Targeting, Discretionary Funding, and the Provision of Local Public Goods: Evidence from Kenya*

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Abstract

We elicit sitting politicians' preferences over two attributes of local public goods, opportunities for targeting and control of discretionary funding, by conducting an incentive-compatible choice experiment with 179 elected county councilors in rural Kenya. In our experiment, local politicians choose between different public goods packages that vary across two dimensions: whether or not the politician is able to target the good to the location of his choice, and whether he controls the discretionary funding associated with the project. Local officials put a high premium on opportunities for geographic targeting, but not on the ability to control the associated discretionary funding; local officials are particularly uninterested in controlling the funding mechanism (and taking on the associated maintenance responsibilities) when they are able to choose the public good's location. Decisions about where to install the public good suggest a combination of motives: councilors choose locations that generate relatively high social welfare, but favor locations in their home areas. Quantitative estimates suggest that users in one's home area count approximately twice as much as constituents who live further from the councilor.

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1 Introduction

Many recent efforts to improve the availability of local public goods in developing countries have focused on decentralization to local governments (Ahmad, Devarajan, Khemani, and Shah 2005). Local politicians typically have easier access to (local) information than central government officials, so they are well-placed to direct public goods toward the areas of greatest need, thereby improving social welfare; but they can also adversely affect public goods projects (Bardhan 2002). They may, for example, choose projects that disproportionately benefit their home areas, politically important constituents, or swing voters — even when other types of projects would have a greater welfare impact (Keefer and Khemani 2009, Golden and Min 2013, Kramon and Posner 2013).[1] They may also favor inefficient projects that give them control over discretionary funding, because such project provide opportunities for personal enrichment (Bicchieri and Duffy 1997, Lambsdorff 2002, Shi and Svensson 2003, Kunicová and Rose-Ackerman 2005, Hernandez-Trillo and Jarillo-Rabling 2008).

Elected officials' decision-making processes are at the center of any model of decentralized public goods provision, but relatively little is known about how politicians choose between public goods projects with different attributes — for example, whether opportunities for targeting and control of discretionary funding are complements or substitutes. Much of the existing research on the provision of local public goods uses observational data on funding allocations (cf. Besley, Pande, Rahman, and Rao 2004, Cleary 2007, Arvate 2013, Díaz-Cayeros, Magaloni, and Ruiz-Euler 2014). These studies explain overall patterns of public goods provision, but — without detailed data on politicians' choice sets and decision-making processes — provide limited information about politicians' willingness to make tradeoffs between the different attributes of public goods. Though a number of recent studies have examined politicians' decisions directly using laboratory-style experiments (cf. Bech 2003, Barr, Lindelow, and Serneels 2009, Alatas, Cameron, Chaudhuri, Erkal, and Gangadharan 2009, Butler and Broockman 2011, Spada and de Sá Guimarães 2013, Butler and Kousser 2015), these have been focused on decisions likely to have minimal direct impact on constituents (for example, choices in a public goods game in the lab).

[1] Officials must decide both *whether* to target public goods toward a subset of voters or citizens and, if they are going to engage in selective targeting, *who* they should target. Cox and McCubbins (1986), Lindbeck and Weibull (1987), and Dixit and Londregan (1996) model the decision to target public goods to either core supporters or swing voters.

We extend this literature by measuring sitting politicians' willingness to trade off opportunities for geographic targeting and access to discretionary funding by conducting an incentive-compatible discrete choice experiment with 179 elected county councilors in rural Kenya. Prior to the implementation of Kenya's new constitution in 2013, county councilors were low-level elected officials who represented rural electoral wards in Kenya's system of local government. Because their constituencies were quite small,[2] we would expect county councilors to have very good local information about their wards and to be quite responsive to the demands of voters. We partnered with an organization installing a low-cost water treatment technology (chlorine dispensers) at shared water sources.[3] Politicians who participated in our study were entered into a public lottery through which approximately 40 county council wards were chosen to receive a free chlorine dispenser and two years of free chlorine delivery. In order to be entered into the lottery, councilors completed a discrete choice experiment in which they made choices about the types of chlorine dispenser packages that they would like to receive for the electoral wards they represented. The discrete choice experiment consisted of two parts. In the first part, each councilor made a series of choices between pairs of dispenser packages that varied in terms of who would choose where to install the dispenser (the councilor himself, the non-profit organization installing the dispensers, or a centrally-appointed health official) and who would manage the funds allocated to cover the cost of refilling the dispenser with chlorine solution (the councilor or the implementing organization). In the second part of the experiment, the councilor decided which of the water sources in his ward should receive a dispenser if the ward was chosen to receive a one. Because there was a non-zero probability that any of their choices would be implemented, politicians had an incentive to make decisions that were consistent with their preferences regarding the implementation of public goods projects in their ward.[4]

To our knowledge, this paper is the first to report the results of a choice experiment in which sitting politicians make decisions that are linked to actual public goods allocations in their con-

[2]The median ward in our sample has just under 8,000 registered voters.

[3]The chlorine dispenser is a device which releases a measured dose of chlorine solution that can be easily added to a container of water immediately after it is collected; Kremer, Miguel, Mullainathan, Null, and Zwane (2011) find that the installation of chlorine dispensers at shared water sources leads to a dramatic increase in the fraction of households with detectable chlorine in their water, even years after the dispenser is installed. For more information, see "Chlorine Dispensers for Safe Water," available online at `http://www.poverty-action.org/work/projects/safewater`.

[4]See Camerer (1995) for discussion of the role of incentives in choice experiments.

stituencies. This unique research design allows us to contribute to two bodies of research: the large literature on the political economy of local public goods provision and the newer literature examining decision-making by sitting public officials. In contrast to existing research in these two literatures, the incentive-compatible choice experiment that we employ provides us with the ability to precisely characterize politicians' tradeoffs between opportunities for geographic targeting and control over the funding associated with a project.

Our main findings can be summarized as follows. First, councilors value opportunities for geographic targeting. This result appears to hold for all of the councilors included in our sample – it does not depend on the political characteristics of either the ward or the councilor. Councilors use the ability to choose the location of chlorine dispensers in a variety of ways. On one hand, they are more likely to choose water sources with higher numbers of users, sources that are publicly owned, and sources accessed at a single point (as opposed to rivers and streams) guaranteeing all users will have easy access to the dispenser. We interpret this as suggestive evidence that local councilors in rural Kenya seek to enhance social welfare through the targeting of public goods projects. On the other hand, a significant portion of the councilors in our sample do appear to target resources to their immediate family and neighbors by installing dispensers in their own village.

