

Should local and traditional authorities collaborate  
in raising property tax?  
A study of property owner preferences in Zambia

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**Abstract**

Property tax collection in Zambia under-performs when compared to a number of African countries, owing in part to the existence of a dual tenure system which hampers local governments' ability to raise revenue on customary land. Pursuing property taxation on customary land would require improved collaboration and information sharing between local councils and traditional leaderships, but also buy-in from owners living under the authorities of chiefs, who have historically reported low levels of trust in local councils' ability to provide public services. Using novel data of 2'400 property owners in three councils of Zambia, equally distributed among owners who are property tax compliant and non-compliant, in informal settlements and on customary land, we use conjoint analysis to investigate (1) whether owners express a preference for a collaboration between local and traditional authorities in raising property tax, and (2) what drives owners' preferences in the design of a property tax policy.

**Keywords:** Property tax, Tax compliance, Conjoint analysis, Customary Land, Governance

**JEL Codes:** H71, H73, C93, R14, D70

## Introduction

Revenue mobilization - central to state building, investment, and public service provisions - has commanded significant attention in developing countries for some time as a mean to reduce their dependency on international assistance. This is even more relevant given contemporary challenges lower- and medium-income countries face, from increased public expenditures in response to growing economic instabilities (COVID-19, reduced foreign aid, price fluctuations) to rapidly growing populations. The issue is even more acute in local governments where rapid urbanization hinders their capability and capacity to provide basic services, leading to a governance crisis [Fjeldstad, 2006]. As such, a number of governments have centered their attention to domestic revenue mobilization, with many focusing on fiscal decentralization and identification of efficient revenue instruments to empower local governments.

In light of compelling evidence supporting the benefits of property taxation, a growing number of countries have been encouraged to improve their property tax systems ([Slack and Bird, 2014]). Property tax - considered to be a “good tax” - can spur state building and increase government accountability, by developing a fiscal contract between citizens and the state ([Jibao and Prichard, 2015]; [McCluskey, 2016]; [Slack, 2013]). It promotes local autonomy and accountability due to the clear connection between property tax revenue and public service provision, offering the opportunity for improved trust in the state and the establishment of a tax compliance environment ([Besley, 2020]). They are also significantly under-performing in developing countries, particularly when comparing with all other major tax types, despite being easier to implement due to the immovable nature of the physical asset

to tax. While many low-income countries are face common challenges in implementing property tax reforms and raising revenue, owing to a combination of outdated valuation rolls, limited state capacity to collect taxes, weak enforcement capacity, political opposition and low levels of compliance, Zambia’s situation stands apart from many of its neighbors

In Zambia, the tax to GDP ratio is low (15.6% <sup>1</sup>, particularly when comparing with economies of comparable size in the region (26-31%). This is even more concerning when looking at the property tax, with a tax to GDP ten times lower than in other OECD countries <sup>2</sup>. While navigating comparable obstacles in raising revenue from property tax, Zambia distinguishes itself with the existence of a dual tenure system – customary and state land, with residents facing two different sets of tax obligations. Property owners on state land are legally required to pay property taxes, whereas properties situated on customary land, under the authority of traditional leaders, fall beyond council jurisdiction, absolving their owners from tax liability. With an estimated 51-55% of land in Zambia under customary tenure, the existence of the dual tenure system complicates taxpayer perceptions of fairness and equitable distribution of the tax burden. Moreover, disputes over boundaries and the expanding influence of traditional leaders onto state land have resulted in residents within council jurisdiction feeling exempt from property tax obligations.

Against this background, the Government of Zambia is exploring an ambitious reform of its property tax system by steering the decentralization process and promoting local administrations to better meet citizens needs. Given the large number

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<sup>1</sup>OECD/ATAG/AUC, 2023

<sup>2</sup>IMF and World Bank revenue statistics, 2000-2012

of properties on customary land, a reform that allows taxation of properties falling under the authority of traditional leaders could lead to increased revenue for local councils and greater ability to provide services. Moreover, extending taxation eligibility to all properties could improve compliance levels from existing property owners on the valuation roll by enhancing the perception of fairness and equity within the system. This can, however, only be achieved with the support from both the chiefs who are not amenable to relinquishing land and power, and residents on customary land who report low levels of trust in local councils' ability to provide public services and whose properties have never been taxed. The challenge lies in devising a property tax reform that garners widespread support from all relevant parties involved. At the citizen level, it requires intimate knowledge of property owners' relationships with local councils and traditional leaders, perceived legitimacy of these authorities, experience with taxation, and how it shapes public attitudes towards taxation. This is particularly relevant for respondents in customary land (and to some extent for informal settlers) who may perceive traditional authorities to be more legitimate, capable and trustworthy than local governments. Taking into consideration this context, we ask two questions. First, what property tax reform features hold the highest importance to owners and do owners express a stronger preference for a collaboration between local council and traditional authorities in collecting property tax? Second, what drives owners' preferences in the design of a property tax policy?

