



at the UNIVERSITY of CHICAGO

NORC WORKING PAPER SERIES

Gauging the Value of Community Participation: A Conjoint Experiment in Democratic Republic of Congo

WP-2019-003 | OCTOBER 15, 2019

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*We thank Ingrid Rojas-Arellano for outstanding research assistance and participants at the 2018 Annual Meeting of the American Political Science Association and the 2019 Annual Conference of the Program on Governance and Local Development at the University of Gothenburg for helpful comments. Data collection would not have been possible without the efforts of Agathe Tshimpanga, Eli Groener, Morgan Holmes, Andrew Greer, Sarah Islam, Renee Hendley, Jeff Telgarsky, Michel Kasusa, Richard Martin, and Forcier Consulting. The United States Agency for International Development funded data collection through Contract No. GS-10F-0033M/AID-0AA-M-13-00013 with NORC at the University of Chicago. All errors are our own.

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Abstract

As advocates champion community participation in development, people's willingness to participate is usually taken as a given. As part of a larger project, we conducted a conjoint experiment to study the value that people attach to participation in improving health care services in a post-conflict setting, where public services are generally poor and where there are gaps in citizen participation in governance. More specifically, we gauged whether people value direct participation—regular as opposed to rare community consultations about how to improve service delivery—and indirect participation—community election as opposed to elite appointment of the members of a management and oversight committee—when choosing between health care providers. We find that people value both direct and indirect participation, but less than attributes that are essential to health care, like service cost and medicine availability. We also find that citizens' value of participation varies with essential service attributes as well as with some contextual factors.

1. Introduction

Community participation in development programs has become increasingly widespread in the past three decades. Donors and practitioners alike have promoted community engagement in various forms. In community-driven development interventions, for example, communities are actively involved in choosing the projects they will receive and in their subsequent implementation ([Mansuri & Rao, 2004](#)). In information and mobilization interventions, communities receive information about service providers' performance and are then encouraged to mobilize and hold service providers accountable for their performance ([Björkman & Svensson, 2009](#)).

The capture of resources by local elites is an important threat to the effectiveness of development programs featuring community participation. Those in more privileged positions within a community are more likely to participate in such programs, and this places them in a privileged position to reap most of the program benefits (e.g., [Arcand & Fafchamps, 2012](#); [Das, 2014](#); [Dill, 2009](#); [Mansuri & Rao, 2004](#); [Mansuri & Rao, 2012](#); [Rigon, 2014](#)). Increasing non-elite participation in programs requires understanding not only the barriers that the less privileged encounter when attempting to participate but also their desire or willingness to participate in the first place. For the most part, however, those promoting and studying community participation have taken this willingness to participate as a given.

We shed light on this issue by conducting a conjoint experiment to examine people's preferences for community participation in oversight of public services. Conjoint analysis is a survey-based experimental design that allows for examining how people value the attributes of a product or service when making choices. Specifically, we gauge whether people value participation when making choices about where to seek health care in rural Democratic Republic of Congo (DRC). Our experiment studies the value of both direct community participation in improving health services and indirect participation in managing services through the election of a committee, along with the value of three other core service attributes, namely, cost of service, availability of medicines, and availability of personnel. Besides gauging the value of participation on its own, we examine whether the value of participation varies with other service attributes and various individual and contextual factors. We ask, for example, does the value of participation increase when medicines or personnel are unavailable? Do citizens with greater educational attainment or wealth value participation more?

This study is part of a larger project gauging the impact of a capacity-building intervention and a citizen awareness and accountability intervention on health service delivery in rural health areas in eastern DRC ([Dionne & Camacho, 2018](#)). A donor is implementing these interventions as part of a five-year activity

that seeks to improve service delivery and rebuild trust between Congolese society and the state, working with various counterparts at the national, provincial, and local levels. The goal of the larger project is to examine whether training frontline health care providers to better manage services actually improves service provision and health outcomes, and whether such training is more effective when paired with an information and mobilization intervention that involves community participation.

The results of our conjoint experiment indicate that people value direct and indirect participation to a similar extent. However, as one might expect, they value core service characteristics much more than either form of participation. In other words, cost of service, availability of medicines, and availability of personnel weigh more heavily than direct or indirect participation when people choose between health centers. We also find that the value of direct and indirect participation varies with medicine availability and service cost. Lastly, we find that the value of indirect participation also varies according to social heterogeneity. Specifically, citizens who live in relatively homogeneous areas value indirect participation more than those who live in relatively heterogeneous areas.

We make two central contributions. First, we improve our understanding of people's willingness to participate in development interventions. We show that people value participation and that their preferences over various attributes are sensible; they value attributes that are essential to the service more than peripheral attributes like participation. Second, our findings about how the value of participation varies with core service attributes and individual and contextual factors offer some preliminary insights for donors and practitioners seeking to boost participation in development interventions.

The remainder of this paper is organized as follows. In the next section, we provide an overview of health service provision in the DRC. In Section 3, we describe our survey, conjoint experiment design, and estimation approach. Section 4 presents our results. Section 5 concludes with a summary of our findings and a discussion of their potential policy implications.

2. Background and Setting

Public service delivery is usually poor in developing countries, with high rates of absenteeism by frontline providers of health and education ([Chaudhury et al., 2006](#)), misuse of public funds ([Reinikka & Svensson, 2004](#)), and essential services lacking in basic infrastructure ([Bold et al., 2011](#)). In post-conflict states, the situation is even more dire; periods of conflict and instability lead to additional neglect of infrastructure and severe disruption of service delivery. Even after conflict ends, states struggle to provide basic services. The inability or unwillingness of post-conflict states to carry out essential functions, like administering justice, guaranteeing public security, and providing health care and education, undermines their legitimacy. Namely, people can withdraw support from governments that fail to provide basic services ([Brinkerhoff, 2005](#)).

People suffer the consequences of state failures to provide basic services in very concrete ways. [Gates et al. \(2012\)](#) estimated that roughly a quarter of the world's population—1.4 billion people—lives in conflict and post-conflict countries; yet, these countries account for 29 percent of the world's population living in poverty, 34 percent of the world's undernourished population, 35 percent of births given in the absence of health personnel, and 56 percent of the world's population without primary education. These statistics make clear how citizens in these countries are underserved.

The situation in the DRC is no different. For example, in the most recent Demographic and Health Survey, 76 percent of women reported at least one serious problem in accessing health care; the proportion is larger in rural areas (82 percent) and varies across provinces from 54 percent of women reporting obstacles in Kinshasa to 87 percent of women reporting problems accessing health care in Kasai Occidental ([Ministère du Plan et Suivi de la Mise en œuvre de la Révolution de la Modernité et al., 2014](#)). These and related challenges manifest in the DRC's low ranking in the world on the United Nations Development Program's Human Development Index (HDI): 176th out of 188 countries measured.¹

Analysts attribute the Congolese state's failure to deliver public services to a breakdown in the social contract between the state and its citizens ([Tetra Tech ARD, 2012](#)). In a recent background paper, [Englebert \(2014\)](#) pointed to increased public transparency and accelerated decentralization as necessary vehicles of reform in the DRC. Advocates have called for strengthening the social contract from the bottom up, leading to multiple recent donor-funded projects that prioritize community participation as a tool to

¹ The HDI is a summary measure that assesses long-term progress on three dimensions of human development: a long and healthy life, access to knowledge, and a decent standard of living.

improve services and rebuild trust. However, available experimental evidence on the effectiveness of such interventions is mixed at best.

