Information, Social Networks and the Demand for Public Goods: Experimental Evidence from Benin

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Abstract

This paper empirically investigates the effects of memberships in information and social networks on the demand for public goods. The data originate from a unique field experiment that took place during the first round of the 2001 presidential elections in Benin. Randomly selected villages were exposed to "purely" redistributive or "purely" national public goods electoral platforms, while the remaining villages were exposed to standard mixed platforms. We find that individuals who are exposed to media or who are members of local associations have higher demand for public goods, while voters who are more involved in political discussions demand less. Ceteris paribus, demand for public goods is higher among voters who have ethnic ties with a candidate, are more educated or female, but we find no modifying effect of religion or socio-economic status.

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1 Introduction

The role of information and civic community in economic performance has attracted a great deal of attention in the recent development debate. The empirical political agency literature has identified public access to information as a key determinant of corruption levels and public goods provision in developing countries (See, for example, Reinikka and Svensson (2003), Besley and Burgess (2002)). The social capital literature, on the other hand, has investigated the role of trust and associational memberships on government performance and economic growth (See, for example, Olsen (1982) and Putnam (1993)). More recently, Glaeser et al. (2005) associate education with increased democracy and argue that schooling trains people acquire social skills. However, the evidence provided in both in the political agency literature and in the social capital literature relies mostly on aggregate data rather than on individual data. In other words, although several empirical studies have uncovered the extent to which aggregate economic or political outcomes in a country, state or local community depend on the proportion of informed citizens or the degree of political participation, there is very little evidence on ways in which choices made by individual citizens are affected by their membership in civic or political organizations, their involvement in informal political discussions groups or their use of media outlets. As indicated by Glaeser and al. (2002), the absence of micro-evidence limits our ability to study the effects of social capital on economic development.

This paper investigates the relationship between memberships in information and social networks and the demand for public goods at the voter level. We measure memberships in information and social networks by surveying voters's use of media outlets as sources of information, their participation in associative life and political discussions, and their connections with the outside world through traveling, language skills and long-distance family relationships. These networks can be aggregated by their reach, i.e. into "broad" networks and "local" networks, or according to their nature, i.e. media use, involvement in political discussions, associational life, travel and language skills.

We measure a voter's demand for public goods by assessing how her voting would have

changed if she has been changed when she is exposed to "purely" national public goods electoral platforms instead of the regular electoral platforms. A major challenge to the estimation of voters' reactions to different electoral platforms is that electoral platforms are consciously chosen by politicians according to voters' characteristics. Even when they follow a particular electoral program, when targeting particular audiences of voters, politicians choose messages they think will appeal to those voters. Hence the difference between voting patterns among groups of voters is likely to reflect both the electoral platforms used by the politician and the characteristics of the voters. A solution to this endogeneity problem is to randomly expose voters to particular messages and measure their voting response. The data used in this paper originate from a unique field experiment that took place in the context of the first round of the March 2001 presidential elections in Benin. Randomly selected villages were exposed to "purely" redistributive or clientelistic or "purely" national public goods platforms, while the remaining villages were exposed to the default mixed platforms. The experiment is unique in the sense that it involves *real* presidential candidates competing in *real* elections. This avoids the problems of external validity associated with laboratory experiments.

We confirm the finding in Wantchekon (2003) that voters do not favor public goods electoral platforms, as reflected in their sanctioning candidates who use them. Wantchekon (2003) found that women are less negatively oriented to these platforms than are men. A study by Fafchamps and Gabre-Madhin (2001) argued that women are the driving forces behind regional commerce in Benin, so the question rises whether the association between gender and demand for public goods is an artifact of the social networks and trade contacts that women participate in. For example, women who travel more might value development of road and other infrastructure beyond the locality as an important policy issue. We find that individuals involved in broad social networks have higher demand or stronger preference for public goods. This is entirely driven by use of media, not by language skills or frequency of travel. As for the association between local social networks and public goods demand, we find that voters who are more involved in political discussions demand less national public goods while those who are members of local associations demand more. We find that, while these networking and information indicators explain a significant amount of voter response, they do not drive the differential responses between men and women, with women still more responsive to public

goods platforms. Finally, we find certain voter characteristics increase the demand for public goods: quite surprisingly ethnic affiliates of a candidate respond more positively to a public goods electoral platform. The result also holds for more educated voters.

The paper contributes to the literature on social capital and economic development. Putnam (1993) contends that the relative economic prosperity and government efficiency in Northern Italy compared to the South is due to its more intense associational life. He claims that "associations instill in their members habits of cooperation, solidarity, and public-spiritedness" (pp. 89-90). By contrast, Olsen (1982) argues that group activities can have an adverse effect on economic growth because of their rent-seeking orientation. In an attempt to test and reconcile these opposing views, Knack and Keefer (1997) investigate the comparative economic effect of distributive groups (such as parties, unions, and professional associations) and public-interest groups (such as cultural associations and youth groups) using the World Value Surveys. They find no evidence supporting the opposing effect of "Putnamian" and "Olsonian" social forces on economic performance. In fact, they find that public-interest group activities tend to be negatively associated with economic growth. In this paper, the dependent variable is not an economic *outcome* such as growth rate or investment but a pro-development social attitude, namely preference for national public goods. Since such attitude is widely perceived as a *pre-condition* for economic success[1], we claim that our results contribute to the social capital debate by supporting both the Putnam view and the Olsen view and providing a line of separation between them. The positive correlation between associational membership and information networks on the one hand and demand for public goods on the other hand, support the Putnam view of a positive correlation between associational membership and economic performance, while the negative interaction between political discussion and demand for public goods provide support for Olsen's contention.

The paper also contributes to the growing literature on the impact of information campaigns on the provision of public goods and accountability in governments. Reinikka and Svensson (2003) provide evidence from a policy experiment suggesting that increased public access to information reduced the level of corruption and capture of public funds in Uganda. In another

[1]For instance, Helliwell and Putnam (1995) show that more development-minded civic communities, measured by an index of newspapers readership, associational membership and political participation, have higher growth rates.

important contribution to the political agency literature, Besley and Burgess (2002) use data from sixteen major Indian states for the period 1958-1992 to analyze governments' response to bad economic conditions such as falls in food production and crop flood damage. They find that response in the form of public food distribution and calamity relief expenditure is higher wherever newspaper circulation is higher. Stromberg (2004) provides similar results in the US context, using data from the implementation of the New Deal Program in 1933-1935. Controlling for a host of relevant economic and demographic variables, he finds that counties with radio listeners received more relief funds. Our results suggest that media outlets not only affect the nature of the agency relationships between governments and voters, but can induce voters to have a stronger preference for national public goods. In fact, one may argue that access to media affect accountability partly because it makes voters more public-spirited.

