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

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Abstract

Do ethnic divisions reinforce the demand for redistribution and weaken the demand for public goods? Is there a gender gap or generation gap in these demands? I address these questions in the context of a randomized field experiment in Benin. In collaboration with four political parties involved in the 2001 presidential elections, "purely" distributive platforms and "purely" national public goods platforms were designed and presented in twenty villages. Each village contained 756 registered voters on average. Using post-election data, I compare the voting behavior in villages exposed to the experimental platforms (treatment groups) with that in the other villages (control groups). I find that demand for redistribution is stronger but the demand for public goods is not necessarily weaker when voters and candidates are from the same ethnic group. I also find that women tend to have stronger preferences for public goods than men. Finally, the results suggest that a gender gap in the preferences for public goods and ethnic ties between voters and candidates mitigate the negative effect of public goods treatments.

INTRODUCTION

There is a growing consensus among economists and political scientists that excessive and inefficient redistribution that leads to the underprovision of public goods is one of the prime causes of underdevelopment.[1] The literature has focused almost exclusively on the economic and political factors that determine whether *supply* of public goods is low, such as income inequality, low productivity, ethnic divisions and proportional electoral systems.[2] Little is known about the determinants of the *demand* for public goods. The standard assumption in the literature is that voters have weak preferences for public goods. This is particularly true in the presence of ethnic divisions. According to Alesina, Baqir and Easterly (1999), this preference emerges either because ethnic groups differ in their preferences over which type of public goods to produce with their tax revenues, or because the utility they derive from a given public good is reduced when other groups also use it (p. 1244).[3] Given voters' weak preferences for public goods, electoral incentives drive politicians to target specific groups and divert public resources to private patronage. Thus under any given electoral system, there would be no variation in the amount of public goods provided since the structure of voters' preferences remains fixed.

Yet, preferences for redistribution might vary greatly across, and even within, ethnic groups. For example, the promise of patronnage jobs might be less appealing to women than men within a given ethnic group because men are more likely to be the beneficiaries.[4] In contrast, issues of national interest such as public health or child welfare policies could be more appealing to women because women tend to be more concerned with the welfare of their children. These children tend to be spatially

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

[2] See 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.

[3] Individuals in most ethnically heterogeneous societies have half of the education of ethnically homogeneous countries. Ethnically heterogenous countries also have less than 50% of the roads found in homogeneous countries, and one thirteen of the telephones per worker (Easterly and Levine [1997]).

[4] Government statistics indicate that women represent only 18% of the low level public sector work force in 1997 and 6% of the high level public sector workforce in Benin.

mobile. Regions and social groups that are relatively more involved in interregional trade may tend to value the development of the national infrastructure very highly.

The goal of this paper is to provide experimental estimates of the demand for public goods and to test several hypotheses pertaining to redistributive politics in Benin. The questions are: do voters have stronger preferences for redistribution than for public goods or projects of national interest? Do ethnic divisions reinforce the demand for redistribution? Is there a gender or generation gap in such demand? My empirical strategy consists of a field experiment that took place in the context of the 2001 presidential elections in Benin. Randomly selected villages were exposed to "purely" redistributive platforms and "purely" public goods platforms. The experiment was the first ever nationwide randomized study of voter behavior involving real candidates using real platforms. I find that (1) ethnic solidarity or loyalty strengthens the demand for redistribution but does not necessarily weaken the demand for public goods, (2) women tend to have stronger preferences for public goods than men, (3) a gender gap in preferences for public goods and ethnic solidarity mitigate the negative effects of public goods messages.

A parsimonious study of the structure of public goods demand is important to social scientists for a variety of reasons. First, conventional wisdom holds that public goods are underprovided because politicians believe that voters have a much stronger preference for redistribution. Thus, evidence for variation in preferences for redistribution across groups or gender would represent an important contribution to the literature and would have important policy implications.[5] Second, in many developing countries, a significant proportion of public goods are supplied by international aid agencies or NGOs and not by government agencies.[6] For example, during the past eight years, the World Bank, the African Development Bank and other agencies have funded more than 70% of new investments in education, public health and rural infrastructure in Benin. One implication of this delegation of authority is that public goods provision is less politicized and increasingly driven by citizen preferences. Third, by carefully controlling for ethnicity, an experimental mechanism to uncover voters' preferences could help clarify the causal relationship between ethnic divisions

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[5]Rubenfeld, Shapiro and Roberts (1987) find that black voters in Michigan are more supportive of public spending on education than their white counterparts.