In contrast, the opportunity to manage chlorine provision tended to decrease the attractiveness of a dispenser package, suggesting that local officials do not necessarily seek control over discretionary funds. However, we observe substantial heterogeneity in the valuation of this dispenser attribute, not all of which is explained by ward political characteristics.

The paper proceeds as follows. In the next section, we detail the study context, research design, and data sources. We then present the results of the experiment, discussing the councilors' choices between dispenser packages, the correlates of heterogeneity in councilor choices, and patterns of dispenser location choices. We conclude by considering the implications of our findings for research on local public goods and for policy related to decentralization.

2 Study Design and Context

2.1 County Councilors' Role in Local Government in Kenya

We conducted an incentive-compatible discrete choice experiment with elected councilors from 9 Kenyan county councils in 2012.[5] County councilors were the elected representatives for rural electoral wards in the system of local government that existed from independence until the implementation of the country's new constitution in 2013.[6] Prior to the adoption of the new constitution, public goods provision in Kenya was highly centralized. County councilors responsibilities mainly related to local-level taxation and spending: they set property tax rates and other fees, allocated funding for managing rural market centers and trust land, and determined levels of local cost-sharing for central government infrastructure efforts in the water, transportation, education, and health sectors (Southall and Wood 1996).

Public perception of county councilors in Kenya has historically been poor. In a 2011 Transparency International report, county councils were rated as one of the most corrupt institutions in the country (Transparency International 2011). The Kenyan media frequently describe local politicians as driven primarily by a desire to use public funds to benefit themselves (Gichana 2011, Onyango 2012, Standard Digital Counties Team 2014). Data from the most recent Afrobarometer Survey indicates that the overwhelming majority of Kenyas citizens perceive local councilors as being corrupt: 50 percent indicated that either most or all local government councilors were corrupt, and an additional 42 percent reported that some councilors were corrupt (Afrobarometer Data 2015). However, corruption at the local level tends to operate on a relatively small scale, in contrast to the high profile cases of central government corruption involving the theft or misallocation of millions of dollars (Transparency International 2011).

[5] The study location was determined by the organization installing the dispensers, Innovations for Poverty Action. The location was chosen to avoid areas where other dispenser-related research projects were ongoing, areas that had recently experienced political violence or terrorism (for example, during Kenya's post-election crisis in 2008), and areas that did not have ecological conditions suitable for dispensers (for example, regions that were too arid and did not have reliable shared water sources).

[6] One of the key elements of the new constitution was the devolution of (some) authority to county-level governments. Specifically, the new constitution states that the central government must transfer 15 percent of its revenue to the counties; it also devolved to the counties responsibility for services including the provision of primary health care and the management of internal transportation issues (Kramon and Posner 2011).

2.2 Experimental Design and Procedures

Our experimental design built on a scale-up initiative spearheaded by the international organization Innovations for Poverty Action (IPA). As part of that initiative, IPA allocated funding to install and maintain approximately 40 chlorine dispensers to county council wards in our study area. The allocation of free dispensers through the program was determined through a public lottery, which was conducted in May of 2012. We built on this program by eliciting the preferences of county councilors through a discrete choice experiment. Within the experiment, councilors chose among dispenser packages that varied in terms of the system for selecting the dispenser location and for managing chlorine refills. Councilors also selected an eligible water source within their district to receive a dispenser. Before a councilor made any decisions, the enumerator explained that IPA did not have enough funding to install chlorine dispensers in all of the participating wards, and that a public lottery would be used to decide which 40 wards would receive dispensers. Participating councilors were invited to either attend this lottery or to send a representative, and were also informed that, after the fact, they would be able to watch a video recording of the lottery on the internet.

2.2.1 Choosing a Dispenser Package

The discrete choice experiment consisted of two parts. In the first part of the experiment, councilors made a series of 20 choices between two alternative chlorine dispenser packages. In each of the 20 decisions, councilors were asked to choose which of two dispenser packages they would prefer to receive for their ward. Complete instructions, including a listing of all the decision problems, are included in the Online Appendix.

Two attributes were varied across dispenser packages: the party choosing where the dispenser would be installed, and the party that would receive the money to manage the chlorine refills. Dispenser location could be determined in one of three ways: the councilor himself could decide where to put the dispenser, a centrally-appointed public health bureaucrat (the District Public Health Officer) could decide, or the staff of the international organization installing the dispensers (IPA) could decide. If the councilor or the District Public Health Officer was in charge of selecting

a location for the dispenser, he was allowed to choose any public water source in the ward that served at least 10 households.[7]

Refilling the dispenser was either the responsibility of the implementing organization's program staff or the councilor himself. If the councilor selected a package that put him in charge of refilling the chlorine, the the implementing organization provided him with a sum of 650 Kenyan shillings (7.77 USD) each month to cover the cost of hiring someone to transport the chlorine from the market town to the dispenser site. While this is a small amount of money relative to many narratives about large-scale elite capture and corruption, small, high-frequency transactions typify the sorts of situations in which petty corruption tends to occur; the amount of discretionary funding available through our experiment is also comparable to what Kenyan county councilors encounter in the course of their engagement with decentralized funds and NGO projects (Asaka, Aila, Odera, and Abongo 2011, National Taxpayers Association 2016).[8]

In each of the 20 decision problems that the councilors faced, they were asked to indicate which of two dispenser packages they preferred. They were also allowed to indicate that they were indifferent between the two packages or that they preferred not to receive either of the packages offered. Since the set of dispenser packages under consideration had only six elements, we were able to offer each councilor every possible combination of choices between two dispenser packages. Our sequence of 20 choice problems included all 15 possible pairs of dispenser packages, presented in a random order, plus an additional 5 questions that were chosen at random from the menu of 15 and presented with the order of the two packages swapped.

Councilors were informed that each of their 20 dispenser package selections had a 5 percent (1 in 20) chance of being implemented if their ward was chosen to receive a dispenser through the public lottery. After the selection of the 40 wards that would receive a dispenser, an additional lottery was conducted to determine which of the 20 dispenser package questions would decide which dispenser the wards would receive. If the councilor chose not to select either of the two dispenser packages

[7]Throughout the paper, we use male pronouns to describe county councilors and other Kenyan government officials; this decision reflects the incredibly low percentage of women holding public office in Kenya. 93 percent of the county councilors in our sample are male.