The remainder of the paper of is organized as follows. In section 2, we provide background information on Benin. Section 3 describes the experiment and introduces the data. Section 4 outlines the estimation method and presents the empirical results. The results are discussed in relation to the literature on social and political agency in section 5. Section 6 concludes.

2 Background

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 (Heilbrunn (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.[2] The president is elected through simple majority rule with run-

[2]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

off elections.[3] Benin is considered one of the most successful cases of democratization in Africa. 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.[4] The distribution of votes in presidential elections prior to 2001 was such that there was no risk that a field experiment would seriously affect the outcome of the 2001 election. This is because (1) nationwide election outcomes had 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 had always been between 27 to 37%.[5] As a result, a second round election posing Kerekou against Soglo in the 2001 presidential elections was a near certainty.

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 The World Bank (1997)).

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to Mathieu Kerekou, the former autocrat. Kerekou won again in March 2001 for what will be his last term in office.

[3] That 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.

[4] For 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])

[5] 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%.

Table 1: Presidential Candidates and Parties Participating in the Experiment

	North	**South**
National	Kerekou (FARD)*	Soglo (RB)
Regional	Lafia (UDS)	Amoussou (PSD)*

* Incumbent candidate

3 Experimental design and data

This paper identifies the effect of voting platforms on voting behavior using an experiment that exposed randomly selected villages to "purely" redistributive or clientelistic or "purely" national public goods platforms, while the remaining villages were exposed to the default mixed platforms. The experiment took place during the first round of presidential elections in March 2001. In these elections, sixteen candidates, representing or endorsed by sixteen parties, took part in the first round. The research team identified the five most important candidates, and invited four of them to participate in the experiment through the intermediation of their parties. These four candidates were chosen so that there would be two national and two regional candidates, two northern and two southern candidates, and two incumbent and two opposition candidates. The distribution of the candidates who participated in the experiment is represented in Table 1 .

3.1 Experimental design

Our main concern is avoid any potential affect of the experiment on the election result. For this purpose, the experiment was conducted by candidates only in their respective stronghold districts. An electoral district was defined as a party's stronghold if the party gained at least 70 percent of the votes in each of the previous presidential elections (1991 and 1996). Using this definition, 21 out of the 24 electoral districts in Benin were classified as strongholds of one party, while the other ones were classified as competitive. Once the strongholds were identified, two stronghold districts were randomly picked for each of the four parties participating in the experiment. For one candidate, Lafia, the choice of districts was done slightly differently. Lafia did not participate in the previous presidential elections, but he participated in the 1999 leg-

islative election. Based on the results of those elections, it appeared that two electoral districts were highly likely to turn out to be his strongholds, and hence these districts were selected to take part in the experiment. However, it turned out that in one of those districts, Lafia was not the dominant candidate in the 2001 election, but that another candidate dominated. Since the experiment was meant to measure voters' response to changes in platforms by the dominant candidate, ex post this district did not qualify to be part of the sample. Table 1 summarizes the distribution of strongholds among the experimental candidates.

In each chosen district, two villages were randomly picked to take part in the experiment. If the two villages were less than 20 kilometers apart, the second village was put back into the pool and another village was picked. Then a coin was flipped to decide which one of the two villages would be in the public goods treatment group, and which one would be in the clientelistic treatment group. According to the 2001 census, the population consists of 6,633 registered voters in the redistributive/clientelistic treatment group, 6,983 voters in the public goods treatment group, and approximately 220,000 voters in the control group. For the purpose of the survey used in this paper, one village was randomly picked from the control group to be in the comparison group.

More formally, the experiment followed a randomized block design with treatments being assigned randomly to subunits (villages) within a number of randomly chosen units (electoral districts) in the population, which consists of all stronghold districts in Benin that are dominated by the four experimental candidates. Denote by N_s the number of electoral districts controlled by candidate $s \in \{1, 2, 3, 4\}$, where candidate s is an experimental candidate. Then $N = \sum N_s$ is the total number of electoral districts involved in the experiment. Within each electoral district j, there are n_j villages. The randomization process consists of the following four steps:

Step 1. Candidate s randomly draws 2 districts (say j and k) out of his N_s stronghold districts.

Step 2. Candidate s randomly draws one village from the n_j villages in district j and randomly draws one village from the n_k villages in district k.

Step 3. Among the $n_j - 1$ remaining villages in district j and the $n_k - 1$ remaining villages in district k, remove from the pool those the villages that are contiguous or in the immediate vicinity of the village picked in stage 2. Then draw randomly one village from the remaining

villages in districts j and k.

Step 4. Among the two villages in district j that were chosen in steps 2 and 3, flip a coin to decide which one will be assigned to the redistributive treatment, and which one will be assigned to the public goods treatment. The remaining $n_j - 2$ villages in district j will serve as a comparison group. Repeat this procedure for district k.

The experiment thus involved 14 treatment villages in 7 districts, with the remaining villages in the corresponding districts serving as a comparison group. For the purpose of this paper, the survey also included one control village per district, randomly chosen in the pool of comparison villages. The strength of randomized evaluations rests on their ability to average out unobserved differences between treatment and comparison groups. In this case, the small sample size poses a potential threat to the validity of this argument. To mitigate this problem, we perform a series of robustness checks on the estimated treatment effects by adding various control variables and fixed effects to the regressions. In general, the coefficient estimates are strikingly robust to the inclusion of these variables, raising our confidence that the results are not due to an artifact of the small number of randomization units.

3.2 The treatments

While the treatment was meant to be as uniform as possible within the redistributive/clientelistic and public goods categories, four different parties with various party programs were implementing them. For this reason, the two types of messages were designed in active collaboration between the research team and the campaign managers of the parties, and they were based on the platforms that the parties had adopted independently of the experiment. 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, which could take the form of promised government patronage jobs for locals, local public goods such as establishing a new local university, financial support for local fishermen or cotton producers. By in large, a public good message and a distributive policy message stressed the same broad issues. However, the public goods message stressed the issue as part of a national programme, while the clientelistic message 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 reforms or vaccination campaigns. In addition, while campaign workers stressed the need for ethnic cooperation and harmony when they delivered the public goods messages, in the clientelistic messages they outlined the ethnic ties of the candidate with the local voters whenever it was possible.[6]

For each experimental village, a team of campaign workers was formed by one or two party representatives and a research assistant, who doubled as a party worker for that election. The teams then went ahead to do a typical election campaign in the experimental villages. In the control villages, parties sent out their regular teams. A typical election campaign in Benin goes as follows: During the three months before the elections, 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 make home visits to individuals known to be influential public figures to deliver their campaign messages. These visits last about half an hour. In addition, they meet groups of 10 to 50 voters at sporting and cultural events, and organize public meetings of 50-100 people, which last approximately two hours.