[6]Besley and Ghatak (2000) develop a contract theoretical approach to analyze this situation.

and redistributive politics, a question that Easterly and Levine [1997] consider to be at the heart of the current debate on the failure of development policies in Africa.

This paper addresses key empirical questions pertaining to the politics of public goods provision by collecting and using unique experimental data, and provides an empirical foundation for the growing theoretical literature on redistributive politics.

The 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.[7] Bates [1983] argues that ethnic ties and spatial concentration of ethnic groups make it easier for local citizens to lobby for local public goods or projects of regional interest. For Fearon and Laitin [1996] and Fearon [1999], 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 lead to a higher demand for "pork" or projects of local interest. The evidence presented here indicates that ethnic solidarity is associated with the high demand for both "pork"and public goods depending on the particular circumstances. The effect of ethnic divisions on public goods provision crucially depends 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, the degree of political autonomy among women.

The methodology of this study is part of an emergent literature on field experimental research in economics and political science. In political science, randomized field experiments have focused on studying the way in which various techniques of voter mobilization (mail, canvass, telephone) affects voter turnout.[8] The present study differs from previous experimental studies in political science in a number of ways.

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[7]In 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 divisions and public goods provision in Kenya. They attribute the result to the fact that the provision of public goods requires collection action, which is hard to sustain in heterogeneous communities.

[8]Gosnell (1927), Elderveld (1956), Adams and Smith (1980), Miller, Bositis and Baer (1981), and more recently Green and Gerber (2000).

First, my dependent variable is vote choice, not voter turnout, and my treatment is political platforms, not voters' mobilization techniques. Second, the data generated by the experiment (political attributes of the parties, personal attributes of voters) helps identify the treatment effects associated with various type of candidates (incumbent and opposition, local and national). The data also help to identify the treatment effect in a variety of settings, e.g. the Northern districts versus Southern districts, or across demographic groups, e.g. male versus female.

The paper contributes to the small but important literature on empirical public economics that examines the determinants of the demand for public goods.[9] Gramlich and Rubinfeld [1982] provide structural estimates of public spending demand functions using responses to questions given to a random sample of 2001 households from Michigan. Even though this survey provides a wealth of fiscal, demographic and voting information, Gramlich and Rubenfeld concede that the procedure is not entirely reliable because "like all other survey data, respondents do not have to act on the basis of their answers" (p. 537). Experimental strategies to estimate the demand for public goods overcome these limitations because the demand is *revealed* through the respondent's voting behavior.

The paper also builds on recent attempts to uncover a gender gap in policy preferences. For instance, Thomas [1990 and 1994], and Duflo [2000] find that women have stronger preferences for child health care policies than men. In particular, they find that child welfare is more responsive to changes in women's income than men's. Thomas [1994] finds that women devote more time advocating on issues related to public health, while men tend to focus on economic policy. In another related paper, Chattopadyay and Duflo [2001] examine the policy implications of an affirmative action type reform in India in which seats are set aside for women in a number of randomly chosen local governments.[10] They compare the types of policies implemented in reserved and unreserved village councils and find a significant gender gap. In particular, they find that while women tend to invest in infrastructure directly relevant to the needs of rural women such as water, fuel and road composition, men tend to invest more in education. Again this indicates that men and women have

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[9] See Rubinfeld (1987) for a review of the literature.

[10] See also Pande (2003) for similar results for the case of mandated political representation of low casts groups in India.

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distinct policy priorities.

Overall, the present study makes two important contributions. Methodologically, it is the first to extend experimental research to democratic elections and voting behavior. It therefore introduces new techniques to cope with several new challenges such as the risk that the experiment affects the outcome of the election at the national level. Substantively, the experiment generates a set of new results that shed lights on several substantive issues pertaining to distributive politics, e.g. incumbency effects, a weaker preference among female voters for redistribution, and the relative independence of ethnic voting and clientelism. Before, I present the nature of the experiment and discuss its results, I briefly outline the main theoretical argument of the paper, followed by a description of the context, and the design of the experiment.