[8]Over the course of the full two-year project, the total value of the chlorine contract is 16,500 shillings (approximately 197 USD), which is substantially larger than the typical bribe paid to a member of a county councils (Transparency International 2011).

offered in that choice set, then no dispenser would be installed in his ward. If the councilor indicated that he was indifferent between the two packages offered in that choice problem, the package to be implemented would be selected through a third lottery with a 50 percent chance of each package being chosen.

2.2.2 Choosing a Dispenser Location

In the second part of the discrete choice experiment, councilors were asked to choose the water source in their ward where they would like to have a chlorine dispenser installed. In the event that the councilor's ward was randomly chosen to receive a dispenser and the dispenser package that the councilor chose allowed the councilor to choose the dispenser location, a chlorine dispenser would be installed at the water source identified by the councilor. To assist the councilors in selecting a water source, we provided each respondent with a booklet containing information on each of the water sources in his ward, using data from a water source survey (which we describe in more detail below).

2.3 Data Sources

We complement the data from our discrete choice experiment with two additional data sources. The first is a census of shared water sources in the county council wards included in our sample. We enumerated the set of possible locations for dispenser installation by conducting a survey of village elders in 2011, the aim of which was to create a listing of all the shared water sources in the county council wards in our sample. For each of 7,618 shared water sources in 3,164 villages, the survey recorded the name and local nicknames of each water source as well as other basic information the type of source (e.g. a river or stream, a public standpipe, a borehole or shallow well, etc.), the number of months that each source is dry, the approximate number of households using the source, whether the source is privately owned, whether users have to pay for water from the source, and the ethnicities and wealth levels of the households using the source. Data from the water source survey was provided to councilors when they were asked to choose which source should receive a dispenser.

We measure the political characteristics of the wards in our sample using the official results of

the 2007 election that were compiled by the Electoral Commission of Kenya (ECK).[9] For every local electoral ward in the country, the ECK reports the total number of registered voters, the total number of votes cast, the party affiliation of each candidate, and total number of votes that each candidate received.

2.4 Subject Pool: Councilors and Wards in the Sample

Table 1 presents descriptive statistics characterizing the 179 councilors and wards in our sample. The vast majority – 93 percent – of councilors in our sample are male, reflecting the low proportion of women holding elected office in Kenya.[10] 90 percent have completed secondary school and 25 percent have some post-secondary education. In addition to holding elected office, approximately half of the sample are also farmers, while a third are business owners. Only 35 percent reported that their salary from being a councilor accounted for more than half of their household income. 61 percent of the councilors in our sample were in their first term in office, and the average number of years of experience in politics is 8. 73 percent were affiliated with one of the three main political parties in the 2007 election (PNU, ODM, and ODM-K). We observe substantial variation in the political characteristics of the wards in our sample. The number of registered voters varies from 682 voters in the smallest ward to over 16,000 in the largest, and voter turnout in the 2007 election ranges from 35 percent of registered voters to 97 percent.

Table 2 reports summary statistics on the water sources in the wards in our sample.[11] The number of water sources within a ward ranges from 3 to 209, with an average of 49 sources; while the average number of households using each source within a ward ranges from 23 to 740. Across all wards in the sample, the most common shared water sources are streams and rivers, accounting for an average of 37 percent of sources per ward. On average, 33 percent of sources in each ward are improved sources such as public standpipes and taps, borehole wells, and protected springs.[12]

[9] We were given the electoral returns by James Long and Jeremy Horowitz, who obtained them from the ECK. The copy of the returns that we used was printed on March 17, 2008.

[10] The limited variation in individual characteristics observed in our sample precludes the analysis of the associations between individual characteristics and preferences for public goods.

[11] In our analysis of dispenser location decisions, we omit 22 wards where the councilor's first choice for where to locate a dispenser was not a source listed in the water source booklet.

[12] As should be apparent, adding chlorine to clean water as little impact on water quality; it is therefore important to install dispensers in locations where water quality is not already high. Our classification of improved sources is based WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation definition (UNICEF and

3 Analysis and Results

3.1 Choosing Between Dispenser Packages

3.1.1 Graphical Overview

We begin by summarizing the choices made by councilors in our sample graphically. Because councilors faced all possible choices between pairs of dispenser packages, package attributes are uncorrelated and we can consider each attribute in isolation.[13] In Figure 1, we present histograms summarizing councilors choices between different location choice attributes. Panel A presents a histogram of councilors' choices when asked to choose between a package that allowed the councilor to choose the dispenser location and one that allowed the implementing organization to choose the location. Councilors expressed a preference for the package that allowed them to choose the dispenser location 62.0 percent of the time; they chose the package that allowed the implementing organization to choose the location 26.9 percent of the time.[14] Thus, they were approximately 2.3 times as likely to choose packages that allowed them to choose the dispenser location, conditional on other attributes. In Panel B of Figure 1, we consider decision problems where councilors had to choose between a package that allowed the councilor himself to choose the dispenser location and packages that delegated that responsibility to a centrally appointed bureaucrat. Again, councilors overwhelmingly preferred packages that allowed them to decide where to put the dispenser, choosing them 59.0 percent of the time. They were 1.9 times more likely to choose packages that allowed them to choose the dispenser location than those that allowed the centrally-appointed official to decide where to put the dispenser.

Though we find clear evidence that councilors prefer packages that allow them to choose the dispenser location, Panel C of Figure 1 demonstrates that councilors were almost equally likely to choose packages that allowed the implementing organization to choose the dispenser location as

World Health Organization Joint Monitoring Programme for Water Supply and Sanitation 2015).

[13] See Hainmueller, Hopkins, and Yamamoto (2014) for related discussion. As discussed above, our experiment included 6 different dispenser packages (i.e. combinations of attributes), so there were 15 possible pairs of packages; councilors faced all 15 pairs (in a random order) plus 5 (randomly-chosen) pairs that were presented with Package A and Package B permuted. The graphical analysis restricts attention to the first time a councilor faced a specific pair of alternatives.

[14] When choosing between two dispenser packages, councilors selected one of four mutually exclusive alternatives: Package A; Package B; a lottery in which Package A and Package B were equally likely; or no dispenser package.

those that allowed the centrally-appointed bureaucrat to decide. In Figure 2, we consider the other attribute of the dispenser packages: who managed the funds allocated for restocking the chlorine. We find that that councilors were more or less equally likely to choose each of the two alternatives, but showed a slight preference or allowing the implementing organization to manage the chlorine restocking funds.