The most promising research measuring the impact of an information and mobilization intervention is a study conducted in Uganda by [Björkman & Svensson \(2009\)](#). Through community meetings, local non-governmental organizations (NGO) encouraged communities to be more involved in health service provision and strengthened communities' capacity to hold their local health providers accountable. More specifically, these community meetings provided a venue to collect and disseminate information on the status of health service delivery in the respective areas. This led to the creation of an action plan, which acted like a “contract” between health providers and communities on “what needs to be done, and how, when, and by whom” ([Björkman & Svensson, 2009](#), 743). The authors found large increases in health care utilization and improved health outcomes—the latter measured as reduced child mortality and increased child weight. A recent follow-up of this experiment found that these benefits were long-lasting ([Björkman Nyqvist et al., 2017](#)).

In a recent replication of the [Björkman & Svensson \(2009\)](#) study, however, [Raffler et al. \(2019\)](#) found limited impact of this intervention. While the authors found positive effects on treatment quality and patient satisfaction, the intervention did not achieve a significant impact on utilization rates and health outcomes. In addition, they found that the intervention did not increase citizens' monitoring or sanctioning of health workers. Another recent study found no impacts of a community- driven reconstruction (CDR) intervention that provided democratic training and practice in the management of development funds to villages in eastern DRC ([Humphreys et al., 2012](#)). To measure the effects of this intervention on the allocation of public funds and the degree to which governance practices became more democratic, the authors provided a small, village-level unconditional cash transfer to 457 villages, half of which had received the CDR intervention. [Humphreys et al. \(2012\)](#) found no evidence of impact on the extent to which elites captured funds or villagers adopted democratic practices. These two studies suggest there are limits to the impact of information and mobilization interventions. What constrains information and mobilization interventions from inducing participation from citizens?

One factor that could account for the mixed results among studies of information and mobilization interventions is the degree to which citizens want to be involved in improving local public service delivery. Perhaps Ugandans in the period of the [Björkman & Svensson \(2009\)](#) study—having recently emerged from the devastation wrought by civil war—felt more committed or were more drawn to civic engagement to rebuild the country. Conversely, Ugandans in the period of the [Raffler et al. \(2019\)](#) study may not have had as much desire to participate in local oversight of health care service delivery. To

contribute to this line of scholarly inquiry, this paper seeks to understand to what extent citizens value their participation in oversight of local health care service delivery.

To study citizen engagement in local health care provision, we focus our analysis on health areas (*aires de santé*), which are the smallest, most local unit of the DRC health care system. Each health area serves about 5,000 people in rural areas and 10,000 people in urban areas,² and has a lead health care facility, which is typically a health center (*centre de santé*).³ In some cases, health areas might include higher- or lower-level facilities—such as hospitals or health posts, respectively—in addition to or in lieu of a health center. In rural areas, the lead facility is usually a health center administered by a nurse. Health facilities can be run by the state, faith-based organizations and other NGOs, and by private, for-profit operators.

Congolese state regulations call for the community's involvement in managing and promoting health care services in each health area through a body called the *Comité de Développement de l'Aire de Santé* (CODESA; in English, Committee for the Development of the Health Area). Each health facility is supposed to have a CODESA comprising members of the community who are elected by their fellow community members once a year. The CODESA serves as a link between citizens and health care providers, co-managing the health facility, representing the community's interests vis-à-vis service providers, and acting as a conduit of information to promote health in the facility's catchment area. In reality, however, CODESAs do not always operate as designed in terms of how they are selected and use their attributions. Key stakeholders in the Congolese capital of Kinshasa lamented how a major challenge to service provision in rural areas was that CODESAs were either nonexistent or were captured by health center personnel.⁴

Given the long period of state absence and poor governance in the DRC, as well as the known limitations of the CODESAs, the extent to which communities would participate in our citizen awareness and accountability intervention was an open question. Whether local elites would dominate these interventions was also a concern in light of the numerous studies finding that those in more privileged positions within a community are more likely to participate in community-centered development activities (e.g., [Arcand &](#)

² Several health areas make up a health zone (*zone de santé*), which is the lowest territorial unit of the health care system with dedicated administrative staff. A Provincial Health Division (*Division Provinciale de la Santé*) sits above all health zones in a given province and below the national-level authorities at the Ministry of Health (*Ministère de la Santé*).

³ Technically speaking, a facility is only considered a health center if it provides a minimum service package that includes integrated management of childhood diseases, integrated and inclusive maternal and child care, family planning services, under-five checkups, immunizations according to the expanded immunization schedule in Congo, curative management of malaria, respiratory infections, treatment of diarrheal diseases including cholera, treatment of tuberculosis, HIV/AIDS awareness programming, distribution of insecticide-treated mosquito nets to pregnant mothers, child de-worming programs, and distribution of condoms to key populations.

⁴ Authors' field notes, Kinshasa, March and September 2017.

[Fafchamps, 2012](#); [Das, 2014](#); [Mansuri & Rao, 2004](#)) and reap most of their benefits (e.g., [Dill, 2009](#); [Platteau, 2004](#); [Rigon, 2014](#)). While barriers to participation certainly play a role in explaining this kind of elite capture, we believe it is also important to examine whether people value participation in development interventions in the first place.

3. Empirical approach

To shed light on whether and which citizens value participation in development interventions, we embedded a conjoint experiment in the baseline household survey for a larger project. The conjoint experiment gauges the value that people attach to participation in efforts to improve health service delivery when making choices about where to seek health care. We measure whether people value direct community participation and indirect participation through the election of CODESA members. We also examine whether the value of participation varies with core service attributes. By varying the quality of health care citizens can expect to receive from the various health centers they are asked to assess, we are able to test whether individuals value community participation for its promise to improve service delivery or for participation's sake. We hypothesize that the value of participation should be higher when other attributes indicate that quality is deficient, as participation could make the most difference in such contexts. Lastly, we examine who values participation, analyzing whether the value of participation varies with a number of individual and contextual factors.

3.1. Survey and sample characteristics

We fielded the baseline household survey containing our conjoint experiment in Sud Kivu and Haut Katanga provinces between late-April and early-June 2018. The sample design called for interviewing informants in 27 households in the village where the lead health center is located in each of the 182 health areas included in the impact evaluation. The households were selected through a random walk procedure.⁵ Due to insecurity and accessibility issues related to heavy rain, baseline data were only collected in 158 health areas. In addition, during August 2018, a second round of data collection took place in a subset of health areas where targets were not reached. The total number of households interviewed was 4,227.

⁵ A random walk procedure is a non-probability sampling technique that is often used to conduct household surveys whenever maps with dwellings are not available. The procedure consists of two steps: 1) assign enumerators to different starting points within a geographic cluster, and 2) provide them with a set of rules for choosing routes to follow and selecting households to interview. In our survey, supervisors assigned enumerators to starting points scattered throughout the villages and instructed them in which direction to start walking. Enumerators then followed available walking paths away from the starting points and attempted to conduct an interview in every third dwelling on their right.