A THEORETICAL FRAMEWORK

Alesina, Baqir and Easterly [1999] argue that ethnic heterogeneity is associated with a lower level of public goods provision. The argument is based on a model in which members of a jurisdiction have to decide on the level or the kind of public good to be provided. The members of the jurisdiction have preferences over consumption, and over public goods. In particular, their preference for public goods is single peaked, e.g. utility loss associated with public goods is the distance between a jurisdiction's most preferred level of public goods and the actual level provided. The heterogeneity of the taste for redistribution is assumed to reflect the degree of ethnic diversity. It is also assumed that income and tax rates are exogenous and equal across members, and that private consumption is equal to disposable income. In addition, the value of the public good is equal to the per-capita tax revenue. Under the assumption that members of the jurisdiction choose the tax rate and then the amount of the public good, ABE [1999] show that (1) the median voter's most preferred level of public goods is chosen in equilibrium and (2) the equilibrium level of public goods decreases when the electorate becomes more polarized. In other words, when a relatively large proportion of the population has preferences far from the median, they will choose to devote more resources to consumption over investment in public goods.

Even though the model provides a useful starting point, it does not consider the fact that preferences for public goods might vary greatly within each group and that this

could mitigate or even annihilate the adverse effect of ethnic divisions on the demand for public goods. To see why, assume that there are two kinds of public goods, one that can be easily targeted towards a specific group such as patronage jobs, and one that is non-excludable such as public health. Assume that the jurisdiction consists not of individuals but of households whose members may have different and potentially conflicting preferences over the two types of the goods. In particular, assume that in a given household, the man may have stronger preferences for targetable public goods such as patronage jobs and that the woman weighs non excludable public goods more heavily. Assume that intra-household bargaining determines household preferences. It is easy to show that when the bargaining power of the woman in the household increases, the equilibrium level of public goods also increases. In other words, conflictual preferences within the household can help overcome the adverse effect of ethnic conflict on public goods provision. As a result, ethnic polarization may not lower the demand for public goods.

Similar results could be derived if, for example, the consumption of local public goods in one jurisdiction exhibits an external effect on the consumption of local public goods in another jurisdiction. One can also assume that the provision of local public good requires the support of voters or a political party from another juridiction, which cannot be obtained unless some local public goods is 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 "programme" for local public goods provision in both jurisdictions, not on a "programme" of pure redistribution. 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.

The result is consistent with evidence from several African countries such as Ivory Coast and Senegal in the 1960s and 1970s, discussed in Lemarchand (1977). Lemarchand concluded that in the presence of "spillovers of reciprocities" and changing ethnic coalitions, clientelism (redistributive policy) offers a broad range of strategies

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for the achievement of national integration and nation-building (p. 103).

THE CONTEXT

The Republic of Benin (formerly Dahomey) is located in West Africa between Togo and Nigeria. The majority of the country's population (6,200,000) falls within four major ethnolinguistic groups: Adja in the south-west, Yoruba in the south-east, Fon in the south and center and Bariba in the north. Benin was colonized by France in 1894 but gained independence in 1960. 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. The president is elected through simple majority rule with run-off elections.[11]

The 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.

There are currently six main political parties in Benin, three of them in the opposition coalition and three in the government coalition. 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

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[11] That is, if no candidate reaches this majority during the first round, a second round is organized for the top two candidates on the list and the plurality winner is elected.

(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 Houngbedji based in the south-east region.

Sustained political reforms since 1990 enabled the country to achieve a 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, "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, in 2001 up to 34% of tax revenues and 26% of total government revenues were devoted to the wages of government employees, most of whom are political appointees.

A major obstacle to improvement in public services and to a reduction in patronnage redistribution resides in the political process. In Benin, as in most developing countries, politicians use clientelist redistribution to buy votes. The strategy is made more effective when voters are poor. Thus, clientelist redistribution seems to be both a cause and a consequence of poverty (Robinson and Verdier [2000]). Below, I provide experimental evidence for the relative effectiveness of public goods messages vis-à-vis redistributive policy, thereby uncovering the demand for redistribution across regions and demographic groups. I point to a gender gap as a potential explanation for the variance in the demand for redistribution

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 of its long tradition of political experimentation. As a result, politicians in Benin tend to be relatively open to research and outside intervention that would help improve efficiency.[12] Finally, the distribution of votes in previous

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[12]For instance, the political leaders in Benin were the first to introduce the rotating presidency

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%.[13] As a result, a second round election posing Kerekou against Soglo in the 2001 presidential elections was a near certainty.