In a redistributive platform experimental village, a typical policy meeting started with the following introduction by the campaign 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 meeting in a public goods experimental village started with the following introduction:

[6] 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.

"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 ensued during which detailed explanations were provided on the relevant type of platform. Thus, a distributive policy message highlighted the candidate's ethnic affiliation, singled out the interests of the region, and promised pork barrel projects and patronage jobs. Meanwhile, a public goods message emphasized the candidate's affiliation to the incumbent or opposition coalition, and outlined a socioeconomic and political project for the country as a whole.

The experiment posed no real risks of Hawthorne or John Henry effects, because it was fully embedded into the regular political campaigns.[7] Under normal circumstances, voters are subjected to parties' platforms, which are usually mixtures 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 so that they would be either purely redistributive or purely public goods oriented. In other words, just like in any regular political campaign, the parties involved in the experiment were 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, and because of this it is unlikely that voters were aware of the attention paid to them in the experiment.

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. There are several reasons to think that this is not a serious problem in this case. First, radio and television time during elections, especially on national channels, are regulated

[7] Hawthorne effects occur when experimental subjects change their behavior because they are being observed by the experimenters (E. Mayo [1933]). John Henry effects occur when control groups try to "catch up" with treatment groups to compensate their "lack of luck" in the randomization of treatment.(E. Mayo [1933])

so that candidates receive equal airtime. Since only four out of the 16 candidates participated in the elections, they would each have gotten only one sixteenth of the airtime available for election campaigns. Second, it is likely that radio and television messages would be of the public goods type, since it is hard to target particular villages using these media. Third, the most dominant form of political communication in Benin is canvassing, large meetings and rallies.[8] Finally, since radio and TV messages were broadcast in all villages, both control and treatment groups would have been equally affected by them, reducing the likelihood that they introduced a bias in the estimate of the treatment effect.

3.3 Data

The voting and socioeconomic and information network data were gathered during a survey that took place in May 2002, 14 months after the presidential election.[9] The survey took place in the 14 treatment villages and in 7 control villages. One control village was randomly chosen in each district from the pool of control villages. In each village, 35 households were randomly sampled from the 2001 national census, and all household members who voted in 2001 were interviewed. The average response rate of households within villages was 30.9 households or 88.3 percent, with the number of responses per village varying between 30 and 35. The number of respondents per household varied from 1 to 20, with an average of 3.19 and a standard deviation of 1.97. Unfortunately, we do not have any measure of within household response rates. The surveyors stayed in each village for an entire week and visited the household several times if some adult members happened to be out at any one visit. However, we do not have a measure of how many adults left the household (as measured by their absence during a whole week), or how many adults passed away between the elections and the time of the survey. Among the 2071 persons who were interviewed, 128 did not answer the central question of the survey, i.e. for whom they voted in the 2001 election. This would include respondents who were members of a respondent household, but who refused or were unable to take the survey.

The survey collected basic demographic data (age, gender, marital status, number of people in the households and ethnic affiliation), socioeconomic data (educational attainment,

[8] See Banegas (1998).

[9] A similar survey took place in the same treatment and control villages in April 2001. The data generated by this survey was used in Wantchekon (2003)

economic activities and assets) and data on respondents' social networks and use of media outlets (radio, television and newspapers). The information on social networks includes membership in organizations (cooperatives, NGOs, parties and unions), travel and languages spoken, and participation in political discussions. The survey collected data on voting behaviors in the 2001, 1996 and 1991 presidential elections. Respondents were also asked to rank the candidates in the 2001 presidential elections. However, because the survey took place more than one year after the elections, it is likely that respondents' preferences would have changed since the election, both due to the announcement of the election results and to respondents' perception of the candidates' performances after the election. For this reason, we only use respondents' reported voting in the analysis.

Table 2 presents the summary statistics. The table presents mean values of the variables for the treatment groups and the control group. We test the difference between each treatment group and the control group using a linear regression with clustered standard errors at the village level, and find that the treatment groups are similar on nearly all dimensions to the control group. The mean education level is higher in the treatment groups than in the control group, especially in the public goods group. However, the difference is only significant for the public goods group, at the 10 percent level.

4 Estimation and empirical results

4.1 Estimation method

We estimate the effects of the public goods and clientelistic treatments on voting behavior using the following probit model:

$$\begin{aligned} P\left(Y_{ij}=1|x_{ij},T_i\right) &= P\left(x_{ij}a+T_i\beta+x_{ij}T_i\gamma+u_{ij}>0\right) \\ & u_i \overset{id}{\sim} N(0,\Omega_i) \end{aligned}$$

where Y_{ij} is a categorical variable that takes value 1 if individual j in village i votes for the experimentalist candidate, and 0 otherwise; x_{ij} is the vector of individual characteristics

Table 2: Summary Statistics

Variable	Obs	All Mean	All Std. Dev.	Clientelistic Mean	Public goods Mean	Control Mean
Demographic variables						
Age	2058	37.22	15.52	37.12	37.75	36.83
Male=1	2066	0.47	0.50	0.46	0.47	0.47
Socio-economic variables						
Went to school=1	2035	0.32	0.47	0.31	0.42	0.24
Education level	2032	0.46	0.74	0.47	0.62*	0.31
Ethnic ties with candidate=1	2071	0.93	0.25	0.94	0.90	0.96
Stable income=1						
Commercial activity=1	1932	0.35	0.48	0.30	0.38	0.37
Farms=1	1983	0.63	0.48	0.65	0.56	0.67
Nr. of adults per room	2057	0.82	1.09	0.78	0.84	0.83
Owns dwelling=1	2060	0.88	0.33	0.87	0.90**	0.86
Has electricity=1	2070	0.21	0.41	0.20	0.20	0.22
Cement/tile floor=1	2069	0.52	0.50	0.54	0.50	0.51
Brick wall=1	2068	0.27	0.44	0.28	0.26	0.26
Sources of information						
Radio=1	2029	0.92	0.26	0.97	0.93	0.87
Television=1	2036	0.32	0.46	0.24	0.40	0.31
Newspaper/Magazines=1	2036	0.06	0.23	0.08*	0.07	0.03
Organizational membership						
Member of any organization=1	2023	0.30	0.46	0.37	0.29	0.25
Member of a cooperative=1	2008	0.11	0.31	0.15	0.07	0.11
Member of an NGO=1	2008	0.13	0.33	0.19	0.10	0.08
Member of a party or union=1	2006	0.11	0.31	0.14	0.11	0.07
Travelling						
Travel frequency	2041	1.93	0.64	1.88	1.96	1.94
Has a child outside=1	2009	0.26	0.44	0.26	0.29	0.25
Languages spoken	2062	1.46	0.66	1.49	1.48	1.41
Discussions						
Discusses politics at home=1	1929	0.69	0.46	0.68	0.66	0.72
Discusses politics locally=1	2017	0.75	0.43	0.75	0.72	0.78
Discusses politics outside=1	1961	0.50	0.50	0.44	0.54	0.51

* significant at 10 percent, ** significant at 5 percent

for individual j in village i, and T_i is the categorical variable for treatment in village i. The sampling follows a three-stage cluster sampling design: 7 districts were randomly chosen in a stratified way from the sampling frame, the set of stronghold districts of the 4 experimental candidates. Within each district, 2 villages were randomly chosen, and within the villages 35 households were randomly sampled and all adults within the household were interviewed. In the estimation, standard errors are clustered at the village level. Since this allows for any kind of correlation of the observations within the villages, no further clustering is required to account for intra-household correlation.