In addition to the conjoint experiment, the survey captured reported health outcomes, care-seeking behavior and utilization of health services, perceptions about the quality of service delivery, selected political attitudes and behaviors, and household characteristics. Therefore, the target population of the study is households' main caregivers who are, for the most part, women of childbearing age. Enumerators used seven-inch tablets and the Ona-collect platform, which is built on OpenData Kit, to conduct face-to-face interviews in local dialects of Swahili and other local languages. Interviews lasted 59 minutes on average.

As explained in more detail in the next subsection, each respondent had to complete four choice tasks as part of the conjoint experiment, producing data for a total of eight health center profiles. Due to a programming error, we cannot analyze all the data we collected. The script did not adequately record the attribute levels that we displayed to the respondent in 65 percent of the 33,816 profiles (4,227 respondents \times eight profiles). These data were therefore excluded from the analysis. Appendix A shows that there are no substantial differences in the characteristics of respondents with valid conjoint data—and included in the analysis—and those with invalid conjoint data—and excluded from the analysis. The characteristics of the sample that follow describe only the 3,027 respondents with valid conjoint data.

Ninety-six percent of our study's respondents were female and, on average, respondents were 30 years old. While most respondents had attended school (69 percent), 58 percent of those only started (but did not complete) primary school. On average, households had 6.4 members.

Nearly two-thirds (61 percent) of our sampled population believed that they have no influence in making their village a better place to live. Respondents' beliefs were similar when it comes to their ability to improve health care: a sizable majority of respondents (67 percent) thought that they have little or no power to improve the quality of health care.

About 4 in 10 respondents (38 percent) reported being active in a social group or organization, with 12 percent of those holding leadership positions.⁶ About 1 in 10 respondents (9 percent) reported being active in a health-related organization, with 12 percent of those holding leadership positions. We operationalized active participation in social organizations as a dichotomous variable indicating whether the respondent is a leader or active member in a health-related or community organization (leader or active member=1; otherwise=0).

⁶ We asked about participation in religious groups, CODESAs, other groups related to health, and other voluntary associations or community groups.

To measure wealth and inequality among individuals and health areas, we asked our study participants whether they owned 15 different household assets.⁷ The most frequently reported asset was land (92 percent), followed by mosquito nets (74 percent), and chickens (43 percent). We used these data to calculate an asset ownership index, from which we created: 1) a binary variable indicating whether the respondent's index value is above the median of the index's distribution (above the median=1; otherwise=0); 2) two binary variables indicating the tercile of the index's distribution to which the respondent's household belongs; and 3) three binary variables indicating the quartile of the index's distribution to which the respondent's household belongs. Following [McKenzie \(2005\)](#), we calculated a relative measure of inequality that compares the standard deviation of the asset ownership index in each health area to the standard deviation of the index for the whole sample. We then created a dichotomous variable indicating whether a health area displays more inequality than the whole sample (more inequality=1; otherwise=0).⁸

Altogether, our study participants reported speaking more than 30 languages, with Mashi (28 percent), Swahili (24 percent), Kisanga (11 percent), and Kitembo (11 percent) being the most common. Mashi (42 percent), Kitembo (20 percent), and Swahili (17 percent) were the most common in Sud Kivu, while Swahili (31 percent), Kisanga (26 percent), and Kibemba/Bemba (10 percent) were the most common in Haut Katanga. We used these data to create a binary variable measuring linguistic majority status, where "majority" respondents' native language was the dominant one in their respective health areas (member of majority=1; otherwise=0). For example, when a respondent whose native language is Mashi lived in a health area where Mashi was the most common native language, said respondent would have a value of "1" for linguistic majority status. To operationalize linguistic heterogeneity, we first calculated a linguistic fractionalization index for each health area following [Alesina et al. \(2003\)](#). We then created a binary variable indicating whether the respondent's health area was above the median of the index's distribution (above the median=1; otherwise=0).

We operationalized religious and ethnic majority status and religious and ethnic heterogeneity in analogous ways. Most respondents reported belonging to a religion (96 percent), with Protestants (44 percent) and Roman Catholics (30 percent) comprising the largest religious affiliations. There are important differences by province, however, with many more Protestants in Sud Kivu (60 percent, compared

⁷ Assets are radio; television; bicycle; motorcycle or motor scooter; animal-drawn cart; car or truck; milk cows or bulls; other cattle; horses, donkeys, or mules; goats; sheep; chickens or other poultry; agricultural land; and mosquito nets. We also asked about access to electricity and treat it like an asset.

⁸ We used data from all respondents in a health area regardless of whether their interviews yielded valid conjoint data to create these variables. We followed the same approach for variables related to linguistic, ethnic, and religious characteristics that we described next.

to 21 percent in Haut Katanga) and many more Evangelical Christians in Haut Katanga (30 percent, compared to 5 percent in Sud Kivu). The primary ethnic groups to which our survey participants reported belonging were Bashi (45 percent in Sud Kivu), Sanga (34 percent in Haut Katanga), Batembo (23 percent in Sud Kivu), Bemba (15 percent in Haut Katanga), and Barega (14 percent in Sud Kivu).

3.2. Conjoint experiment design

Our conjoint experiment asked participants to choose between hypothetical pairs of health centers, which we characterized along a set of attributes. Table 1 presents these attributes and their respective levels. Besides community involvement in plans to improve service delivery (direct participation) and role of the community in selecting members of the CODESA (indirect participation), we included three other attributes to present participants with realistic choice tasks: cost of service,⁹ availability of personnel, and availability of medicines. In a second variant of this design, we added a sixth attribute, namely, the overall quality of health care the respondent could expect to receive at a given health center.¹⁰ This paper only analyzes the first variant.

Table 1. Health Center Attributes and Levels

Attributes	Levels
Direct participation: The community is consulted about how to improve the health center	Usually rarely
Indirect participation: CODESA members are	appointed by government appointed by chief elected by community
Cost of service: Service costs	3000 CDF 3000 CDF
Personnel availability: Nurses are absent	Rarely frequently
Medicine availability: Medicines are	in stock out of stock

We generated the profiles using a fully randomized approach ([Hainmueller et al., 2014](#)), whereby the order in which the attributes were presented in a given pair of profiles and the levels of each attribute for any given profile were randomly chosen. The two hypothetical health centers were presented side by side. Moreover, we decided to present each attribute level with words accompanied by images because we expected to encounter low levels of literacy among respondents and limited familiarity with cognitive

⁹ The design originally included a third level of cost, 9000 CDF, but it does not appear in the valid conjoint data.

¹⁰ This attribute was operationalized as follows: After a visit, health issues are taken care of [usually/rarely]. In the first variant, health centers are characterized along five attributes as shown in Figure 1; in the second variant, the conjoint table included the additional attribute.

tasks such as this ([Meyer & Rosenzweig, 2016](#)). After being presented with a pair of profiles, participants were asked the following question: If you had to choose one of the two health centers, which one would you go to? Center A or Center B? Next, they were asked to give each health center a grade between 1 and 100, which is the grading system used in DRC education. In this paper, we only examine the forced choice question. Figure 1 presents a screenshot of a choice task included in the survey.