Benin also has the advantage of a relatively weak interregional disparity in key socio-economic indicators. Table I (in appendix) indicates that the provinces involved in the experiment have fairly similar social indicators.[14] Perhaps with the exception of electrical subscription (which is 34.12 in Atlantique but averages 6.49 elsewhere)[15]. Borgou has the highest life expectancy at birth (59.2) and Zou has the lowest (52.7). Student/class ratio ranges from 59.76 in Mono to 50.48 in Zou and the student/teacher ratio ranges from 67 in Mono to 49 in Atlantique. Education outcomes (total primary school pass rate, total primary left-back rate, total primary school drop-out rate) are also very similar.[16] Because of the relative convergence of the provinces in terms of economic development levels, differences in observed outcomes can more easily be linked to differences in treatments. As a result, the identification of the average treatment effects is greatly facilitated, and the external validity of the experiment, i.e. the extent to which its results can be generalized to the entire country, greatly improves.

There are several features of the experiment design that are worth stressing. In the standard experimental design, an experimentalist draws subjects from the popu-

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formula to curb ethnic strife in 1969. The formula was later adopted by leaders of 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])

[13]In 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%.

[14]As I indicated below, the expreiement took place in Kandi. Nikki, Bembereke, Perere, Abomey-Bohicon, Ouidah, Aplahoue and Dogbo-Toviklin. Kandi. Nikki, Bembereke and Perere are located in the Borgou province; Abomey-Bohicon is the Zou province, Ouidah is the Atlantique province. Finally, Aplahoue and Dogbo-Toviklin are located in the Mono province.

[15]This is due to the fact that Atlantique includes the country's largest city Cotonou. As we explain below, Cotonou did not participate in the experiment.

[16]Note, however, that Mono has the best education outcomes despite having the most overcrowded classrooms.

lation 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.

EXPERIMENT DESIGN

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 95% 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 90% Adja.

The third step consists of a thorough survey of public goods provided in those districts during the previous two electoral cycles (1991-1996 and 1996-2001). The data were collected in three stages. First, a team of field researchers travelled throughout the length and breadth of each district to collect detailed information about rural infrastructures, public schools, health care facilities, and vaccination campaigns. Second, we consulted administrative records from the government, aid agencies and NGOs to determine the cost and scope of the projects. We classify as public goods, all projects in public health, education or infrastructure that cover at least 3 of the 6 provinces of the country. A project located in only one or two localities is defined as a local public good. The data collected on the nature or scope of the public goods were used to design the experimental platforms (see below).

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 picked 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 villages 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_1 the number of electoral districts or political units controlled by candidate 1 (say Amoussou). Assume that the ith district has n_i villages or political subunits. The randomization process consists of the following four steps:

Step 1. Complete randomization among districts, i.e. given the number of districts N_1, candidate 1 draws randomly 2 districts out of the population (say village j and k) 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 1 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.

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. 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 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 promises 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.[17]

It is worth stressing the fact that a typical platform is a mixture of distributive policy and public goods messages on public health and education. For the purpose of the experiment, the parties kindly offered to "purify" their platforms in the treatment districts into ones which are 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 Hawthrone and John Henry effects because the experimental campaigns were hardly distinguishable from the regular campaign.[18]

Formally, denote by d_k the equilibrium 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 $(d_k, p_k - \Delta p)$ or even $(d_k, 0)$ and the experimental platform in the public goods village is $(d_k - \Delta d, p_k)$ 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

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

[18]Hawathrone 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.

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 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 send individual weekly reports of their campaign activities to the team of supervisors. The team of supervisors visit them three to four times a month to make sure that the two types of treatments are 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

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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 possess a radio and 1 out of 50 possess a television set. In addition, the fact that less than 30% of 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.[19] This implies that there is very little 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.[20]

Data Collection

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 group.[21] The data have three main components. The

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[19] See Benagas (1998).

[20] Moreover, since radio and TV messages were broadcast in all villages, both control and treatment groups would have been equally affected by them. Thus, the messages introduce no bias in the treatment effect.