3.1.2 Framework for Analysis

Next, we explore councilors valuation of chlorine dispenser attributes in an additive random utility framework.[15] Without loss of generality, we assume that the level of utility councilor n derives from dispenser package j is given by:

$$U_{n,j} = V_{n,j} + \epsilon_{n,j}. \tag{1}$$

$V_{n,j}$ is the explicitly-modeled representative utility associated with the attributes of dispenser package j and $\epsilon_{v,j}$ is an unobserved stochastic component. As is standard in additive random utility models, $\epsilon_{v,j}$ is assumed to be distributed EV1. The probability that dispenser package $j \in J$ is chosen by councilor n is then given by

$$P_{n,j} = \frac{e^{V_{n,j}}}{\sum_{k \in J} e^{V_{n,k}}} \tag{2}$$

which is strictly positive. Thus, packages that are associated with higher representative utility are more likely to be chosen, but all packages are chosen with positive probability.

In our empirical model, we estimate the change in utility that results from varying the attributes of the dispenser package, relative to a benchmark package where the implementing organization chooses the dispenser location and handles the restocking of chlorine. Specifically, we estimate the additional (potentially negative) utility associated with allowing the councilor to manage the funds allocated for chlorine provision and the difference in utility associated with devolving the decision about where to locate the dispenser to either (i) the councilor or (ii) the District Public Health

[15] See Train (2003) for a detailed discussion of additive random utility models.

Officer.[16]

We take two approaches to parameter estimation. We first estimate a parsimonious model that assumes that councilors are homogeneous, estimating the preference parameters in a conditional logit framework. We then test the homogeneity assumption by estimating a mixed logit model that allows the parameters to vary across councilors. In our mixed logit estimation, we assume that all preference parameters are normally distributed, and we estimate the mean and the standard deviation of each parameter via simulated maximum likelihood. The mixed logit approach allows us to test the extent to which there is meaningful variation in preferences over dispenser attributes across councilors in our sample. We then return to the more parsimonious conditional logit framework, but allow preferences to vary with the observable political characteristics of councilors and wards. This allows us to gauge the extent to which preferences over public goods (specifically, dispenser package attributes) are explained by the political environment facing sitting politicians, as opposed to the unobserved characteristics of the politicians themselves. We estimate all preference parameters via maximum likelihood.

3.1.3 Choices between Dispenser Packages

Table 3 presents results from the estimation of our simplest conditional logit model of councilor choices between dispenser packages. In Column 1, we include only the indicator for alternatives that includes any dispenser (the coefficient on which identifies the utility of the reference dispenser package in which the implementing organization chooses the dispenser location and manages the restocking of the chlorine), the indicators for packages in which the councilor or the District Public Health Officer chooses the location, and the indicator for packages that allow the councilor to manage the funds allocated for the restocking of chlorine.

[16] So, for example, councilor n's utility from a dispenser package which allows him to manage chlorine provision and choose the dispenser's location is:

$$U_{n,j} = \phi_n + \alpha_n^{councilor} + \beta_n^{councilor} + \epsilon_{n,j} \tag{3}$$

where ϕ_n is the utility derived from receiving the benchmark dispenser package (where the implementing organization chooses the dispenser location and handles the restocking of chlorine), $\alpha_n^{councilor}$ is the increase (or decrease) in utility that results if the councilor is allowed to choose the dispenser location, and $\beta_n^{councilor}$ is the change in utility resulting from allowing the councilor to manage the funds allocated for restocking the chlorine. If counselor n indicates that he prefers not to receive Package A or Package B, then his realized utility will be: $U_{n,j} = \epsilon_{n,j}$. Councilors also had the option of indicating that they were indifferent between Packages A and B; in that case, if the councilor was selected to receive a dispenser, one of the two packages (Package A or Package B) was chosen at random through a lottery.

Our results demonstrate that councilors value dispensers, and that they value opportunities for geographic targeting (i.e. control over where to install a chlorine dispenser): the coefficient on the indicators for packages that contain any dispenser and those that allow the councilor to decide the location are both positive and significant (p-values < 0.001). The coefficient estimates indicate that councilors value dispenser packages that allow them to choose the dispenser location about 70 percent more than those that do not allow them to choose the location. In contrast, the coefficient on the indicator for allowing the centrally-appointed District Public Health Officer to choose where to install the dispenser is negative, small in magnitude, and only marginally significant. Taken together, these results suggest that councilors' preference for control over dispenser location is a measure of the value they place on targeting resources within their constituency, and does not simply reflect a preference for local control.

Finally, we find that allowing councilors to manage the chlorine refills makes a dispenser package less attractive (p-value < 0.001). This result is somewhat surprising. As noted above, many political economy models of elite capture and corruption assume that politicians highly value control over project funds (Bicchieri and Duffy 1997, Lambsdorff 2002). In Kenya, this assumption is often echoed in the popular belief that local politicians will avail themselves of any opportunity to enrich themselves using public funds (cf. Gichana 2011). The finding that the councilors in our sample generally preferred not to receive the funds for chlorine refills cuts against the conventional wisdom that politicians universally seek personal or political gain, but resonates with the results reported in Dizon-Ross, Dupas, and Robinson (2015).[17] We return to this point again below.

In the second column of Table 3, we report a conditional logit specification that includes interactions between the indicators for allowing the councilor or the District Public Health Officer to choose the dispenser location and the indicator for allowing the councilor to manage the funds for restocking the chlorine. Coefficient estimates again suggest that councilors value the basic dispenser package and the opportunity to choose the dispenser location (both p-values < 0.001). However, the interaction between the indicators for allowing the councilor to choose the location and allowing the councilor to manage the funds allocated for chlorine refills is negative and significant

[17] Dizon-Ross, Dupas, and Robinson (2015) study the targeting of insecticide-treated bednets in Ghana, Kenya, and Uganda and find relatively low levels of leakage (i.e. distribution of nets to ineligible recipients) in government clinics.