Each participant was presented with two choice tasks for each of the two design variants, for a total of four choice tasks and eight profiles. As mentioned above, this paper only analyzes the first variant, i.e., the first two choice tasks and first four profiles.

3.3 .Estimation

Following [Hainmueller et al. \(2014\)](#), we estimate three effects of interest. First, we estimate average marginal component effects (AMCE), which allows us to answer questions about the absolute or unconditional value of direct and indirect participation and the other attributes. The AMCE of an attribute is the average difference in the probability of choosing a health center when comparing two different attribute levels. For example, in the case of direct participation, the AMCE is the change in probability associated with moving from the community being consulted *rarely* to the community being consulted *usually*. In Equation 1 below, the β s are the ordinary least squares estimates of the AMCEs on the probability that individual i chooses profile k in choice task j .

$$\Pr(\text{Choice})_{ijk} = \alpha + \beta_1 \text{Direct.Participation}_{jk} + \beta_2 \text{Indirect.Participation}_{jk} + \beta_3 \text{Cost}_{jk} + \beta_4 \text{Personnel.Availability}_{jk} + \beta_5 \text{Medicine.Availability}_{jk} + E_{ijk} \quad (1)$$

Second, we estimate average component interaction effects (ACIE), which allow us to answer whether the value of participation varies with core service attributes. The ACIE of an attribute is the average difference in the probability of choosing a health center when comparing two different attribute levels when another attribute is held at a given level. For example, the ACIE of direct participation given cost of service is the change in probability associated with moving from the community being consulted *rarely* to the community being consulted *usually* at each of the two levels of cost of service, *3000 CDF* and *6000 CDF*. To estimate ACIEs, we first estimate a regression like the one below and then calculate the marginal effects of direct and indirect participation at the levels of the interacting attribute.

$$\Pr(\text{Choice})_{ijk} = \alpha + \beta_1 \text{Direct.Participation}_{jk} + \beta_2 \text{Indirect.Participation}_{jk} + \beta_3 \text{Cost}_{jk} + \beta_4 \text{Direct.Participation}_{jk} \times \text{Cost}_{jk} + \beta_5 \text{Indirect.Participation}_{jk} \times \text{Cost}_{jk} + \beta_6 \text{Personnel.Availability}_{jk} + \beta_7 \text{Medicine.Availability}_{jk} + E_{ijk} \quad (2)$$

Figure 1. Screenshot of Conjoint Experiment

conjoint_grp_1 (1) > conjoint_grp_1 > Conjoint 1 >

Conjoint Experiment: 1.1:

Characteristics	Centre A	Centre B
Medicines are:	 En stock /lko mu stock	 Pas en stock/ Ahina mu stock
Service costs:	 9000 CDF	 6000 CDF
Absences of nurses and other personnel are :	 Rare/Kwa kawaida	 Commun/Pamoja
The members of the CODESA are:	 Elu par la communauté / Banatshakuliwa na bantu ye mukini	 Nommé par le gouvernement/ Banatshakuliwa na serkali
The community is consulted about how to improve the health center:	 Fréquemment/Mara mingi	 Fréquemment/Mara mingi

*** CONJOINT1.1.a. If you had to choose one of the two health centers, which one would you go to? Center A or Center B?**

LIRE LES REPONSES SI BESOIN

Centre A

Centre B

Refused to answer (DO NOT READ)

*** CONJOINT1.1.b. What grade between 1 and 100 would you give Center A (100 being the highest)?**

Si ne sait pas, écrire "-98"

*** CONJOINT1.1.c. What grade between 1 and 100 would you give Center B (100 being the highest)?**

Si ne sait pas, écrire "-98"

Last, we estimate the AMCEs of direct and indirect participation conditional on a set of individual- and context-level characteristics. These estimations allow us to examine whether some groups of respondents value participation more than others, shedding light on the question of who values participation. The six individual- or respondent-level characteristics we examine are linguistic majority status, religious majority status, ethnic majority status, educational attainment, wealth, and active participation in social organizations. The contextual, health-area-level characteristics we examine are linguistic heterogeneity, religious heterogeneity, ethnic heterogeneity, and wealth inequality. To estimate the conditional AMCEs, we first estimate Equation 3 and then calculate the marginal effects of direct and indirect participation at the various levels of the interacting characteristic.

$$\begin{aligned} \Pr(\text{Choice})_{ijk} = & \alpha + \beta_1 \text{Direct.Participation}_{jk} + \beta_2 \text{Direct.Participation}_{jk} \times \text{Characteristic}_i \\ & + \beta_3 \text{Indirect.Participation}_{jk} + \beta_4 \text{Indirect.Participation}_{jk} \times \text{Characteristic}_i \\ & + \beta_5 \text{Cost}_{jk} + \beta_6 \text{Personnel.Availability}_{jk} + \beta_7 \text{Medicine.Availability}_{jk} + E_{ijk} \end{aligned} \quad (3)$$

We use cluster-robust standard errors to correct for within-respondent correlation across health center profiles in all estimations ([Hainmueller et al., 2014, 17](#)).

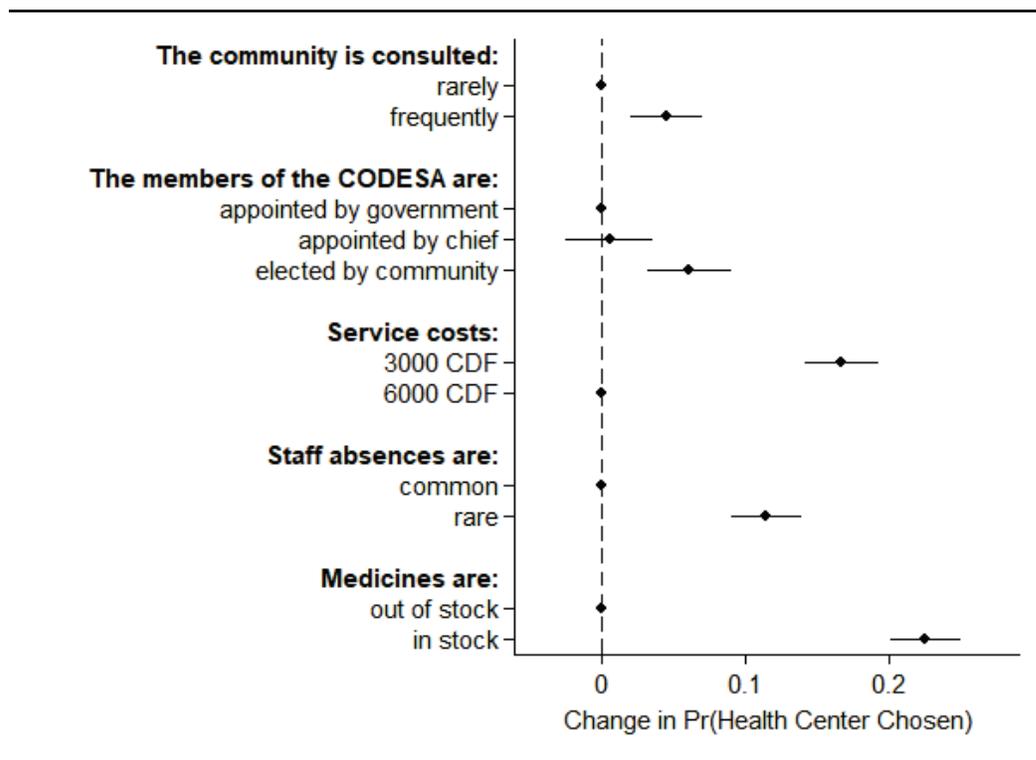
4. Results

The three subsections below respectively address our three research questions: Do people value participation when making choices about where to seek health care? Does the value of participation vary with core service attributes? And, who values participation—i.e., does the value of participation vary with individual and contextual factors?