Since not all candidates had the same number of strongholds, and not all strongholds had identical numbers of villages, it results that different villages within the sampling frame had different probabilities of being sampled to take part in the experiment. The probability of sampling a village v in candidate k's stronghold s is $\frac{3N_k}{S_k V_{sk}}$where N_k is the number of strongholds controlled by candidate k that participated in the experiment, S_k is the number of strongholds controlled by candidate k, V_{sk} is the number of villages in candidate k 's stronghold s. For the sample to be representative, the observations must be weighted to account for different sampling weights. However, since we are dealing with a small number of villages, using the sampling weights can substantially lower the precision of our estimates. For this reason, we run both weighted and unweighted regressions, and show that the results are not significantly different.

The dependent variable is a categorical variable that takes value 1 if the respondent voted for the experimentalist candidate, and value zero otherwise. Because in all villages, the experimentalist was also the dominant candidate, we will interchangeably use the terms experimentalist candidate and dominant candidate. Because the dominant candidate commands at least 70 percent of the votes, while the remaining 15 candidates share the rest, the strategic behavior of the other candidates is unlikely to have a substantial effect on voting outcomes. When estimating the effect of the public goods treatment, the sample always consists of all respondents in the public goods treatment villages and all respondents in the control villages. The sample used for estimating the effect of the clientelistic treatment consists of the respondents in the clientelistic treatment villages and in the control villages. Since a substantial number of regressors are categorical variables, we calculate and report the mean marginal effects of the

regressors rather than the marginal effects at the mean of the independent variables.

In the analysis, we investigate the modifying effect of voter characteristics on their response to the experimental platforms. The first set of results relates voter response to affiliation in various social and information networks. The data provide various measures of respondents' affiliations in social and information networks. Not surprisingly, these variables are substantially correlated. This implies that including all of them in a regression would lead to near-multicollinearity and low estimation precision. For this reason, we use principal components analysis to construct indices for respondent's participation in social networks and use of media outlets. In the first instance, we divide the variables into two categories: one for "local" networks and one for "broader" networks. This reflects the key distinction between the two treatments: the local focus of the clientelistic treatment and the national, broad focus of the public goods treatment. The variables included in the local networks category are membership in local organizations and political discussions at home, in the village and outside the village. The broader network variables are usage of radio, television and newspapers or magazines as a source of information, travel frequency, the number of languages spoken and long-distance family relations. We use principal components analysis to construct a variable with maximum variance out of these primary variables. Table 3 reports the results of the principal components analysis. In each category, the eigenvalue-eigenvector decomposition suggests that one factor accounts for most of the variation. Two variables - membership in a cooperative and the categorical variable for having a child outside the village- appeared to have negative and near-zero factor loadings when included in the principal components analysis, and for this reason we excluded them from the construction of the composite variables. In addition, since each village may have several types of organizations, our measure of membership captures Putnam's notion of social capital as overlapping group membership in organizations. As a result, those respondents participating in several organizations have higher score.

The second set of results relates response to the experimental platforms to gender, ethnic group, education levels, economic status, marital status, and religion. Of these covariates, socio-economic status is by far the hardest one to measure. Over 60 percent of respondents report being farmers, and only 2.6 percent are formally employed. It is a well known issue that surveys on income in such circumstances do not adequately represent household socioeconomic status,

Table 3: Principal Components Analysis of Network Variables

Local social networks

Eigenvalue decomposition		**First factor construction**	
Component	Eigenvalue	Variable	First factor loading
1	2.03	Member of a party or union=1	0.35
2	1.10	Member of an NGO=1	0.21
3	0.76	Discusses politics at home=1	0.52
4	0.61	Discusses politics locally=1	0.52
5	0.50	Discusses politics outside=1	0.54

Broad social networks

Eigenvalue decomposition		**First factor construction**	
Component	Eigenvalue	Variable	First factor loading
1	1.62	Radio=1	0.30
2	0.95	Television=1	0.56
3	0.92	Newspaper/Magazines=1	0.48
4	0.84	Travel frequency	0.46
5	0.67	Languages spoken	0.40

Table 4: Principal Components Analysis of Housing Quality

and that consumption surveys are preferable. For a variety of reasons, it was not possible to collect consumption data in the survey. However, the survey collected basic indicators of the respondents' housing quality, like the availability of tap water, brick walls (as opposed to mud walls), tile and cement floors (as opposed to mud floors) and electricity in the homestead. We use principal components analysis again to compute an index of housing quality. (Table 4) Finally, the data contain a self-reported assessment of respondents' income stability, and whether they are involved in commercial activities, which we use to perform some robustness checks.

4.2 Basic results

Table 5 reports the first set of main results. Columns 1, 2 and 3 report the results from the public goods experiment, while columns 4, 5 and 6 report the results from the clientelistic experiment. The estimations reported in columns 2, 3, 5 and 6 include fixed effects for the dominant candidate, while the estimations reported in columns 3 and 6 also use village sampling