[21] Note that despite a strong degree of ethnic homogeneity within the experimental districts, I consider the voter as the unit of analysis. This is because even in the event that ethnic categories are

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.

The experimental villages were fairly homogeneous and in a given experimental district, all villages have very similar political and economic characteristics. Therefore, random selection of the villages and random assignment to treatments will help remove or at the very least seriously limit the impact of the village fixed effect. Thus if a woman in treatment village in given district is say 20% more likely to vote for the candidate involved in the experiment than a woman in 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.[22]

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 $(d_k, 0) = T_D^k$ (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). T_D^k, T_P^k and C^k are dummy variables that take values 1 if the voter is in the redistributive, public goods and control group respectively, and 0 otherwise. Let $\widehat{E}(.)$ be the estimated conditional mean of y_k. The average redistributive treatment effect is given by

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

fixed, the degree of ethnic attachment or loyalty could vary from one individual to another depending on age, education, income, occupation, etc...

[22]Note that data on individual voting behavior in previous elections in both the treatment viallges and the control villages can be used as an indication of how the respondent planned to vote before being exposed to the experimental platforms or not.

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.[23]

In the basic specification, we have

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

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. $X = \{$Age, Male, Ethnic Ties$\}$ where "male" denote 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 $\beta + \gamma_2 * T_i^k$.

ETHNICITY AND TREATMENTS

Table II 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

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[23]Note that by simply comparing the voting preference data, one can measure sincere and steatitic voting. Voter is said to vote sincerely for candidate k, if he k is also his most preferred candidate and he is voting strategically.

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 higher 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 or equal than the sample mean in the control group in all districts except one (Dogbo). The results are however more mixed in the population at large, which indicates that the survey results *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 ($0.69 - 0.74 = 0.05$). Since, by design, each district is dominated by one ethnic group, this provides an early indication of a positive effect of redistributive treatment and a negative effect of public goods treatment on ethnic vote.

Table III 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 IV presents the probit analysis of the effects of ethnic ties and treatments

with and without interaction effects. The interaction terms allow for an examination 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 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".[24] 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 a significant ethnic voting. In addition, voters in the redistributive treatment groups are more likely to vote for or to prefer the experimentalist candidate than those in the control group. In contrast, those in the public groups 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 candidates (not shown) and public goods treatments is negative for all types except for the Southern candidates but not significant (not shown).

I now turn to the probit analysis by first focussing on the effects of the public goods treatments. 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, I also 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 treatment is not significant. The results also hold and are particularly strong for the national candidates (not shown).

Thus, ethnic ties does not weaken the demand for public goods. 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! At the very least, the result challenges the prevailing view that ethnic divisions always weaken demand for public goods. For instance, summarizing this view, Besley and Ghatak [2001] wrote:

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[24] *Again, "preference is the dependent variable that takes a value 1 if the respondent ranks the candidate as top candidate in the election and 0 otherwise.*

"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

Why could ethnic ties make support for broad public goods platforms more likely? As I indicate earlier, this could be because (1) ethnic ties contribute to the establishment of trust between candidates and voters and (2) ethnic voters know "their" candidate will in the end deliver the kind of public good that is most beneficial to their constituency. Ethnic support for public goods platforms should also be strong if the group is located in commercial areas or has a high proportion of inter-regional traders. This seems to be the case in the commercial district Bohicon, a stronghold of the national candidate Soglo.[25]

Next, I turn to the effects of redistributive treatments. In the voting model, the effect of redistributive treatment is positive and significant when ethnic ties is 0, positive but 0 when ethnic ties is 1. In contrast, redistributive treatment is 0 when ethnic ties is 0 but positive and significant when ethnic ties is 1 in the preference model. This indicated 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 model, but much less so in the voting model. 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.[26]

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[25] The Bohicon result explains why public goods treatment effect is positive for southern candidates (table III) and for national candidates (table IVb).