4.1. Do people value participation?

Figure 2 presents the AMCEs of all attribute levels in our conjoint experiment. We report the estimated effects and 95 percent confidence intervals resulting from the estimation of Equation 1. Points without bars at the zero line indicate the reference level for each attribute. For example, in the case of direct participation, the community is consulted *rarely* is the reference level. The estimated effect for the community is consulted *usually* indicates that respondents are 4.6 percentage points more likely to choose a health center that offers the higher level of direct participation than a health center that offers the lower, reference level of direct participation. Given that the base probability of choosing a health center is 50 percent, the effect is quite substantial, increasing the base probability by about 9.2 percent.

Figure 2. Effects of Service Attributes on Probability of Choosing Health Center



As for indirect participation, a health center whose CODESA members are *elected by community* is about 6.1 percentage points more likely to be chosen than one whose CODESA members are *appointed by government*. The base probability increases by about 12.2 percent in this case. The effect of the other level of this attribute—i.e., CODESA members are *appointed by chief*—is not significant, indicating that a health center with this level of the indirect participation attribute is not more likely to be chosen than one with the reference level of the attribute.

Moving on to the three core service attributes, we estimate that a health center where service costs *3000 CDF*—approximately US \$2—is about 16.7 percentage points more likely to be chosen than one where service costs *9000 CDF*; a center where staff absences are *rare* is about 11.5 percentage points more likely to be chosen than one where absences are *common*; and a center where medicines are *in stock* is about 22.5 percentage points more likely to be chosen than one where medicines are *out of stock*. These effects are associated with increases in the base probability of a health center being chosen of about 33.5 percent, 23 percent, and 45 percent, respectively.

Overall, these findings indicate that while people value both direct and indirect participation when making choices about where to seek health care, they value core service attributes much more. This ordering is sensible and suggests that our survey respondents paid attention to and understood the choice tasks they were offered.

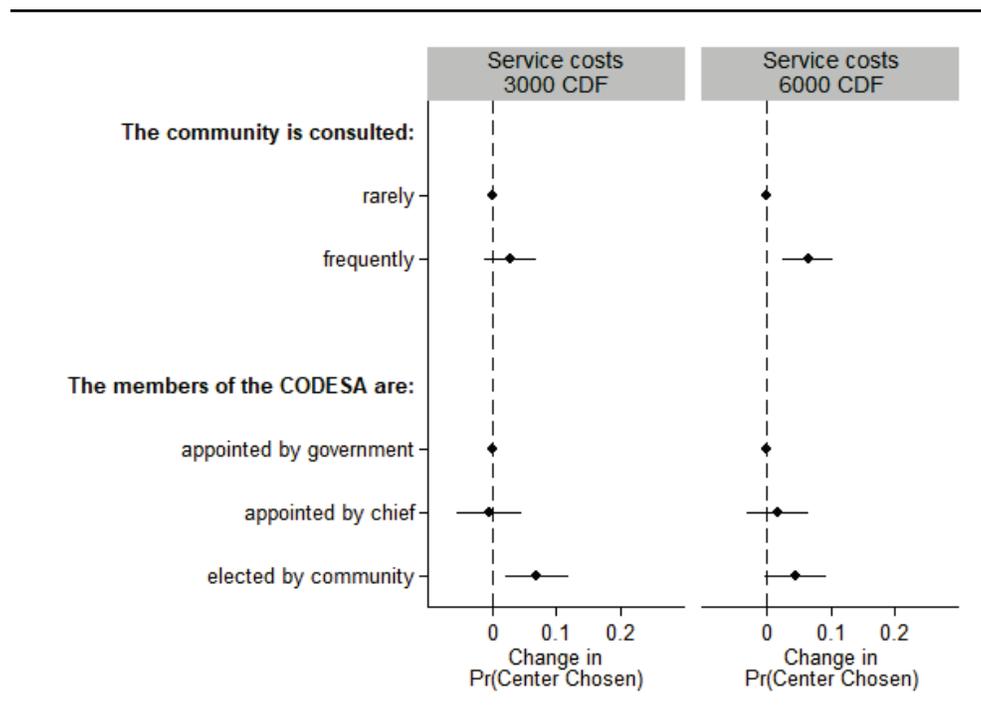
4.2. Does the value of participation vary with core service attributes?

Next, we examine whether the value of participation varies with the three core service attributes: cost of service, availability of staff, and availability of medicines. While we do not have an expectation regarding cost of service, we hypothesize that the value of participation should be higher when availability of staff and availability of medicines are deficient. The rationale behind this expectation is that people should value participation more when quality of care is lacking and participation can be used as a tool for improvement. In other words, participation should have instrumental rather than intrinsic value.

Figure 3 presents the ACIEs of participation and cost of service. The value of direct participation seems to increase with cost of consult. When cost is *3000 CDF*, the effect of the community is consulted *frequently* is not statistically significant; but when cost is *6000 CDF*, said effect is statistically significant and about 6.5 percentage points. By contrast, the value of indirect participation seems to decrease with cost. When cost is *3000 CDF*, the effect of CODESA members being *elected by community* is statistically significant and about 6.9 percentage points; but when cost is *6000 CDF*, said effect is not statistically significant. We interpret these findings as suggesting that respondents weigh the opportunity costs of participation and the cost of service in rather complex ways. When cost is low, they value indirect participation, whose opportunity cost is lower than that of direct participation. When cost is high, however, they value direct participation. We are cautious in presenting these findings because additional hypothesis tests suggest that the effects of direct and indirect participation at the two levels of cost are not different.¹¹

¹¹ The null hypotheses that the effects of direct participation at the two levels of cost are equal cannot be rejected (prob=0.20). The null hypotheses that the effects of indirect participation at the two levels of cost are equal cannot be rejected either (prob=0.49).