Table 5: Voting Behavior by Broad and Local Networks

	Public goods experiment			Clientelistic experiment		
	(1)	(2)	(3)	(4)	(5)	(6)
Age	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)**	(0.00)	(0.00)	(0.00)*	(0.00)	(0.00)
Treatment	-0.24	-0.24	-0.18	-0.04	-0.01	-0.01
	(0.10)**	(0.08)***	(0.10)*	(0.07)	(0.06)	(0.07)
Ethnic ties=1	0.04	0.01	0.00	0.04	0.03	0.02
	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)
Ethnic ties*Treatment	0.15	0.16	0.14	0.04	0.01	0.04
	(0.06)**	(0.06)***	(0.06)**	(0.07)	(0.05)	(0.04)
Male=1	0.03	0.03	0.02	0.02	0.01	0.01
	(0.02)	(0.02)*	(0.02)	(0.01)	(0.01)	(0.02)
Male*Treatment	-0.07	-0.08	-0.06	0.05	0.04	0.03
	(0.04)*	(0.03)***	(0.03)*	(0.04)	(0.03)	(0.04)
Education level	-0.10	-0.08	-0.08	-0.07	-0.06	-0.05
	(0.02)***	(0.02)***	(0.02)***	(0.02)***	(0.02)***	(0.02)**
Education*Treatment	0.07	0.07	0.05	0.01	0.01	0.00
	(0.04)**	(0.03)***	(0.03)**	(0.02)	(0.02)	(0.02)
Broad pc	-0.07	-0.07	-0.06	-0.05	-0.05	-0.04
	(0.02)***	(0.02)***	(0.02)***	(0.02)***	(0.02)**	(0.02)**
Broad pc *Treatment	0.10	0.07	0.05	0.03	0.03	0.05
	(0.03)***	(0.03)***	(0.03)*	(0.02)	(0.02)	(0.02)**
Local pc	0.00	0.02	0.02	0.00	0.02	0.02
	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)*	(0.01)*
Local pc *Treatment	-0.05	-0.05	-0.05	0.01	0.00	-0.02
	(0.04)	(0.02)**	(0.02)**	(0.02)	(0.02)	(0.02)
Assets	0.00	0.00	0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	1097	1097	1097	1111	1111	1111
Pseudo R2	0.13	0.24	0.18	0.16	0.21	0.18
Candidate fixed effects?	No	Yes	Yes	No	Yes	Yes
Sampling weights?	No	No	Yes	No	No	Yes

Notes: The estimation method is Probit. The reported estimates are mean marginal effects. Standard errors are clustered at the village level and are reported in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1percent

weights. The standard errors are clustered at the village level. By and large, the public goods treatment leads to a significant decrease in the probability of voting for the experimentalist, and even more so for men (Table 5, Column 1). The effect of the clientelistic treatment is negative but non-significant. (Column 4) The magnitude of the effect of the public goods treatment is very substantial at 25 percent. We find that voters with more broad social connections and voters with more education react less negatively to the public goods message. One standard deviation increase in the measure of broad social networks is associated with a 6.4 to 12.7[10] percent increase in the probability to vote for the experimentalist candidate in the public goods experiment. (Columns 1 and 3) By contrast, we find that respondents with more local social connections react more negatively to the public goods message. However, this is only statistically significant in the regression that includes candidate fixed effects. (Columns 2 and 3) One standard deviation increase in the local networks measure (1.42) is associated with a 5.7 to 7.1 percent decrease in the probability of voting for the experimentalist candidate in the public goods experiment. (Columns 1 and 3) We find no interaction effect between treatment and local or broad networks in the clientelistic experiment. As for the level effects, we find that voters who are broadly connected are less likely to vote for the dominant candidate. In the local connections case, the association with voting for the dominant candidate is either statistically insignificant or small compared to the other estimated effects.

One may wonder whether broad connections are just an artifact of the education level and economic status of a voter. In order words, the more educated is a voter, the more likely she is to be broadly connected, or vice versa. For this reason, we control for voters' level of education and interact their education level with the treatment variable, and we also control for voters' housing quality. We find that education has a substantial level effect: for example, a shift from no education to primary education decreases the probability to vote for the dominant candidate between 5 and 9 percentage points. As for the interaction effect with treatment, we find that voters with primary education are 5 to 7 percentage points more likely to vote for the experimentalist candidate in the public goods experiment that voters with no education. There is no such interaction effect in the clientelistic experiment.

[10]The standard deviation in the broad social capital measure is 1.27. Hence a 1 standard deviation increase in the broad social capital measure leads to a 1.27*0.10 (Column 1), 1.27*0.7 (Column 2) or 1.27*0.5 (Column 3) increase in the probability of voting for the dominant candidate.

Table 6: Gini Coefficients for Per Capita Consumption, by Department

Administrative department	Gini Coefficient	Standard error
Alibori	0.244	0.015
Atacora	0.280	0.027
Atlantique	0.279	0.013
Borgou	0.309	0.019
Collines	0.303	0.018
Couffo	0.320	0.019
Donga	0.237	0.018
Mono	0.269	0.019
Ouémé	0.307	0.019
Plateau	0.273	0.015
Zou	0.287	0.015
Average	0.300	0.006

Source: Gouvernement du Bénin, ECVR2

We do not find any correlation between the housing quality indicator and voting behavior. This suggests that either differences in social status were not large enough within the sample to generate differences in political behavior, that the housing quality indicator is not a satisfactory proxy for socio-economic status, or that there is no political differentiation along social status. There are indications that the first explanation - low levels of inequality in the areas where the experiment took place - is relevant. Benin has one of the lowest inequality levels in Africa, and rural inequality is significantly lower than urban inequality. The 2001 Gini coefficient for per capita consumption in rural areas is 0.30, about the level of Nordic countries. (Table 6)

One important component of social networks in Africa is ethnic ties. An ethnic group is usually defined as a group of people who are identified on the basis of cultural or biological similarities or both. The conventional wisdom in political science is that ethnic ties are strong predictors of voting behavior. In this paper, we construct an indicator of whether the experimentalist candidate and the voter are from the same ethnic group[11], and use this indicator as an exogenous variable in the regressions. As reported in Columns 1 and 3, respondents with ethnic ties to the candidate react 15 percentage points more positively to the public goods message.

[11] We consider six ethnic groups: Adja, Fon, Bariba, Dendi, Yoruba, and minorities from the North East which include the Otamari. Amoussou is Adja, Soglo is Fon, Saka Lafia is Bariba, and Kerekou is Otamari. Since the Bariba and the Otamari are ethnically linked, Bariba voters are considered to have ethnic ties with Kerekou.

Once again, there is no corresponding finding in the clientelistic experiment. The level effect of ethnic ties on voting behavior is not significantly different from zero. That is, voters from the same ethnic group as the dominant candidate are not any more or less likely to vote for that candidate than those who are not. This means that ethnic ties matter for voting behavior only when the message is universalistic or public goods-type.

Finally, we provide estimates of public goods treatment effects across subgroups. At one extreme, the effect is negative and significant (-.34) for male without primary education, without ethnic ties to the candidate and with (one standard deviation) broader social connections. At the other extreme, the effect is positive and significant (0.08) for female respondents, with primary education, with ethnic ties to the candidate and more (standard deviation) broader social connections.[12]

The clientelist treatment generates no significant changes in voting behavior. A joint test for the impact of clientelistic treatment reveals that there is no evidence of an overall treatment effect (Table 5, Column 2). There are two potential explanations for this result. First, it might be that a clientelistic message triggers no changes in voting behavior compared to the standard message. Second and more likely, it might be that the clientelistic message is not very different from the standard message adopted by parties, and which was used in the control villages.

