. In the case of redistributive treatments, it is 0.199 for a male and 0.076 for a female.

As for the redistributive treatments, the effect is positive, significant and almost identical when male is 1 or 0. In contrast, the effect of redistribution when male is 1 and ethnic ties is 0 is insignificant and the effect of ethnic ties under redistribution when male is 0 is also insignificant. Thus, the results indicates that (1) there is no significant gender gap in voters' response to redistributive treatments and (2) ethnic ties tend to have an accelerating effect on redistributive treatments.

As discussed in Wantchekon (2003), women are more public spirited and more altruistic, and value child welfare policies more than men is consistent with evidence reported by Chattopadhyay and Duflo [2001] and Thomas [1994]. However, Chattopadhyay and Duflo [2001] also find that women tend to favor local public goods such as irrigation and roads while men tend to favor global public goods such as education. The experimental evidence from Benin indicates that women not only tend to favor public services that benefit them and their children more than patronage jobs. They are also less reluctant in having these services being offered in the other district of another ethnic group. This stronger support by female voters for broad public policies can be explained by the fact that they are spatially more mobile than men. Indeed, Fafchamps and Madhin-Gabre [2001] find that at least 80% of interregional traders in Benin are women. The evidence also suggests that most traders in Benin travel on average 140 kms per week, and speak 3 native languages. In addition, about 49% of the regular suppliers and clients of a given trader are from ethnic groups other than his or her own.

The stronger support of female voters for public goods could also be explained by noting that about 2 out of 5 children over the age of 10 from a rural household live outside their hometowns either as a foster child, a student or a migrant worker (INSAE report, 2001). Under these circumstances, if we assume that women live through their children more than men do, then they are more likely to value nationwide programmes than men.

CONCLUDING REMARKS

This paper presents the results of a unique randomized field experiment on voting behavior in Benin. The paper provides a nuanced and parsimonious investigation of the impact of ethnicity and gender on demand for redistribution and public goods. I operationalize ethnicity by the ethnic ties between a voter and a candidate, instead of the degree of ethnic heterogeneity as is generally the case in the literature. I find that ethnic ties increase the demand redistribution but also (and more surprisingly) the demand for public goods. The evidence also suggests that female voters have stronger preferences for public goods than their male counterparts.

Is this gender gap in policy preferences and political behavior caused by economic conditions in the household? Is it due to the decline in marriage as documented by Edlund and Pande (2001) for the US case? Is the variance in the gender gap across regions a reflection of differences in the degree of political autonomy of women in the household? These questions will soon be addressed when household level data in the districts involved in the experiment become available. However, the preliminary evidence suggests that stronger preferences for public goods in some southern districts can be linked to political activism by local child welfare advocacy groups. Also, an examination of the post election survey data reveals that a higher proportion of southern women admit to voting independently from their families. As for the divorce rate, it is still too low (less than 5%) to have a significant effect on political outcomes.

The results discussed here indicate quite clearly and rigorously that ethnic voting does not necessarily imply that voters have a weak preference for public goods. In fact, they suggest that ethnic ties can help secure electoral support for nation-building policies so long as such policies are adopted by political leaders. A natural direction for future research therefore concerns the study of political institutions that are most likely to facilitate the adoption and implementation of broad-based development policies.

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Table I: Voting behavior in Treatment Groups and Control Groups.

District (1)	Candidate (2)	Exp. villages (3)	Reg. voters (4)	Sample size (5)	Sample mean (6)	Population mean (7)
Kandi	Kerekou	Redistribution	1133	61	1.00 (0)	0.81
		Public Goods	1109	60	0.49 (.50)	0.60
		Control	3896	61	0.96 (.18)	0.75
Nikki	Kerekou	Redistribution	462	60	0.95 (.21)	0.90
		Public Goods	1090	60	0.93 (.24)	0.85
		Control	2979	60	0.95 (.20)	0.82
Bembereke	Lafia	Redistribution	999	60	0.92 (.26)	0.94
		Public Goods	931	60	0.89 (.30)	0.93
		Control	5204	61	0.91 (.28)	0.74
Perere	Lafia	Redistribution	657	59	0.76 (.42)	0.81
		Public Goods	442	60	0.13 (.33)	0.25
		Control	4477	61	0.52 (.40)	0.58
Abomey	Soglo	Redistribution	1172	60	0.98 (.13)	0.91
		Public Goods	1199	60	0.98 (.13)	0.90
		Control	5204	61	0.74 (.15)	0.86
Ouidah	Soglo	Redistribution	321	60	0.93 (.25)	0.86
		Public Goods	701	61	0.92 (.26)	0.72
		Control	2414	60	0.73 (0.44)	0.64
Aplahoue	Amoussou	Redistribution	492	59	0.98 (.13)	0.87
		Public Goods	511	60	0.91 (.28)	0.77
		Control	4037	61	0.98 (.20)	0.72
Dogbo	Amoussou	Redistribution	1397	60	0.64 (.48)	0.65
		Public Goods	736	61	0.50 (.50)	0.47
		Control	1161	59	0.45 (0.44)	0.84

Table II: Voting in Treatment Groups and Evaluation of the Average Treatment Effects.