Figure 3. Effects of Participation on Probability of Choosing Health Center at Levels of Cost of Service

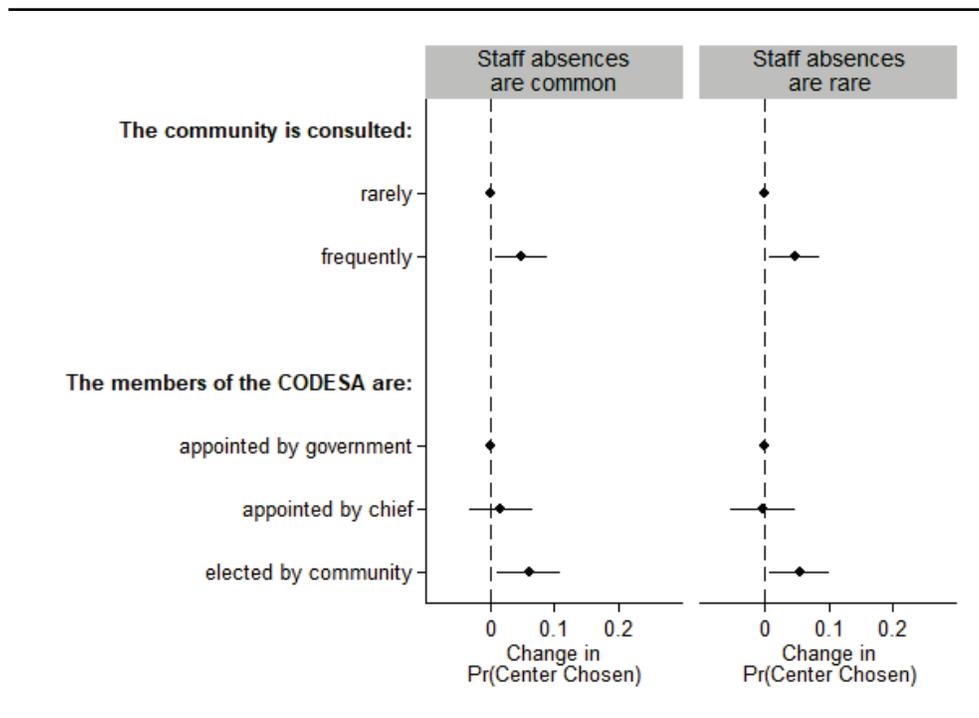


Figures 4 and 5 respectively present the ACIEs of participation and availability of staff, and participation and availability of medicines. As Figure 4 shows, the value of direct participation does not vary with availability of staff. In turn, Figure 5 shows that the value of participation—both direct and indirect—does seem to vary with availability of medicines, but not in line with our expectations.

When medicines are *out of stock*, the effects of the community being consulted *frequently* and CODESA members being *elected by community* are not statistically significant. By contrast, when medicines are *in stock*, both effects are statistically significant; the effect of the community being consulted *frequently* is 6.4 percentage points and the effect of CODESA members being *elected by community* is 9.3 percentage points. We interpret the findings pertaining to availability of medicines as suggesting that respondents value peripheral attributes like participation only if core attributes are not completely deficient. Indeed, the levels of availability of medicines in our experiment are quite extreme; medicines are *in stock* or *out of stock*. Medicines are *usually* or *rarely* in stock, or medicines are *usually* or *rarely* out of stock would have been less extreme options. We are cautious in presenting these findings because additional hypothesis tests suggest that only the effects of indirect participation at the two levels of

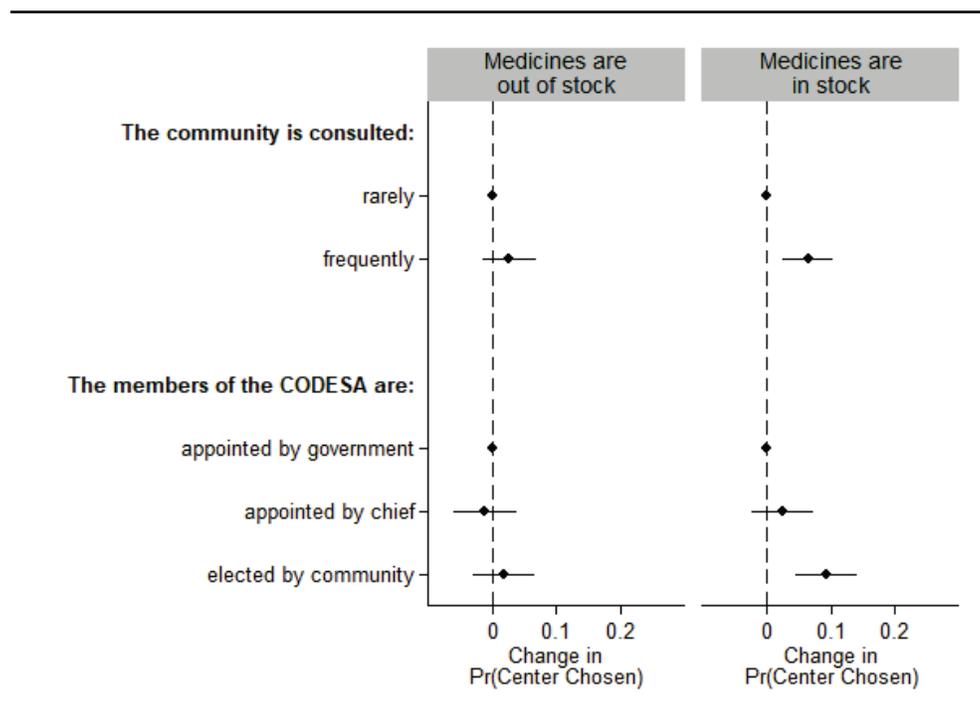
medicine availability are different.¹² As explained in the conclusion, we are improving the conjoint design for the larger project’s midline survey by including finer levels for all attributes. In the case of medicine availability, for example, in our next survey we will present respondents with health centers where medicines are out of stock *very frequently, frequently, rarely, or never*.

Figure 4. Effects of Participation on Probability of Choosing Health Center at Levels of Staff Availability



¹² Only the null hypotheses that the effects of indirect participation at the two levels of medicine availability are equal can be rejected (prob=0.03). The null hypotheses that the effects of direct participation at the two levels of medicine availability are equal cannot be rejected (prob=0.20).

Figure 5. Effects of Participation on Probability of Choosing Health Center at Levels of Medicine Availability



4.3. Who values participation?

Last, we examine who values participation by estimating the AMCEs of direct and indirect participation conditional on a set of individual- and context-level characteristics. We analyze six individual-level characteristics: 1) linguistic majority status, 2) religious majority status, 3) ethnic majority status, 4) educational attainment, 5) wealth, and 6) active participation in social organizations.

We find that the value of participation—direct or indirect—is not conditioned by any of the six individual-level characteristics examined. In other words, more educated respondents were no more likely to value their participation in health center oversight when compared to their less-educated counterparts. Likewise, respondents from one ethnic group were no more likely than respondents from another ethnic group to value community participation in oversight of health service delivery.