(p-value < 0.001), indicating that councilors do not want to be responsible for restocking the chlorine when they are also allowed to choose the dispenser location. One interpretation of this result is that councilors value the ability to target the public good, but targeting commits them to maintaining the good's quality (by keeping it stocked with chlorine) and limits their ability to skim off any discretionary funding. In other words, opportunities for targeting are valuable, but the constituents that one targets are likely to be well-placed to police one's performance, thereby limiting the opportunities for personal enrichment or slack performance. After including the interaction term, the coefficient associated with the indicator for packages that allow the councilor to manage the chlorine funds is close to zero and not statistically significant (p-value 0.942). Thus, councilors are averse to managing the chlorine funds when the dispenser is installed in the location of their choosing, but essentially indifferent otherwise.

In Column 3 of Table 3, we include additional variables that control for any additional (dis)utility from lotteries between dispensers and any increase in the probability of selection resulting from being presented first within a decision problem. Reassuringly, we find no evidence that the order in which the packages were presented matters. We do find evidence that councilors derive less utility from the lottery between dispenser packages than from the packages themselves.[18] More interestingly, after controlling for the lottery alternatives, the coefficient on the interaction between the indicators for allowing the District Public Health Officer to decide the dispenser's location and allowing the councilor to manage the funds for restocking the chlorine is negative and significant (p-value $= 0.022$), though smaller in magnitude than the coefficient on the interaction the indicators for allowing the councilor to choose the location and allowing the councilor to manage the funds allocated for chlorine refills (we can reject the hypothesis that the two interaction terms are equal – p-value < 0.001). The inclusion of the control for lotteries does not impact the sign or the significance level of the other coefficients.

To summarize, our conditional logit estimation suggests three key findings. First, councilors in our sample value free chlorine dispensers.[19] Second, councilors value dispenser packages that allow

[18] This is not consistent with expected utility maximization (since the expected utility of the lottery is the weighted average of the associated preference parameters) but is consistent with a range of behavioral economic models of attitudes toward risk (cf. Andreoni and Sprenger 2011)

[19] It is important to note that our experiment does not generate estimates of the willingness-to-pay for chlorine dispensers. We can only claim that councilors' choices suggest that the provision of free chlorine dispensers increases

them to choose the dispenser location over 50 percent more than packages that leave that decision in the hands of the implementing organization. Finally, councilors do not value the opportunity to manage the funds allocated for the restocking of chlorine; instead, delegating this responsibility to a councilor decreases his utility – particularly when either the councilor himself or (to a lesser extent) the District Public Health Officer is also allowed to choose the dispensers location.

Our results demonstrate that, in the context of chlorine dispensers, the expected costs of controlling discretionary funds appear to outweigh the expected benefits. As discussed above, the ability to target public goods — for example, by installing them in one's own village or home area — and control over discretionary funding seem to be substitutes rather than complements, possibly because constituents in targeted areas may be able to hold local officials responsible for low quality public goods. It is, of course, possible that the relative valuation of discretionary funding and opportunities for targeting depend on the level of funding available. However, as noted above, the amount of funds allocated to chlorine supply are on par with the amount of funding that routinely disappears from local government and NGO projects. An empty chlorine dispenser would not be substantially different from the many missing, incomplete, or poorly constructed public goods projects that exist in some wards (National Taxpayers Association 2016). As a result, there is little reason to believe that politicians chose to avoid managing chlorine refills primarily because of the small size of the resources.[20]

3.1.4 Preference Heterogeneity

In our next piece of analysis, we examine the extent to which preferences vary across councilors. The results of our mixed logit estimation are reported in Table 4. We report results for a model which includes the main preference parameters of interest, interactions between dispenser attributes, and a control for the lottery alternative in each decision problem.[21] Our model assumes that each of the

councilors utility – because they choose one of the offered packages over the option of not receiving a dispenser in the overwhelming majority of cases.

[20] From a theoretical perspective, councilors may be more likely to appropriate larger amounts of discretionary funding when the expected costs of such appropriation increase less than linearly with the amount appropriated for example, when there are fixed costs to such practices. There are few empirical tests of such assumptions.

[21] That is, we replicate Column 3 of Table 3 in a mixed logit framework, but omit the variable indicating whether a dispenser was presented first (since the estimated coefficient in Column 3 of Table 3 is very close to zero and not statistically significant). Mixed logit results are similar when more parsimonious models (analogous to Columns 1 and 2 of Table 3) are estimated.

preference parameters is normally distributed, and we report the mean and standard deviation of the estimated distribution, along with the associated standard errors. In the last column of Table 4, we use the estimated mean and variance of the parameter distribution to calculate the fraction of councilors in our sample who derive positive utility from each dispenser attribute we consider.

Coefficient estimates suggest substantial heterogeneity in councilors' preferences over public goods: the standard deviations on all parameters are significantly different from zero. Nonetheless, our mixed logit results resonate with our earlier findings. Coefficient estimates indicate that 84.2 percent of councilors prefer dispenser packages that allow them to choose the where to install the dispenser. The mean of the distribution of the utility associated with allowing the councilor to manage the funds allocated for chlorine refills is not significantly different from zero, though the standard deviation is. This indicates that approximately equal numbers of councilors derive positive and negative utility from the opportunity to manage the chlorine funds when the implementing NGO decides the dispenser's location. However, the interactions between dispenser attributes indicate that allowing the councilor to manage the funds allocated for restocking chlorine makes dispenser packages less attractive to the overwhelming majority of councilors when either the councilor himself or the centrally-appointed District Public Health Officer has decided the dispenser location. Thus, while demonstrating considerable heterogeneity across councilors, our mixed logit results reinforce the all of the key findings from the conditional logit estimation reported in Table 3.

Next, we explore the extent to which political characteristics explain the observed preference heterogeneity by allowing the utility of each attribute to depend on the observable characteristics of a councilor or his ward. Specifically, we allow the utility associated with particular dispenser package attributes to be a linear function of the political characteristics (ward size, voter turnout, the councilor's party affiliation, and his term in office).[22] Results are reported in the Online Appendix. Overall, we find that our measures of the political characteristics of wards and councilors

[22]Because the three ward-level political measures we consider have different magnitudes and distributions, we include the quartiles for each variable rather than levels. In Columns 1 and 2, we include absolute quartiles of registered voters and voter turnout; in Columns 3 and 4 we control for county council-level differences in political characteristics by constructing within-county quartiles. All specifications also include controls for alternatives that are lotteries. These results should be interpreted with some caution, both because of the large number of hypotheses being tested and because political characteristics are not exogenous.

explain very little of the observed preference heterogeneity, though the evidence suggests that candidates from the major political parties place a relatively higher value of opportunities for targeting, while those in their first-term in office are more averse to allowing the District Public Health Officer to decide where to install the dispenser.