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

GENDER AND TREATMENTS

Table Va presents voting choice by gender under redistributive treatment and under public goods treatment. The table presents the means for male and female voters in each treatment group followed by the difference between means for female voters and means for male voters. The standard errors are in parentheses.[27]

The mean of the female vote in the aggregate redistributive treatment group is 0.864 with standard error (0.028). The mean for the male vote in the same group is 0.776. This indicates a gender gap of 0.118, which is significant. In the aggregate public goods treatment group, the gap is also positive (0.246) and significant. Thus, women are more likely to support the experimentalist candidate than men whether it is under redistributive or public goods treatment. However, the support is significantly stronger under the public goods treatment than under redistribution treatment. Similar results hold for the opposition candidates. Table Va also indicates that under the redistributive treatment, men are more likely than women to prefer Northern candidates (though not significant for any other type of candidates) and under the public goods treatment they are less likely than women to prefer Southern and opposition candidates. The coefficients for the other types of candidates are not significant.

Table Vc presents a gender gap in treatment effects (redistribution/public goods versus control). In the (aggregate) voting model, the gap in the public goods treatment effect is positive and weakly significant, indicating that women have stronger preferences for public goods than men. The results are also significant for national candidates (0.198) and opposition candidates (0.218). The redistributive treatment gap is negative but not significant in the aggregate.

Insert Tables Va, Vb, and Vc here

The probit analysis of voting behavior by gender is not as transparent and conclusive as the difference-in-means analysis. Table VI presents the probit analysis with and without the interaction terms between gender and treatments. Columns (1) and

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[27] As in tables II and III, the vote choice variable takes the value 1 if the voter of given type (male or female) chooses an experimentalist candidate or an experimentalist candidate of a given type (e.g. northern or southern) running experimental platforms in his or her district and 0 otherwise.

(2) display the coefficients and the marginal effects in the voting model without inter-action effects and columns (3) and (4) the results with interaction effects. Columns (5), (6), (7) and (8) replicate the same analysis for the Preference model. As expected, the effect of redistributive treatment is positive and the effect of the public goods treatment is negative. However, when one introduces the interactive terms, only the effect on the redistribution term in the voting model and only the public goods effect in the preference model are significant. As we will see below, the gender gap results in the probit analysis will become more transparent when gender, ethnic ties and treatments are interacted.

Insert Table VI here

I complement the probit analysis by investigating the combined effect of gender and treatments on strategic voting (not shown). A respondent is said to vote strategically if he or she prefers candidate k but votes for another candidate. Otherwise, he is said to vote sincerely. I find the marginal effect of redistribution to be positive and significant when male is 0. It is negative and significant when male is 1. None of the other coefficients is significant. Thus there is a significant gender in the incentive to vote strategically. I also find strategic voting in favor of national candidates (or against local candidates) to be significant and stronger under public goods treatments than under redistributive treatments. I also find that women are more likely to vote strategically for national candidates and more so under public goods treatments. In contrast, men are more likely to vote strategically in favor of local candidates and more so under redistributive treatments.

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 the analysis by using both the aggregate voting data and the preference for candidate data.

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

Insert Table VII here

Interestingly, female voters from ethnic groups other than that 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 between voters and mitigate the negative effect of public goods treatment on voting. 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 1 is zero (as opposed to positive for male voters) and the effect ethnic ties when ethnic ties is 1 is positive and significant.

To further identify the gender gap on public goods treatments, I compute the conditional probabilities of the vote when male is set 1 and 0. I found that when all other independent variables have been set at their means of 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 absence of public goods set to 0, it is 0.199 for a male and 0.076 for a female. Thus the introduction of the ethnic ties variable makes the gender gap result in public goods treatment effect more transparent.

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 has an accelerating effect on redistributive treatments.

Thus, by in large, all the conditional coefficients have the expected signs and the results confirm the existence of a significant gap between male and female in their response public goods treatment.

That women are more public spirited and more altruistic, and value child welfare policies more than men is consistent with evidence reported by Chattopadyay and Duflo [2001] and Thomas [1994]. However, Chattopadyay 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 patronnage 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. Under these circumstances, if women live through their children more than men do, then they are more likely to value nationwide programme than men.

CONCLUDING REMARKS

This paper presents the results of a unique randomized field experiment on voting behavior in Benin that provides a nuanced and parsimonious investigation of the impact of ethnicity and gender on demand for redistribution. I find a positive correlation between ethnic affiliation and the demand for redistribution but also in some cases with the demand for public goods. The evidence thus suggests that ethnic ties are not necessarily an obstacle to nation-building policies. The evidence also suggests that female voters have stronger preferences for public goods than their male

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counterparts, which implies that a gender gap mitigates the adverse effects on the demand for public goods.