To assess owners' preferences with respect to property tax reform, this research conducted a discrete choice-based conjoint analysis – an experimental approach that is progressively employed to analyse a range of policy issues by estimating the causal

effects of factors on respondents' multidimensional preferences on policies ([Hainmueller et al., 2014], [Horiuchi et al., 2018]). Due to the nature of its design, by not directly asking respondents for opinions on potentially socially sensitive attributes, conjoint experiments are able to mitigate social desirability biases ([Carey et al., 2020]; [Horiuchi et al., 2021]). The conjoint experiment is embedded within a large property owners survey that took place in June 2023-March 2024, and covered attitudes, experiences and perceptions of owners as they related to property ownership and taxation. We draw from a unique sample of 2'400 respondents across three councils in the Lupuala province of Zambia, distributed among property tax compliant and non-compliant respondents (on council valuation rolls), respondents living within council boundaries but on unplanned areas (informal settlers) and respondents living on customary land, outside council boundaries and under the authority of traditional leaders.

Unsurprisingly, we find that owners strongly favor policies with lower property tax amounts, with a preference for public services to be provided either 6 months before or in parallel to fulfilling their tax obligations (as opposed to 6 months after). We also note that owners somewhat prefer a more active form of engagement in influencing council budgetary allocation by taking part in participatory budgeting processes, as opposed to more passive forms of engagement such as submitting complaints or voting for public services they would like to see in their community.

Analyzing drivers prone to shifting preferences, we find that respondents who believe they will benefit the most from paying property taxes are less concerned about the tax level. We also find that perceiving the local government to be legitimate to

improve support across all policy scenarios, while we find no shift in preferences if respondents express support for the chiefs.

This research contributes to the limited literature of conjoint experiments in the field of taxation, and is to my knowledge the second study to study tax policy preferences in low-income countries (Moerenhout, Orgeira Pillai and Yang, forthcoming)

## Literature Review

### Property taxation

There is a broad agreement on the benefits of a fair and equitable property tax system. Considered to be a “good tax” and less likely to distort resource allocations as opposed to other taxes (Johannsson et al, 2008), property taxes can spur state building and increase government accountability by developing a fiscal contract between citizens and the state (Jibao and Prichard 2015; McCluskey 2016; Slack 2013), most countries have been encouraged to improve their property tax revenue collection (Slack and Bird, 2014). Property taxes promote local autonomy and accountability due to the clear connection between property tax revenue and public service provision, offering the opportunity for improved trust in the state and the establishment of a tax compliance environment (Besley, 2019).

The connections between taxation and accountability stem from two interrelated causal pathways - a mobilization pathway, where citizens develop a stronger sense of ownership over government finances when bearing new tax responsibilities, are more politically engaged and entitled to seek reciprocity from the government in

exchange for tax payments (Prichard 2015, de la Cuesta et al. 2017a, 2017b); and - a tax resistance pathway, where governments are incentivized to respond to taxpayers' needs to ensure regular revenue stream, foster weak tax compliance culture, boost 'quasi-voluntary' tax compliance (known as tax morale) and avoid retaliation by taxpayers who may evade their tax obligations (Bates and Lien 1985, Levi 1988, Prichard 2015). These combined processes, often termed as "tax bargaining," reflecting the notion that increased taxpayer mobilization and resistance can enable them to effectively negotiate for improved reciprocity from their governments.

For example, Prichard, Jibao and Orgeira Pillai (forthcoming) evaluated the impact of a quasi-randomized property tax reform implemented in Sierra Leone and found evidence that the tax reform program resulted in large and significant improvements in the perceived quality of public services, consistent with theories linking expanded taxation to improvements in governance. At the individual level, changes in attitudes and behaviors can explain those aggregate improvements in service delivery outcomes, through a large expansion of political knowledge, increases in important forms of political engagement, and the emergence of more conditional attitudes toward tax compliance.

### **Property taxation and traditional authorities**

However, little attention has been directed towards traditional authorities, which coexist alongside formal government institutions ((Holzinger et al. 2016), and their potential influence on the state's capacity to generate revenue. With an estimated 83% of the sub-Saharan African population being governed by traditional authorities,

they play a central role in influencing election results (Nathan 2019; Brierley and Ofosu 2023), local development outcomes (Baldwin, 2019) and consequently local governance (Baldwin, 2016). Despite the prevalence, there remains questions as to how they play such a critical role, and whether they could be an asset in improving local fiscal capacity.

There are at least two arguments for a local council-traditional authorities collaboration in raising revenue. First, traditional authorities are perceived to be more legitimate (Logan, 2013), that is entrusted to set rules and regulations, and represent the morale authority. As such, they may have greater coercive capacity than local levels of government, which is the second argument. In a recent study conducted in Sierra Leone, Grieco found that notifying property owners of a collaboration between local and traditional authorities in raising property taxes increased index tax compliance measures. However, in instances where traditional leaders may rule despotically or lack authority (Mamdani, 1996), not only could collaboration be ineffective but could be counter-productive.