3.2 Choosing a Dispenser Location

Our results thus far demonstrate that councilors value the opportunity to choose where to install a chlorine dispenser. In our final piece of analysis, we examine councilors targeting choices. Councilors decisions about where to install dispensers allow us to analyze the factors underlying their targeting choices in a conditional logit framework. Here, the choice set is the listing of a wards shared water sources enumerated in the water source survey, and we allow the probability that a water source was chosen to receive a dispenser to depend on source attributes.[23] This analysis is descriptive: because we do not control the choice set facing each councilor or the correlations among attributes, we cannot estimate the causal impact of any individual characteristic on the likelihood that a water source is chosen to receive a dispenser.

Results (reported in Table 5) show that councilors make sensible decisions about where to install chlorine dispensers. Councilors target water sources which are point source (i.e. have one precise access point) and partially improved but not protected — specifically, dams and shallow wells. They are less likely to choose water sources that are privately owned, though they are no more likely to choose free water sources than those that charge a fee for use. Other characteristics of the water coming from the source (e.g. whether the source runs dry at any point in the year) do not explain councilors' choices.

The number of households using a source is an important factor explaining councilors selection of water sources, in spite of the fact that only 16 percent of councilors choose a source which maximizes the number of users who will have access to chlorine: the number of users is positive and significant at the 99 percent level in all specifications. This suggests that councilors are interested

[23] We also include controls for the page on which a source appeared in the Water Source Booklet, since sources listed early in the booklet may have been particularly salient to councilors. The median number of water sources in a ward is 40, but 7.6 percent of wards had more than 100 water sources. The booklet listed between 3 and 5 water sources per page. Sources were sorted alphabetically by sublocation and village.

in maximizing the social benefits of the chlorine dispenser by installing it where many people will have access to it. However, we also find evidence that councilors target the public good to their home areas: sources in a councilors' villages are significantly more likely to be chosen to receive a dispenser (p-values 0.030 and 0.028 in Columns 1 and 2 of Table 6). In Columns 3 through 6 of Table 6, we interact the number of households using a water source with the indicators for whether or not a source was located in a councilors sublocation (in Columns 3 and 4) or a councilors village (in Columns 5 and 6). This allows us to characterize councilors' willingness to trade off benefits for their immediate neighbors and benefits for constituents outside their home area. Coefficient magnitudes suggest that users in a councilor's own sublocation or village carry twice as much weight in councilors targeting decisions as users in other parts of the ward (and we can consistently reject the hypothesis that users inside and outside councilors' home area carry equal weight at the 90 percent confidence level). Thus, our results provide clear evidence that councilors seek to target core supporters in their home areas (Dixit and Londregan 1996, Golden and Min 2013), even within small and ethnically homogeneous electoral wards, and help to explain the tendency to vote for coethnics and candidates from one's home area observed in many African contexts (Wantchekon 2003).Coefficient magnitudes suggest that users in a councilor's own sublocation or village carry twice as much weight in councilors targeting decisions as users in other parts of the ward. Thus, our results provide clear evidence that councilors seek to target core supporters in their home areas (Dixit and Londregan 1996, Golden and Min 2013), and helps to explain the tendency to vote for coethnics and candidates from one's home area observed in many African contexts (Wantchekon 2003).

Finally, in Table 6, we explore the association between outcomes that are related to the distributive implications of politicians controlling targeting and the political characteristics of councilors and their wards. We find evidence that greater political participation (as proxied by higher voter turnout) is associated with an increased likelihood of choosing a water source in the top quartile in terms of the number of users within that ward. Further, councilors from one of the three main political parties in the 2007 election are also more likely to choose water sources accessed by larger numbers of users. We interpret this as evidence that political competition – both within wards and among political parties – does tend to discipline politicians and push them toward more

socially desirable public goods outcomes. Interestingly, we find little evidence that the political characteristics of wards and councilors explain the tendency to target the public good to one's own sublocation or village.

4 Conclusion

We conducted an incentive-compatible discrete choice experiment with 179 Kenyan county councilors, elected representatives who play a major role in the provision of local public goods. By incentivizing our experiment with local public goods, our experimental design allows us to explore councilors' valuation of opportunities for targeting and control over discretionary funding in local water infrastructure projects, and to test the extent to which heterogeneity in that valuation is shaped by political competition.

This paper showcases the methodological and substantive value of utilizing incentive-compatible experiments to study the behavior of politicians. Our incentive-compatible experiment allowed us to gather unique evidence on politicians' willingness to trade off opportunities for targeting and access to discretionary funding when choosing among public goods projects. We find that the councilors in our sample have a strong desire to control targeting of resources within their constituencies, but that on average, they prefer to avoid control over a modest amount of discretionary funding. Allowing local politicians to choose the location of water treatment infrastructure doubles their likelihood of selecting an infrastructure package relative to when the implementing NGO chooses the location, while the delegation of this authority to a local public health bureaucrat has little impact on the probability that a package is selected. Our interpretation is that the preference we observe for control over location is a measure of the value politicians attach to the opportunity to target, rather than simply a preference for local control. When given the opportunity to select a location for the dispenser, councilors use the opportunity to target in two ways. On the one hand, councilors seek to increase overall social welfare by choosing sources with larger numbers of users. However, they are also more likely to choose water sources located in their own home villages, and appear to value users in their home areas approximately twice as much as users in other parts of their constituencies.

We also find that, on average, councilors seek to avoid responsibility for managing chlorine refills though this responsibility provides direct access to discretionary funding. We observe individual-level heterogeneity with respect to politicians' willingness to delegate control over targeting to bureaucrats, with first term politicians less likely to be willing to delegate choice of location to public health officials, possibly due to weaker relationships with other parts of government. More generally, the results of ward-level heterogeneity indicate the importance of taking local politics seriously when designing and implementing public goods projects (Kramon and Posner 2013). Local government wards in Kenya vary substantially with respect to their size, levels of political participation, and degree of political competition, and variation in these local political factors appears to be strongly associated with how politicians make decisions about local public goods. Taken together, these findings indicate that there are grounds for Kenya and other countries to move beyond policy discourses that view politicians as singularly power-hungry and greedy and instead seek to implement reforms that examine and engage with the local political dynamics that lead to suboptimal public goods outcomes.