Dependent Variable	Public Goods (1)	Redistribution (2)	Control (3)	Public-Control (4)	Redist-Control (5)
Aggregate Voting	.588 (.024) 427	.785 (.019) 446	.658 (.230) 424	-.070 (.033)***	.124 (.030)***
Northern	.322 (.032) 208	.674 (.032) 218	.565 (.035) 200	-.243 (.048)***	109 (.047)**
Southern	.840 (.025) 219	.890 (.021) 228	.741 (.029) 224	.099 (.039)***	.149 (.036)***
Regional	.385 (.032) 226	.603 (.033) 224	.509 (.033) 230	-.124 (.046)***	.094 (.047)**
National	.816 (.027) 201	.968 (.012) 222	.835 (.027) 194	-.019 (.038)	.133 (.028)***
Incumbent	.693 (.032) 202	.897 (.021) 214	.835 (.027) 194	-.141 (.042)***	.062 (.033)*
Opposition	.493 (.033) 225	.681 (.033) 232	.509 (.031) 230	-.015 (.047)	.172 (.045)***

Note: Dependent variables: Voting is the probability of the vote for k, where k can be all candidates, or northern, southern, opposition, incumbent, regional or national candidates. Northern: Kerekou, Lafia; Southern: Soglo, Amoussou; Incumbent: Kerekou, Amoussou; Opposition: Soglo, Lafia; National: Kerekou, Soglo; Regional: Amoussou, Lafia. Each row gives the effects of the treatments for candidate k. *** means significant at the 99%; ** significant at the 95%, * significant at the 90%. Standard errors are in parentheses.

Table III. Probit Analysis of the Effects of Ethnicity and Treatments

	Voting		Voting		Preference		Preference	
	Coeff.	M.E.	Coeff.	M.E.	Coeff.	M.E.	Coeff.	M.E.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	0.167 (0.269)		0.219 (0.276)		0.032 (0.281)		0.123 (0.287)	
Male	-0.069 (0.080)	-0.026	-0.076 (0.147)	-0.028 (0.030)	-0.116 (0.790)	-0.045 (0.035)	-0.131 (0.079)	-0.051 (0.031)
Age	0.003 (0.002)	0.001 (0.000)	0.003 (0.003)	0.001 (0.000)	0.001 (0.002)	0.000 (0.001)	0.001 (0.002)	0.000 (0.001)
Ethnic Ties	0.705*** (0.245)	0.272** (0.09)	0.624** (0.283)	0.241** (0.098)	0.797*** (0.257)	0.309*** (0.094)	0.628** (0.269)	0.024*** (0.102)
Public Goods	-0.283*** (0.090)	-0.108*** (.0349)	-0.584*** (0.168)	-0.224*** (0.063)	-0.183*** (0.091)	-0.072** (0.035)	-0.397** (0.167)	-0.156*** (0.065)
Redistrib.	0.417*** (0.092)	0.153*** (0.036)	0.399** (0.180)	0.146** (0.063)	0.238*** (0.090)	0.092*** (0.094)	-0.170 (0.167)	-0.067 (0.066)
Ethn.*Red.			0.026 (0.209)	0.010 (0.078)			0.580*** (0.199)	0.216*** (0.069)
Ethn.*Pub.			0.427** (0.199)	0.154** (0.067)			0.303 (0.199)	0.116 (0.074)
N	1411	1411	1411	1411	1411	1411	1411	1411
log-L	-756.685	-756.685	-753.697	-753.821	-778.376	-778.376	-774.126	-774.125

Note: Each column gives the results of the probit analysis of the dependent variable (aggregate vote and preference) on gender dummy, age, ethnicity dummy, treatments dummies, with or without the interactions between ethnicity and treatments. Ethnic Ties takes a value of 1, if the voter is in the same ethnic group as the candidate and 0 otherwise. *** means significant at the 99%; ** significant at the 95%, * significant at the 90%. Standard errors are in parentheses. Coeff. stands for coefficients and M.E. stands for marginal effects.

Table IV: Probit Analysis of the Effects of Ethnicity, Gender, and Treatments

	Voting		Preference	
	Coeff	M.E.	Coeff	M.E.
	(1)	(2)	(3)	(4)
Constant	-1.569 (0.318)		-1.912*** (0.294)	
Male	0.050 (0.241)	0.819 (0.916)	0.275 (0.238)	0.108 (0.094)
Age	0.003 (0.003)	0.001 (0.001)	0.001 (0.002)	0.001 (0.001)
Ethnic Ties	0.622 (0.322)	0.240* (0.124)	0.914** (0.327)	0.352*** (0.117)
Public Goods	-0.525*** (0.251)	-0.210** (0.124)	-0.743*** (0.250)	-0.289*** (0.094)
Redistribution	0.919** (0.361)	0.319** (0.110)	-0.021 (0.283)	-0.008 (0.111)
Ethn.*Redistribution.	-0.422 (0.413)	-0.163 (0.161)	0.283 (0.281)	0.108 (0.129)
Ethn.*Public Goods	0.520* (0.313)	0.185** (0.103)	0.661** (0.312)	0.243** (0.105)
Ethn.*Male	0.145 (0.300)	0.006 (0.112)	-0.337 (0.291)	-0.132 (0.113)
Male*Public Good	-0.096 (0.331)	-0.140** (0.082)	0.711** (0.336)	0.256** (0.106)
Male*Redistribution	0.710* (0.420)	-0.270* (0.160)	-0.246 (0.349)	-0.097 (0.138)
Ethn*Red.*Male	0.602 (0.482)	0.206 (0.144)	0.452 (0.420)	0.169 (0.146)
Ethn*Pub.*Male	-0.131 (0.401)	-0.503 (0.156)	-0.781* (0.406)	-0.303* (0.146)
N	1411	1411	1411	1411
log-L	-751.626	-760.477	-765.266	-765.266

Note: Each column gives the results of the probit analysis of the dependent variable (aggregate vote and preference) on gender dummy, age, ethnic ties dummy, treatments dummies, with the interaction terms between ethnicity and treatments. Ethnic Ties takes a value of 1, if the voter is in the same ethnic group as the candidate and 0 otherwise. *** means significant at the 99%; ** significant at the 95%, * significant at the 90%. Standard errors are in parentheses.