The robustness of all the results was checked by controlling for voting behavior in the 1996 election. Past voting behavior is considered as a proxy for how the respondents intended to vote after being exposed to the experimental platforms. I use difference-in-difference estimation to complement the difference-in-means estimation or include the respondent's vote in 1996 as independent variable when performing a probit analysis.[28] The results remain essentially unchanged.

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 experimental districts 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 main challenge posed by the study is how to possibly get candidates competing in real elections to collaborate in experiment that could benefit one group at the expense of the other. The Benin experiment suggests that, at the very least, the following two conditions have to be met. First, a strict ideological or regional balance has to be maintained across experimentalist candidates and treatment groups. In other words, there should be a strict parity between opposition and government candidates, local and national candidates, northern and southern candidates, etc... Second, the experiment has to be designed in such a way that treatment effects are not "too" large. One way to achieve this goal is to restrict the experiment to strongholds, that is, districts where voters are the least likely to change their voting behavior as a result of the treatments.

Above all, the Benin experiment represents a very unique partnership in devel-

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[28]Note none these was not needed since treatments were randomly assigned (See Angrist and Kruger [1999]).

opment policy research involving major political parties. It is an attempt to build political consensus for major policy reforms in public health, education and rural infrastructure by finding out to what extent these policies reflect the preferences of voters. It is quite remarkable that the project includes the incumbent president (Kerekou) and his predecessor (Soglo), the current vice president of the National Assembly (Lafia) and the current minister of planning (Amoussou).

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Table I: Selected Social Indicators in the Experimental Provinces

	Atlantique	Borgou	Mono	Zou
Panel A:General				
Population - 2000	1,163,295	1,104,495	821,137	1,030,011
Panel B: Health				
Death Rate - 2000	11.8	10.0	11.9	15.3
Life Expectancy at Birth - 2000	53.7	59.2	56.2	52.7
Panel C: Education				
Student / Class Ratio - 1999	51.61	53.76	59.09	50.48
Student / Teacher Ratio - 1999	49.36	61.74	67.18	52.16
Total Primary School Pass Rate - 1998	63.38	60.51	64.72	61.92
Total Primary School Left-Back Rate - 1998	22.74	27.08	26.62	24.79
Total Primary School Drop-Out Rate - 1998	13.88	12.41	8.67	13.29
Panel D: infrastructure				
Water Points per 1000 people - 1999	0.61	2.10	1.10	1.66
Electrical Subscribers per 1000 people - 1999	34.12	6.38	5.47	8.39

Table II: 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 III: 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 in parentheses are corrected for clustering at the village level.

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

	Voting Coeff. (1)	M.E. (2)	Voting Coeff. (3)	M.E. (4)	Preference Coeff. (5)	M.E. (6)	Preference Coeff. (7)	M.E. (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 in parentheses are corrected for clustering at the village level. Coeff. stands for coefficients and M.E. stands for marginal effects.

Table Va: Gender Gap in Treatment Groups

| | Redistribution | | | Public Goods | | |
	(1)	(2)	(3)	(4)	(5)	(6)
	Female	Male	Fem-Male	Female	Male	Fem-Male
Aggregate Vote	0.864 (.028) 147	0.746(.025) 299	0.118(.041)***	0.734(.033) 173	0.488(.31) 0.488(.31)	.246(.734)***
Northern	0.714 (0.061) 56	0.660 (0.037) 162	0.053(0.073)	0.500(0.062) 66	0.239(0.036) 142	0.261(0.067)***
Southern	0.956(0.022) 91	0.847(0.031) 137	0.109(0.042)***	0.878(0.032) 107	0.806(0.038) 112	0.075(0.049)
Regional	0.679(0.063) 56	0.577(0.038) 168	0.101(0.075)	0.382(0.059) 68	0.386(0.039) 158	0.004 (0.071)
National	0.978(0.015) 91	0.962(0.017) 131	0.016(0.024)	0.382(0.059) 105	0.386(0.039) 96	0.306(0.050)***
Incumbent	0.939(0.029) 66	0.878(0.027) 148	0.061(0.045)	0.770(0.049) 74	0.648(0.042) 128	0.122(0.067)*
Opposition	0.802(0.044) 81	0.616(0.040) 156	0.186(0.063)***	0.707(0.046) 99	0.325(0.042) 126	0.382(0.062)***

Note: the 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 in parentheses are corrected for clustering at the village level.