Finally, we note that the interaction effect clientelist treatment and ethnic ties is either positive and insignificant or has a smaller point estimates. Thus, there is much more convergence across ethnic groups in their response to clientelist treatments than in their response to public goods treatments. In other words, nation-building platforms generate more divergence across ethnic groups than clientelist platforms.

4.3 Disaggregating social networks

In the second step of the analysis, we classify the social network variables into smaller categories. Using the principal components approach, we construct one variable that synthesizes memberships in local organizations, one variable for political discussions, one variable for use of media outlets and one variable for travel, languages spoken and a long-distance family relations.

[12] The full set of estimates is available upon request.

Table 7: Principal Components Analysis of Network Variables, Disaggregated

Media

Eigenvalue decomposition		**First factor construction**	
Component	Eigenvalue	Variable	First factor loading
1	1.33	Radio=1	0.39
2	0.95	Television=1	0.67
3	0.72	Newspaper/Magazines=1	0.63

Travel

Eigenvalue decomposition		**First factor construction**	
Component	Eigenvalue	Variable	First factor loading
1	1.14	Travel frequency	0.73
2	1.05	Languages spoken	0.68
3	0.82	Has a child outside=1	0.09

Memberships

Eigenvalue decomposition		**First factor construction**	
Component	Eigenvalue	Variable	First factor loading
1	1.29	Member of a party or union=1	0.62
2	0.95	Member of an NGO=1	0.67
3	0.76	Member of a cooperative=1	-0.41

Discussions

Eigenvalue decomposition		**First factor construction**	
Component	Eigenvalue	Variable	First factor loading
1	1.86	Discusses politics at home=1	0.58
2	0.64	Discusses politics locally=1	0.55
3	0.50	Discusses politics outside=1	0.60

The construction of these variables is reported in Table 7 . Table 8 reports the second set of main results. As before, columns 1 and 3 report the results from the public goods experiment, while columns 2 and 4 report the results from the clientelistic experiment. The regressions reported in columns 3, 4, 5 and 6 contain candidate fixed effects, while those in columns 3 and 6 also use sample weights.

We find that use of media is what drove the positive interaction between broad social networks and the public goods treatment: Respondents who use media outlets more react less negatively to the public goods treatment, but travel and language skills do not affect respondents' reactions. The interaction effect between use of media and treatment is sizeable: a one

Table 8: Voting Behavior, Disaggregated Measures of Networks

	Public goods experiment			Clientelistic experiment		
	(1)	(2)	(3)	(4)	(5)	(6)
Age	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)*	(0.00)	(0.00)
Treatment	-0.19	-0.21	-0.16	-0.05	-0.03	-0.04
	(0.09)**	(0.08)***	(0.09)*	(0.06)	(0.05)	(0.06)
Ethnic ties=1	0.05	0.02	0.00	0.04	0.04	0.02
	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)
Ethnic ties*Treatment	0.11	0.13	0.12	0.06	0.03	0.07
	(0.06)*	(0.06)**	(0.06)**	(0.06)	(0.05)	(0.04)*
Male=1	0.03	0.02	0.02	0.02	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Male*Treatment	-0.07	-0.06	-0.05	0.05	0.05	0.03
	(0.03)**	(0.03)**	(0.03)*	(0.04)	(0.03)	(0.03)
Education level	-0.10	-0.09	-0.08	-0.08	-0.07	-0.06
	(0.02)***	(0.02)***	(0.02)***	(0.02)***	(0.02)***	(0.03)**
Education*Treatment	0.08	0.08	0.06	0.01	0.01	0.01
	(0.03)**	(0.03)***	(0.03)**	(0.02)	(0.02)	(0.03)
Media pc	-0.06	-0.05	-0.05	-0.04	-0.03	-0.03
	(0.02)***	(0.01)***	(0.01)***	(0.02)***	(0.02)**	(0.02)**
Media pc *Treatment	0.10	0.07	0.07	0.02	0.02	0.04
	(0.03)***	(0.02)***	(0.02)***	(0.02)	(0.02)	(0.02)*
Outside contacts pc	-0.04	-0.03	-0.03	-0.03	-0.02	-0.03
	(0.02)**	(0.02)*	(0.02)*	(0.01)**	(0.02)	(0.02)
Contacts pc *Treatment	0.00	-0.01	-0.01	0.03	0.03	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Memberships pc	-0.02	-0.01	-0.01	-0.01	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Memberships pc *Treatm	0.08	0.06	0.06	0.03	0.03	0.02
	(0.02)***	(0.02)***	(0.02)***	(0.02)	(0.02)*	(0.02)
Discussions pc	0.03	0.04	0.04	0.02	0.04	0.04
	(0.02)	(0.01)***	(0.01)***	(0.02)	(0.02)**	(0.02)***
Discuss pc *Treatment	-0.09	-0.07	-0.07	-0.03	-0.04	-0.07
	(0.04)**	(0.02)***	(0.02)***	(0.02)	(0.02)**	(0.02)***
Assets	0.00	0.00	0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Pseudo R2	1081	1081	1081	1099	1099	1099
Observations	0.18	0.26	0.2	0.17	0.22	0.19
Candidate fixed effects?	No	Yes	Yes	No	Yes	Yes
Sampling weights?	No	No	Yes	No	No	Yes

Notes: The estimation method is Probit. The reported estimates are mean marginal effects. Standard errors are clustered at the village level and are reported in parentheses. * significant at 10 percent; ** significant at 5 percent; *** significant at 1percent

standard deviation increase in use of media (1.15) is associated with 8 to 11.5 percentage points higher responsiveness to public goods treatment. Strikingly, use of media has a strong negative association with the probability of voting for the dominant candidate.

Membership in organizations and political discussions have opposite interaction effects with the public goods treatment. Respondents who are members of parties, unions or NGOs react more positively to the public goods message: a one standard deviation increase in membership is associated with 6.8 to 10.2 percentage points higher responsiveness to public goods treatment. By contrast, a one standard deviation increase in the discussions measure is associated with 6.8 to 10.2 percentage points lower responsiveness to this treatment. Interestingly, the level effects of political discussions show that increased participation in political discussions is associated with higher probability to vote for the dominant candidate.

The coefficient estimates on education, ethnic ties, gender and housing quality, and their interactions with the treatment variable are robust to the changes in the categorization of networking and information variables. In addition, the coefficient estimates are quite robust to the addition of candidate fixed effects. The stability of the estimates to the inclusion of village-level controls alleviates concerns that the small sample size might not appropriately balance unobservable village characteristics.