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Table 1: Summary Statistics — Councilors and Wards

Variable:	Mean	S.D.	Median	Min.	Max.	N
Female	0.07	0.25	0	0	1	179
Age	46.88	9.99	46	28	73	179
Married	0.91	0.29	1	0	1	179
Kikuyu	0.68	0.47	1	0	1	179
Christian	0.96	0.21	1	0	1	179
Completed secondary school	0.90	0.30	1	0	1	176
Some post-secondary education	0.25	0.43	0	0	1	176
Farmer	0.53	0.50	1	0	1	177
Business owner	0.34	0.48	0	0	1	177
More than half of HH income from being councilor	0.35	0.48	0	0	1	175
Years in politics	8.34	5.49	5	1	30	178
Member of major political party	0.73	0.45	1	0	1	179
Member of PNU party	0.58	0.49	1	0	1	179
Member of ODM party	0.03	0.17	0	0	1	179
Member of ODM-K party	0.12	0.32	0	0	1	179
Heard about chlorine dispensers	0.10	0.30	0	0	1	177
Number of registers voters in ward	8065.66	3138.85	7874	682	16359	179
Voter turnout	79.12	8.64	81.64	34.72	97.26	176
Effective number of parties	3.91	1.60	3.58	1.32	10.46	175
Margin of victory	0.17	0.16	0.14	0	0.80	178
Central Province	0.63	0.49	1	0	1	179
Rift Valley Province	0.09	0.29	0	0	1	179
Eastern Province	0.28	0.45	0	0	1	179

Table 2: Summary Statistics of Wards & Water Sources — Source Selection Sample

Variable:	Mean	S.D.	Median	Min.	Max.	N
Number of water sources in ward	48.52	34.28	40	3	209	157
Proportion streams and rivers	0.37	0.21	0.38	0	0.92	157
Proportion shallow wells	0.12	0.14	0.08	0	0.68	157
Proportion borehole wells	0.08	0.12	0.03	0	0.82	157
Proportion standpipes or taps	0.15	0.19	0.07	0	0.97	157
Proportion protected springs	0.07	0.12	0.02	0	0.88	157
Proportion unprotected springs	0.02	0.07	0	0	0.56	157
Proportion of water sources protected	0.33	0.21	0.31	0	1	156
Proportion of private water sources	0.13	0.14	0.09	0	0.63	157
Proportion of free (no charge) water sources	0.81	0.19	0.86	0.07	1	157
Has year-round source	0.99	0.08	1	0	1	157
Average number of dry months (among sources in ward)	0.63	0.55	0.50	0	2.83	157
Average number of users (HHs) per source in ward	138.27	120.28	102.7	25.52	739.13	157
Max users at any source in ward	564.85	398.91	470	40	1200	157
Min users at any source in ward	23.78	22.19	20	10	150	157

Table 3: Conditional Logit Model of Chlorine Dispenser Package Choices

Specification:	Logit (1)	Logit (2)	Logit (3)
Ward receives a dispenser	1.349***	1.232***	1.592***
	(0.078)	(0.084)	(0.084)
Councilor decides location	0.948***	1.297***	1.011***
	(0.069)	(0.09)	(0.08)
District Public Health Officer (DPHO) decides location	-0.117*	-0.079	0.022
	(0.066)	(0.098)	(0.09)
Councilor manages chlorine funds	-0.29***	-0.006	0.065
	(0.057)	(0.086)	(0.074)
Councilor decides location × councilor manages chlorine funds	.	-0.753***	-0.684***
		(0.123)	(0.111)
DPHO decides location × councilor manages chlorine funds	.	-0.171	-0.264**
		(0.128)	(0.115)
Lottery chosen	.	.	-2.157***
			(0.081)
Presented first	.	.	0.004
			(0.04)
Observations	14144	14144	14144

Standard errors in parentheses.

Table 4: Mixed Logit Model of Chlorine Dispenser Package Choices

	Coefficient	S.D.	Proportion Positive
Ward receives a dispenser	3.382***	3.854***	0.810
	(0.236)	(0.238)	
Councilor decides location	1.923***	1.916***	0.842
	(0.145)	(0.120)	
District Public Health Officer (DPHO) decides location	-0.039	2.282***	0.493
	(0.152)	(0.141)	
Councilor manages chlorine funds	0.019	2.773***	0.503
	(0.166)	(0.148)	
Councilor decides location × councilor manages funds	-1.016***	0.892***	0.127
	(0.165)	(0.308)	
DPHO decides location × councilor manages chlorine funds	-0.437***	0.364**	0.115
	(0.161)	(0.177)	
Lottery	-2.871***	2.007***	0.076
	(0.198)	(0.149)	

Standard errors in parentheses.

Table 5: Conditional Logit Model of Water Source Selection

	(1)	(2)	(3)	(4)	(5)	(6)
Number of users (tens of HHs)	0.02***	0.02***	.	.	.	.
	(0.004)	(0.004)				
Water from source is clear	-0.013	0.015	-0.041	-0.017	-0.012	0.013
	(0.223)	(0.229)	(0.223)	(0.229)	(0.224)	(0.229)
Source does not dry up	0.267	0.259	0.285	0.276	0.28	0.268
	(0.243)	(0.244)	(0.244)	(0.246)	(0.244)	(0.245)
Privately owned	-1.177***	-1.111***	-1.175***	-1.111***	-1.182***	-1.118***
	(0.382)	(0.382)	(0.381)	(0.381)	(0.382)	(0.381)
Users must pay to use source	0.248	0.476	0.244	0.47	0.268	0.504
	(0.297)	(0.332)	(0.299)	(0.334)	(0.299)	(0.334)
In councilor's sublocation	0.095	0.097	-0.213	-0.215	0.12	0.122
	(0.316)	(0.318)	(0.364)	(0.366)	(0.318)	(0.32)
In councilor's village	0.877**	0.892**	0.891**	0.909**	0.415	0.419
	(0.405)	(0.405)	(0.414)	(0.413)	(0.515)	(0.515)
Protected source	0.412	.	0.402	.	0.401	.
	(0.269)		(0.27)		(0.27)	
Improved (but not protected) source	0.651***	.	0.656***	.	0.668***	.
	(0.245)		(0.245)		(0.246)	
Shallow well	.	0.598**	.	0.61**	.	0.621**
		(0.29)		(0.29)		(0.29)
Water pipe or tap	.	-0.047	.	-0.053	.	-0.075
		(0.393)		(0.393)		(0.394)
Borehole	.	0.394	.	0.394	.	0.413
		(0.388)		(0.389)		(0.389)
Dam	.	0.695**	.	0.69**	.	0.71**
		(0.353)		(0.352)		(0.353)
Protected spring	.	0.604	.	0.584	.	0.587
		(0.373)		(0.375)		(0.374)
Unprotected spring	.	-0.666	.	-0.697	.	-0.659
		(0.794)		(0.805)		(0.798)
Other type of source	.	.	.	.	.	.
Users in councilor's sublocation	.	.	0.03***	0.03***	.	.
			(0.006)	(0.006)		
Users outside councilor's sublocation	.	.	0.015***	0.015***	.	.
			(0.005)	(0.005)		
Users in councilor's village	.	.	.	.	0.039***	0.039***
					(0.012)	(0.012)
Users outside councilor's village	.	.	.	.	0.019***	0.019***
					(0.004)	(0.004)
Observations	7438	7438	7438	7438	7438	7438