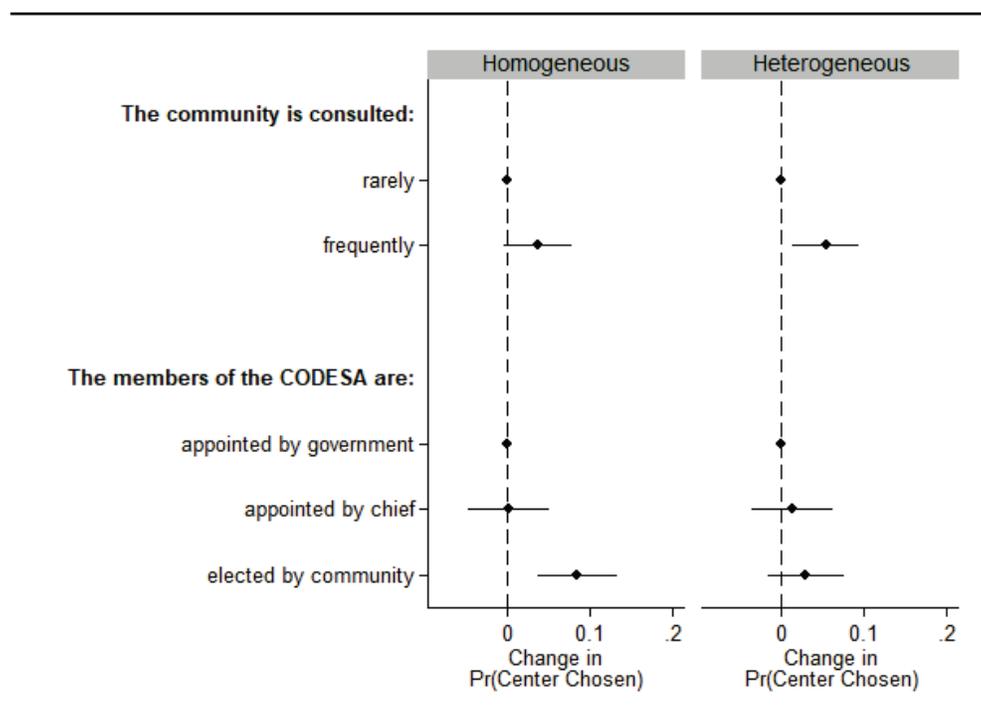
We analyze four contextual characteristics of the health areas in our study: linguistic heterogeneity, religious heterogeneity, ethnic heterogeneity, and wealth inequality.

We find that the value of indirect participation seems to be conditioned by linguistic, religious, and ethnic heterogeneity. As figures 6, 7, and 8 show, the AMCE of the members of the CODESA are *elected by*

community is statistically significant only among respondents who live in health areas that are relatively homogeneous. As to the value of direct participation, there is no clear pattern of variation in the effect of the community is consulted *frequently*. There are several potential explanations for the finding pertaining to indirect participation,¹³ but we are unable to adjudicate between them. Also, we are cautious in presenting this finding because additional hypothesis tests suggest that the effects of indirect participation across levels of social heterogeneity are not different.¹⁴

Finally, we find that the value of participation is not contingent on the level of wealth inequality in a health area.

Figure 6. Effects of Participation on Probability of Choosing Health Center by Linguistic Heterogeneity in Health Area



¹³ For example, people in socially heterogeneous health areas might not value the possibility of electing the members of the CODESA because they do not trust elections or because they do not believe their co-ethnics are likely to win. It is also possible that more socially heterogeneous health areas have been disproportionately affected by conflict, and this experience has in turn negatively influenced people’s views about elections. Yet another possibility is that CODESAs in socially heterogeneous health areas are less effective than those in socially homogeneous areas.

¹⁴ The null hypotheses that the effects of indirect participation at the two levels of linguistic, religious, and ethnic heterogeneity are equal cannot be rejected (prob=0.10, prob=0.27, and prob=0.12, respectively).

Figure 7. Effects of Participation on Probability of Choosing Health Center by Religious Heterogeneity in Health Area

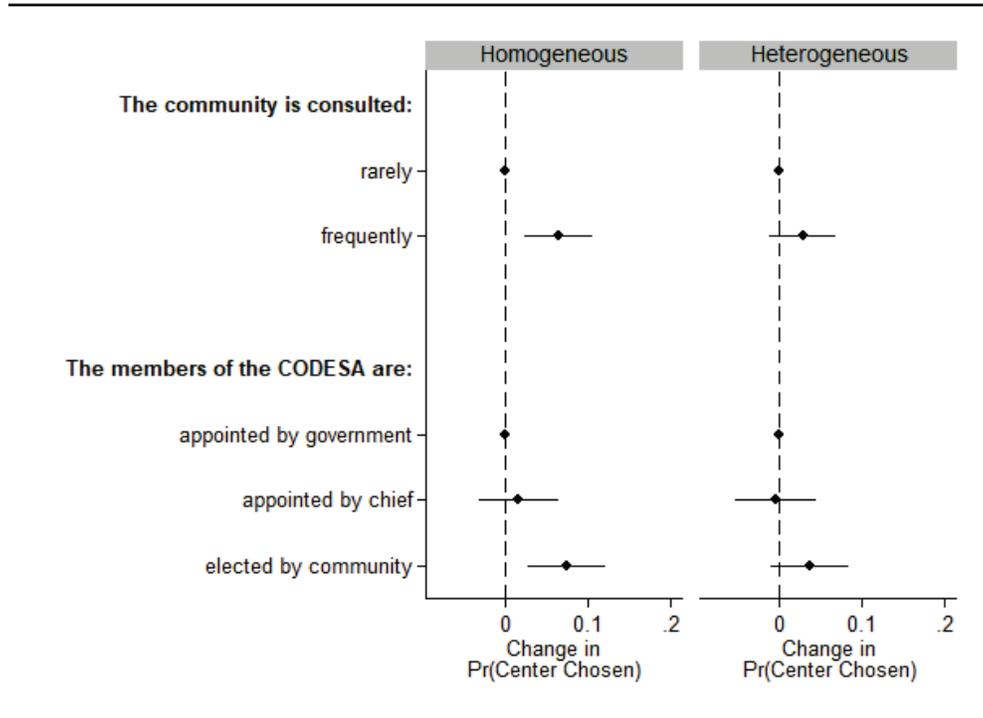
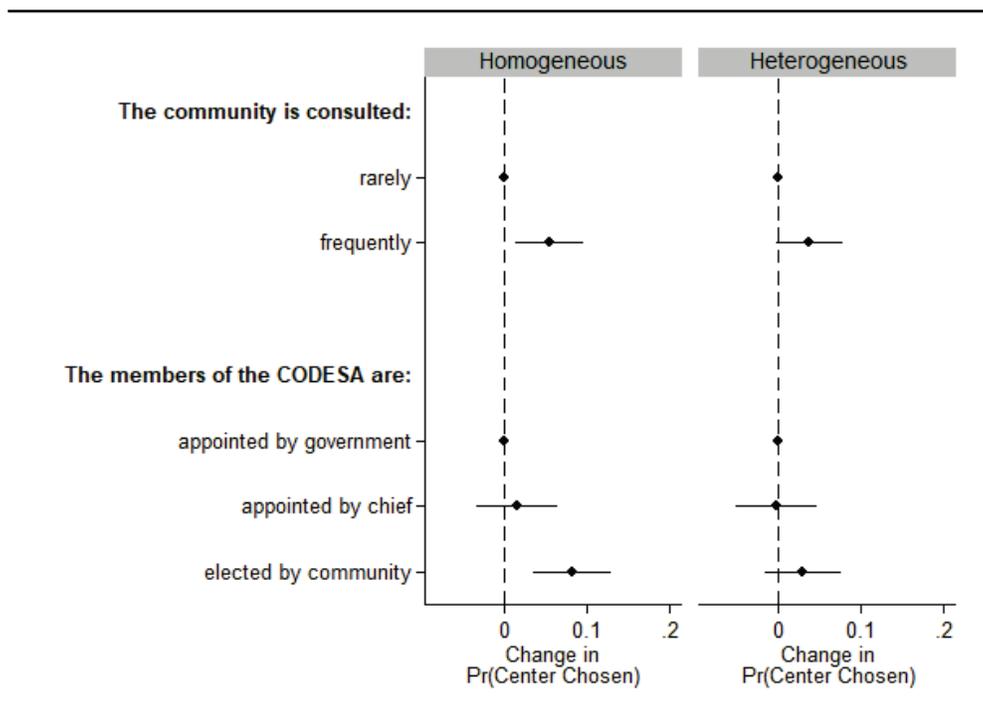