Table Vb: Gender Gap in Control Groups

	Control (1)	(2)	(3)
	Female	Male	Fem-Male
Aggregate Vote	.761 (.037)	.612 (.028)	.149 (.050)***
Northern	0.64 (0.069) 50	0.54 (0.041) 150	0.1 (0.081)
Southern	0.838(0.042) 80	0.687(0.039) 144	0.15(0.060)**
Regional	0.549(0.070) 51	0.497(0.037) 179	0.051(0.079)
National	0.898(0.034) 79	0.791(0.038) 115	0.107(0.054)**
Incumbent	0.918(0.035) 61	0.797(0.035) 133	0.121(0.057)**
Opposition	.623(0.058) 69	0.460(0.039) 161	0.163(0.071)**

Note: *** means significant at the 99%; ** significant at the 95%, * significant at the 90%. Standard errors in parentheses are corrected for clustering at the village level.

Table Vc: Gender Gap in Treatment Effects

	Treatment Effects (1)	Fem-Male (2)
Aggregate Vote		
	Redistribution-Control	-0.031(.064)
	PublicGood-Control	0.96(0.68)*
Northern		
	Redistribution-Control	-0.046(0.108)
	PublicGood-Control	0.160(0.104)
Southern		
	Redistribution-Control	-0.041(0.073)
	PublicGood-Control	-0.075(0.078)
Regional		
	Redistribution-Control	0.49(0.109)
	PublicGood-Control	-0.55(0.106)
National		
	Redistribution-Control	-0.091(0.056)
	PublicGood-Control	0.198(0.073)***
Incumbent		
	Redistribution-Control	-0.060(0.072)
	PublicGood-Control	0.0001(0.088)
Opposition		
	Redistribution-Control	0.023(0.095)
	PublicGood-Control	0.218(0.095)**

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 in parentheses are corrected for clustering at the village level.

Table VI: Probit Analysis of the Effects of Gender and Treatments

	Voting				Preference			
	Coef.	ME	Coef	ME	Coef.	ME	Coef.	ME
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-0.874***		-0.967***		-1.082***		-1.017***	
	(0.149)		(0.171)		(0.149)		(0.170)	
Male	-0.069	-0.026	0.053	-0.020	0.117	0.046	0.029	0.012
	(0.080)	(0.030)	(0.137)	(0.052)	(0.079)	(0.031)	(0.137)	(0.054)
Age	0.003	0.001	0.004	0.001	0.001	0.000	0.001	0.000
	(0.003)	0.001	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)	(0.001)
Public Goods	-0.257***	-0.098***	-0.149	-0.060	-0.154*	-0.061*	-0.212*	-0.103*
	(0.090)	(0.346)	(0.148)	(0.057)	(0.090)	(0.035)	(0.160)	(0.058)
Redistribution	0.446***	0.162***	0.587***	0.212***	0.267***	0.103***	0.080	0.083
	(0.092)	(0.032)	(0.167)	(0.057)	(0.090)	(0.034)	(0.194)	(0.061)
Male*Redist.			-0.207	-0.079			0.080	0.031
			(0.202)	(0.078)			(0.193)	(0.071)
Male*Publ. G.			-1.661	-0.062			0.172	0.067
			(0.186)	(0.072)			(0.187)	(0.071)
N	1411	1411	1411	1411	1411	1411	1411	1411
log-L	-567.158	-567.158	-565.436	-565.436	-783.638	-783.638	-783.209	-783.209

Note: Each column gives the results of the probit analysis of the dependent variable (aggregate vote and preference) on gender dummy, age, treatments dummies, with or without the interactions between gender and treatments. *** means significant at the 99%; ** significant at the 95%, * significant at the 90%. Standard errors in parentheses are corrected for clustering at the village level. Coef. stands for coefficient and ME for marginal effects.

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

	Voting Coeff (1)	M.E. (2)	Preference Coeff (3)	M.E. (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)	0.711** (0.336)	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 in parentheses are corrected for clustering at the village level.