Standard errors in parentheses. All specifications also include controls for the page on which a source appeared in the Water Source Booklets presented to councilors.

Table 6: Regressions of Targeting Outcomes on Political Characteristics of Councilors and Wards

Dependent Variable: Councilor chose source...	with Many Users		in Own Sublocation		in Own Village	
Specification:	Probit	FEs	Probit	FEs	Probit	FEs
	(1)	(2)	(3)	(4)	(5)	(6)
Registered voters in ward (1000s)	0.035	0.014	-0.005	-0.002	-0.038	-0.009
	(0.031)	(0.014)	(0.043)	(0.012)	(0.056)	(0.01)
Voter turnout	0.042***	0.009***	-0.01	0.004	0.018	0.005
	(0.014)	(0.003)	(0.017)	(0.005)	(0.024)	(0.003)
Effective Number of Parties	.	.	.	.	.	.
First term in office	0.263	0.063	0.176	0.056	0.22	0.024
	(0.212)	(0.075)	(0.26)	(0.057)	(0.298)	(0.029)
Member of major political party	0.552*	0.191**	0.049	-0.042	-0.039	-0.04
	(0.299)	(0.085)	(0.125)	(0.047)	(0.365)	(0.051)
Constant	-4.787***	-0.709***	-0.085	-0.065	-2.803	-0.262
	(1.049)	(0.218)	(1.250)	(0.471)	(1.866)	(0.277)
Observations	154	154	154	154	154	154

Robust standard errors clustered at the county level. with Many Users indicates that the councilor chose a water source in the top quartile of users for his ward. Even-numbered columns include county-level fixed effects.

Figure 1: Attributes of Dispenser Packages Chosen by Councilors: Who Chooses the Dispenser Location?

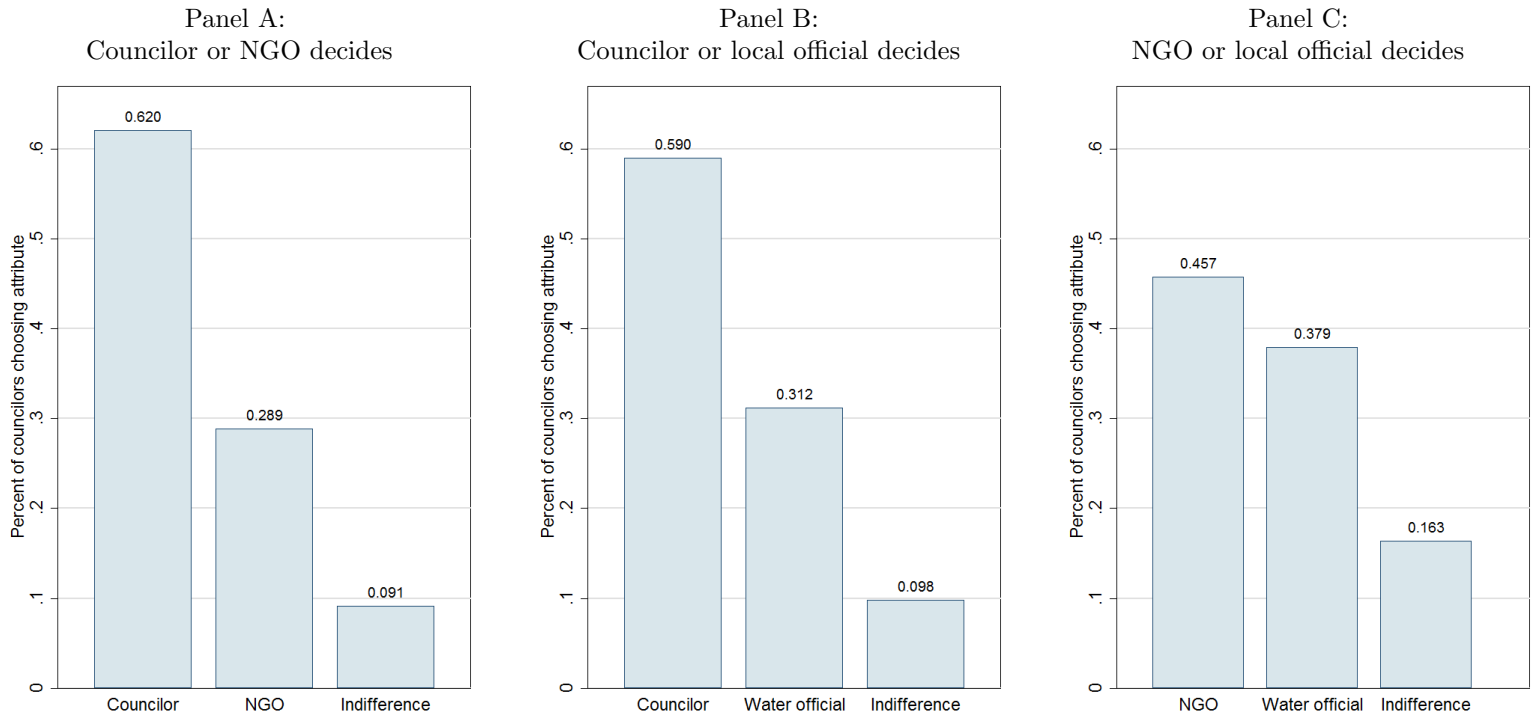

Figure 2: Attributes of Dispenser Packages Chosen by Councilors: Who Manages Funds for Restocking Chlorine?