Figure 8. Effects of Participation on Probability of Choosing Health Center by Ethnic Heterogeneity in Health Area



5. Conclusion

We conducted a conjoint experiment in 158 rural health areas in eastern DRC to shed light on people's willingness to participate in community-centered development interventions. Specifically, we sought to examine whether people value direct and indirect participation in oversight of health service provision when making choices about where to seek health care. We found that respondents value direct and indirect participation to a similar—and substantial—extent, but that they value core service characteristics much more.

We also found that the value of participation seems to vary with cost of service and availability of medicines. Respondents value indirect participation when cost is low and direct participation when cost is high. We interpreted this finding as suggesting that respondents weigh the opportunity costs of participation and the cost of service when making choices. We also found that respondents value participation—both direct and indirect—only if medicines are available. We interpreted this finding as suggesting that respondents value peripheral attributes like participation only if core attributes are not completely deficient.

Finally, on the issue of who values participation, we found that social heterogeneity conditions the value of indirect participation. Specifically, respondents who live in relatively homogeneous areas value having the chance to elect CODESA members more than those who live in relatively heterogeneous areas. No other individual- or context-level characteristics examined made a difference.

Respondents' preferences make sense. They value attributes that are essential to the service more than peripheral attributes like participation. When a core attribute is severely deficient (e.g., medicines are not in stock), a peripheral attribute like participation loses relevance. Respondents seem to be quite sophisticated when considering the costs of service and opportunity costs of participation. Interestingly, our findings suggest that respondents do not seem to value participation for instrumental reasons: the value of participation does not decrease with service quality as indicated by other service attributes.

Our findings about how the value of participation varies with core service attributes and contextual factors lead us to some tentative policy implications. First, emphasizing the cost of seeking health care or other services in communication campaigns and outreach efforts might help promote direct participation in development interventions seeking to improve service delivery. Second, development interventions involving elections might be more challenging to implement in socially heterogeneous contexts. Implementers would be wise to pay attention to this issue.

We conducted the conjoint experiment in the context of a larger project gauging the impact of capacity-building and community citizen awareness and accountability interventions on health service delivery. We have made two adjustments to the conjoint experiment for the midline survey. We have included finer levels for direct participation and the three core service attributes to present respondents with more realistic profiles. And we have increased the total number of choice tasks given to each respondent from four to six to boost power.

In future work, we plan to compare health-area-level preferences for participation from this conjoint experiment with reports on actual participation in our citizen awareness and accountability activities. This will allow us to see if stated preferences about participation correlate with subsequent behavior. In turn, we will use a future conjoint experiment to examine whether the value of participation changed as a result of our interventions. We expect to find that the value of participation—especially direct participation—has increased in health areas that received the citizen awareness and accountability intervention.

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A. Comparison of Respondents In and Out of Conjoint Analysis Sample

Table A1 provides descriptive statistics of the respondents in the conjoint analysis sample (column 1) and of those out of the sample (column 2). We find statistically significant differences in only five of the 35 characteristics included in the table. We conclude that there are no substantial differences in the characteristics of respondents with valid conjoint data—and included in the analysis—and those with invalid conjoint data—and excluded from the analysis.

Table A1. Socio-demographic and Health Characteristics of Households In and Out of Conjoint Analysis Sample

	In sample	Out of sample	Difference
	(1)	(2)	(1) - (2)
Demographics			
Is female	0.964	0.967	-0.003
Age	30.045	30.195	-0.150
Attended school	0.689	0.666	0.023**
Started primary school only	0.576	0.575	0.001
Number of household members	6.373	6.460	-0.087
Is Protestant (Methodist included)	0.466	0.452	0.014
Is Bashi	0.297	0.303	-0.007
Household has a radio	0.378	0.370	0.008
Household has a bicycle	0.054	0.061	-0.007
Household has goats	0.224	0.227	-0.003
Household has chickens or other poultry	0.433	0.437	-0.005
Household has a mosquito net	0.742	0.739	0.003
Asset index	-0.030	0.016	-0.046
Child Health			
Child younger than 28 days died in the past 12 months	0.022	0.030	-0.008**
Number of children younger than 28 days who died in the past 12 months	1.069	1.107	-0.038
Child between 28 days and 5 years old died in the past 12 months	0.034	0.031	0.002
Number of children between 28 days and 5 years old who died in the past 12 months	1.121	1.139	-0.019

	In sample	Out of sample	Difference
	(1)	(2)	(1) - (2)
Maternal Health			
Women (pregnant or who gave birth recently) who looked for antenatal care	0.742	0.715	0.027**
Women (pregnant or who gave birth recently): Total number of antenatal care visits during pregnancy	3.275	3.271	0.004
Women (pregnant or who gave birth recently): Blood pressure was measured	0.442	0.446	-0.004
Women (pregnant or who gave birth recently): SP/Fansidar was given to prevent malaria	0.519	0.515	0.004
Women who recently gave birth in a hospital or health center	0.947	0.950	-0.003
Health-Seeking behavior			
Received information about the importance of visiting a health facility during the past 12 months	0.327	0.313	0.014
Respondent thinks that the health center offers good quality services	0.791	0.805	-0.013
Respondent trusts the personnel at the health center	0.876	0.889	-0.013*
Used health facility within the 12 months prior to the baseline	0.915	0.917	-0.001
No tests performed during last visit	0.388	0.387	0.001
Blood test performed during last visit	0.561	0.567	-0.006
Diagnosis was clearly explained during last visit	0.626	0.625	0.001
Respondent was satisfied with the quality of services received during last visit	0.751	0.761	-0.010
Citizen Empowerment			
Respondent thinks that people like them do not have any say about what the government does	0.513	0.518	-0.005
Respondent thinks that they can have influence in making their village a better place to live	0.201	0.203	-0.002
Respondent thinks that people in their community have power to improve the quality of the health center	0.271	0.285	-0.014
Respondent thinks that people in their community would be able to pressure a health worker to report to work on time	0.409	0.434	-0.024**
Respondent thinks that people in their community would be able to pressure a health worker to exert better effort in caring for patients	0.437	0.455	-0.018

Note: * prob<0.05; ** prob<0.01; *** prob<0.001.