4.4 Further results: socioeconomic status and religious affiliation

The modifying effect of social and information networks on voting behavior might be an artifact of differential socioeconomic status. For this reason, the basic analysis controls for housing quality, a proxy for socio-economic status. The preliminary results from that analysis suggest no significant effect from housing quality. In this section, we confirm the robustness of this finding by using additional measures of socioeconomic status. We construct an indicator of whether a respondent is involved in a commercial activity with a capital of over CFA 50,000, approximately USD 90. Table 9 , columns 1 to 3 report estimates for the public goods experiment using various specifications. As before, the addition of socioeconomic status variables does not substantially alter the coefficient estimates on the treatment effect or level effects of the other variables. (Column 1 versus Columns 2 and 3) When we do not include interactions between SES variables and the treatment variable (Column 2), we find no statistically significant level

Table 9: Treatment Effects by Socio-Economic Status, Public Goods Experiment

	(1)	(2)	(3)
Experiment:	public goods	public goods	public goods
Age	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)
Treatment	-0.24	-0.21	-0.20
	(0.08)***	(0.09)**	(0.08)**
Ethnic ties=1	0.01	-0.01	0.01
	(0.04)	(0.03)	(0.03)
Ethnic ties*Treatment	0.16	0.17	0.14
	(0.06)***	(0.05)***	(0.05)***
Male=1	0.03	0.05	0.05
	(0.02)	(0.03)*	(0.03)*
Male*Treatment	-0.07	-0.08	-0.08
	(0.03)***	(0.03)**	(0.03)**
Education level	-0.08	-0.08	-0.08
	(0.02)***	(0.02)***	(0.02)***
Education*Treatment	0.07	0.06	0.06
	(0.02)***	(0.02)***	(0.02)***
Broad pc	-0.07	-0.05	-0.05
	(0.02)***	(0.02)***	(0.02)**
Broad pc *Treatment	0.07	0.05	0.05
	(0.03)***	(0.03)*	(0.03)*
Local pc	0.02	0.01	0.01
	(0.02)	(0.01)	(0.01)
Local pc *Treatment	-0.05	-0.04	-0.03
	(0.02)**	(0.02)*	(0.02)
Stable income=1		-0.03	-0.06
		(0.03)	(0.04)
Commercial activity=1		-0.01	-0.02
		(0.03)	(0.04)
Assets pc		0.00	-0.02
		(0.01)	(0.02)
Stable income*Treatment			0.05
			(0.07)
Commercial activity*Treatment			0.02
			(0.04)
Assets pc*Treatment			0.05
			(0.02)**
Observations	1103	975	975
Pseudo R2	0.24	0.22	0.23
Candidate fixed effects?	Yes	Yes	Yes
Sampling weights?	No	No	No

Notes: The estimation method is Probit. The reported estimates are mean marginal effects. Standard errors are clustered at the village level and are reported in parentheses.

* significant at 10 percent; ** significant at 5 percent; *** significant at 1percent

effects for the socioeconomic variables. After inclusion of the interaction effects (Column 3), we find a negative level effect of stable income and a positive interaction effect of assets and treatment.[13]

Religious affiliation is a competing explanation for our finding on the role of ethnic ties on voters' response to the public goods treatment. The three main religious groups in Benin, Christians, Muslims and Animists, are almost equally represented in the sample, while three out of four candidates in the sample are Christians. When controlling for respondents' religious affiliation, we find no change in the coefficient estimate of the interaction between ethnic ties and treatment or in its statistical significance. This indicates that ethnic affiliation is far more politically salient than religious affiliation. In addition, there is no significant change in the other coefficient estimates. This is an important robustness check because the summary statistics suggest that Muslims are less likely to participate in political discussions or local associations. The stability of the coefficients on local networks and their interactions with treatment confirm that the results are not merely picking up differences in religious affiliation.

5 Discussion and relation to the literature

5.1 Media

Our first main finding is that voters' preferences for public goods differ when their have different access to media. This could be explained in several ways. It is worthwhile to keep in mind that the messages conveyed on television, on the radio, and in newspapers and magazines are largely national in nature. Therefore, voters who listen to the radio or television, and voters who read newspapers and magazines may have a better sense or knowledge of the problems of the country as a whole and might be more receptive to a public goods message. In addition, listening to the radio, watching television or reading the newspapers might foster a sense of

[13] A question that arises from the basic analysis is why men and women react so differently to public goods platforms. We clarify the issue by looking into the characteristics of both subsamples. First, only 11.2 percent of women in our sample are unmarried, while 30.7 percent of men are. Close to 50 percent of unmarried women are age 20 or younger, while 70 percent are younger than 25. Since so few women in the sample are unmarried and most of those are clustered in the age group 18 to 20, sample sizes would be inadequate to analyse women's voting behavior by marital status. We select the sample of men age 18 to 40 and analyse their voting reaction to the public goods platforms by marital status. Approximetely 46 percent of men in this sample are single.While single men are less likely to vote for the dominant candidate than married men, the two groups are similar reactions to the public goods treatment.

community among listeners and readers, which would make them more attentive to the needs of fellow community members. Alternatively, access to media strengthens voters' ability to monitor the implementation of platforms. Since the implementation of national platforms is inherently more difficult to monitor than for redistributive platforms, it is clear that media access will strengthen support for national platforms.

Our findings differ from the ones in Stromberg (2004) and Besley and Burgess (2000), who emphasizes the role of radio as an information device that facilitates monitoring given voters' preferences. Stromberg (2004) finds that the expansion of radio in the 1930's in the US led to a substantial increase in the provision of public goods, presumably because radio listeners were better aware of policies that affected them and had better information to monitor their political representatives. Besley and Burgess (2000) find that, given citizens' preferences, media make governments more responsive to citizens' needs. By contrast to these papers, we document how people's preferences differ when their access to the media varies. Second, we use disaggregated data at the voter level rather than data that are spatially aggregated.

5.2 Membership

Our second main finding relates to voters' membership in parties, unions and NGOs. We find that members of such organizations react less negatively to public goods messages than non-members. Again, there are several possible explanations for this. First, organization membership connects people to a regional or national community, which might lead to more knowledge about the needs of the country as a whole. Thus, in a sense, organizations is a "broad" social network. Second, membership might be correlated with entrepreneurship, which itself might be correlated with a higher expected spatial mobility, which would lead to higher demand for national public goods. Third, members of a party might trust their political leadership more than other people, and hence they might be more responsive to their leader's message, regardless of the content of the message, a "follow-the-leader" interpretation. This is different from Olson (1982)'s story, who argues that membership in organizations leads to higher demand for clientelism, as organizations exploit their power to extract rents through policies that benefit them when their opposition is spread and not organized. As we mentioned earlier, this is in line with Putnam (1993)'s story of a relationship between organizational membership and better governance and economic

performance.

Narayan and Pritchett (1999) analyze the relationship between membership in associations and income in rural villages in Tanzania. In the OLS analysis, they find a positive and significant correlation between the two measures. In an attempt to identify the causal effect of memberships on income, they use trust as an instrumental variable for memberships, and find a significantly larger coefficient estimate, suggesting measurement error in their variable for memberships. We find no positive association between memberships and assets in our data.

5.3 Political Discussions

The third main finding of the paper is a positive correlation between local political discussions and the probability to vote for the dominant candidate. The first explanation for this finding is that discussions are an artifact of political support for the dominant candidate. If people prefer discussing politics issues to others with the same political preferences, then people supporting the dominant candidate have more preferred discussion partners, and hence will discuss politics issues more often. In addition, if there is a danger of being isolated or ostracized when voicing non-dominant political preferences, then people supporting a non-dominant candidate will talk politics less often. This result is in line with Beck et al.'s findings (2002) indicating that interpersonal discussions has a significant effect on the vote for both Clinton and Bush in the 1992 presidential elections in the United States.

Another possible explanation for the link between political discussions and voting for the dominant candidate comes from the concept of distance. The discussion variable might capture the geographic distance between households under the assumption that shorter distances lead to more human interactions, inter alia political discussions. On the other hand, shorter geographic distance might also lead to voting externalities because it facilitates effective transmission of information about voting behavior. The availability of information about voting behavior would in turn make possible social sanctions against community members for deviant voting. In short, geographic distance can be correlated with both political discussions and voting externalities, leading to a correlation between political discussions and voting behavior in the regressions. Since we do not have measures of geographic distance between households, it is not possible to assess whether this story is a plausible explanation for the findings.

Next, we turn to the negative correlation between political discussions and public goods treatments. Our main explanation for this result is that political discussions create communities that are intrinsically local, with little connection to outside communities. This makes it different from memberships in organizations or media usage. Local discussions without link to the outside world reinforce local bonding and demands for redistribution towards the locality.

5.4 Ethnic ties

The fourth main finding of the paper is that ethnic affiliates react less negatively to public goods messages. This confirms earlier results discussed in Wantchekon (2003). There are three possible explanations for this result. The first explanation is self-interest: Co-ethnic voters are supportive of a national public goods program because they believe even such a program will benefit them more than voters from other groups given that the candidate belongs to their ethnic group. The second explanation is signalling of the"only Nixon can go to China" kind. The value of broad based platforms is enhanced when they emanate from an unlikely but trusted source, in this case the ethnic candidate. The third explanation is credibility of political messages: It is more difficult for voters to monitor the implementation of broad national platforms than redistributive platforms, which typically include patronage jobs and local public goods. Non ethnic affiliates are less likely to favor broad-based appeals than ethnic affiliates because they cannot use the social pressures that ethnic ties provide to hold politicians accountable. Hence ethnic ties enhance voters' ability to monitor politician behavior, the same way that media access does.[14]

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. They argue that ethnic diversity reflects heterogeneity in preferences for public goods, and that increased diversity leads to lower contributions to, and hence lower supply of public goods. An alternative explanation for the low supply of national public goods in the presence of ethnic diversity is the Olsonian rent-seeking argument. For

[14]The fact the level effect of ethnic ties is not significantly different from zero, indicates ethnic affiiliation matters for voting behavior particularly when the treatment requires more credibility or trust to be effective.

example, Bates (1983) argues that ethnic ties and spatial concentration of ethnic groups make it easier for citizens to lobby for 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. Assuming that higher demand for national public goods implies lower demand for redistribution, the evidence presented here contradicts this finding and indicates that ethnic solidarity can increase the demand for public goods.

In another related paper, 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. However, Miguel (2004) also find that collective action in heterogenous communities can be facilitated by nation-building policies as evidenced by Tanzania under late president Nyerere.

5.5 Gender

The stronger preference of women for public goods platforms confirms the robustness of earlier results presented in Wantchekon (2003). In that paper, two potential explanations were provided. The first points to the fact that women are excluded from the most common forms of redistribution and are more responsive to platforms stressing public health or education reforms. The second explanation focused on occupational choice. Fafchamps and Gabre-Madhin (2001) find that while men dominate agricultural production in Benin, 80% of inter-regional agricultural product traders in the country are women. They find that a significant proportion of traders travel weekly to other regions of the country and speak several languages. If women dominate trade in general, one might think that women tend to be better informed about social and economic conditions in the country than men, and could, for that reason, value broad-based public policies. In our data, we find no evidence that trade in general, as opposed to agricultural trade, is dominated by women, that women travel more, or that they speak more languages than men. For example, 44 percent of traders in our sample are men, and the average number of

languages spoken is 1.35 for women, and 1.6 for men. Hence it appears that the results in Fafchamps and Gabre-Madhin (2001) are largely driven by their sampling frame.

6 Conclusions

An unusual political experiment in 2001 presidential elections in Benin provided a unique opportunity to investigate the extent to which information and civic community affect voters' responsiveness to national public goods platforms. While participation in broader information networks is associated with stronger preference for national public goods, participation in local social networks is associated with higher demand for those who are members of political organizations, and lower demand for those involved in political discussions. Our results provide micro-evidence that supports both the Putnam thesis on the positive role for social capital in the process of economic development, and the Olson thesis on the rent-seeking drift of organizations. In addition, our results suggest that public access to information and use of media outlets may not only make governments more responsive, but also shape voters' demand for growth promoting policies. Paradoxically, ethnic ties between voters and candidates can increase the demand for national public goods. Thus ethnic ties and media access have similar effects, arguably because they both enhance voters' ability to monitor politicians. We confirm the finding in Wantchekon (2003) that women are more favorable to public goods platforms, and show that this cannot be explained by education levels, occupation, or spacial mobility levels. We find no evidence that religion or assets influence voting patterns after controlling for gender, ethnic ties, education and memberships in social networks.

One of the question arising from the present paper is what the treatment effect would have been, has the experiment took place in competitive districts as opposed to non-competitive districts. For instance, would ethnic affiliates of the dominant candidate remained as responsive to public goods treatment in more competitive and hence ethnic diverse districts? We intend to address this question in future research.

Another limitation of the current experiment is the fact that experimental platforms were framed either narrowly or broadly, and lacked specific policy content. This contrasts with most impact evaluations work which pays no attention to politics and to political processes. This

clearly limits the extent to which successful interventions can be brought to scale, in contexts where politicians are unsure about the electoral consequences of advocating those policies. The next step will be to integrate these two approaches in order to assess the impact of specific policy proposals on electoral responses. Rather than being technical proposals for government bureaucrats, proven policy reforms could become part of the public domain, and become the basis of substantial debate in election times. Evaluating the technical aspect of passing an economically efficient policy through the political process, to find policies that pass two tests: economic efficiency and political economy considerations.

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