In Zambia, the dynamic between the state and traditional leaders forms a cornerstone of its broader political and economic landscape. In principle, the coexistence of a dual land tenure system doesn't necessarily hinder the expansion of property tax revenue collection on customary land. In certain instances, there exists a mutually beneficial relationship between chiefs and local councils. Chiefs may lend support to council revenue-generation endeavors, while also serving as an informal oversight mechanism, prompting councils to deliver services commensurate with revenue collected (Grieco, 2023). However, in Zambia, land administration laws impose con-



straints on collaboration between councils and traditional leaders in revenue-raising endeavors. Property tax collection requires the conversion of land from customary to state tenure, further complicating cooperation. Moreover, residents often perceive all informal settlements as customary land, fostering a widespread belief that chiefs wield significant influence over council areas, sometimes extending to the central business district periphery. Despite the prevalence of customary land in Luapula Province, residents in Mansa and Samfya express heightened expectations for public service provision and urban planning in these regions (Stewart-Wilson et al., forthcoming).

Incrementally converting customary land to state land could, in theory, allow councils to collect property tax revenue, although this would be at the detriment of chiefs given the potential loss of prestige and power. Alternatively, property taxation on customary land could be pursued with the support and collaboration of the chiefs with local councils, without requiring land conversion. However, while some chiefs have supported council revenue-raising activities in exchange for oversight on services provided from collected revenue, councils and traditional leaders' relationships are weak, with chiefs perceiving the local councils to be unreliable partners who poorly manage budgets and provide little to no public services. They also believe that councils exert pressure on traditional chiefs to convert customary land into state land (Manda and Banda, 2023).

An increasing number of chiefs, however, are acknowledging the fact that their constituents demand a significant improvement in service provision, with some leaders fearing they may lose legitimacy should they not offer positive prospects for economic development. To meet their constituents' demands, traditional authorities

would need to raise considerably more revenue but also ensure they hold both financial and logistical capacities to collect taxes, implement enforcement actions and deliver services. While chiefs may concede they would fail to implement a robust revenue-generating and service delivery system, they also believe councils wouldn't fare much better. However, given increased pressure from residents in customary land for development, some leaders would be amenable to collaborating with councils.

### **Conjoint experiments**

Conducting empirical research on public opinion regarding policy preferences presents significant challenges, largely stemming from the multifaceted nature of property tax reforms. Various aspects, such as the level of taxation and associated benefits, can influence public perceptions. To address this complexity, scholars increasingly turn to conjoint experiments, which allow for the analysis of multidimensional policy preferences by assessing the causal impact of different factors on respondents' opinions (Hainmueller, Hopkins, and Yamamoto, 2014).

Conjoint experiments have emerged as a primary method for identifying multidimensional policy preferences (Horiuchi, Smith, and Yamamoto, 2018), offering a means to gauge public sentiment on a range of issues (Christensen and Rapeli, 2021), including environmental policies (e.g., Bechtel and Scheve, 2013), economic measures like Eurozone bailouts (Bechtel, Hainmueller, and Margalit, 2017), healthcare initiatives (e.g., Bridges et al., 2011), and foreign affairs (e.g., Clary and Siddiqui, 2021). These experiments help mitigate social desirability biases, as respondents are not directly confronted with sensitive attributes but rather make choices within a con-

trolled setup (e.g., Carey et al., 2020; Horiuchi, Markovich, and Yamamoto, 2021). In particular, prior studies have suggested that conjoint analysis is a very effective method to measure economic preferences such as willingness to pay since it is easier for respondents to apply preference ordering and rating when competing alternatives are presented than when one option is given (e.g., Breidert, Hahsler, and Reutterer, 2006; Schmidt and Bijmolt, 2020; Miller et al., 2011).

This approach has rarely been adopted in the field of taxation - Ballard-Rosa et al. (2017) used conjoint analysis to investigate preferences regarding American income tax. They presented respondents with various alternative tax plans, differing in taxation levels across six income brackets. Their findings indicate that voter opinions generally align with current tax policies, albeit with limited flexibility regarding taxing the wealthy. Bansak et al. (2021) employed a conjoint experiment to explore mass support for national austerity packages across European countries. These packages varied in terms of spending cuts and tax increases. This approach allowed them to assess eligible voters' varying sensitivities to different austerity measures and to estimate the average levels of support for specific hypothetical packages. Finally, a more recent paper from Alvarado (2024) showed how conjoint survey experiments could be used to provide empirical evidence for the compensatory theory of tax fairness, that is taxing preferences among taxpayers to expand taxation to the wealthy to compensate from unequal distribution of benefits

However, conjoint analysis have, to our knowledge, only been used once in low-income countries - Moerenhout, Orgeira Pillai and Yang (forthcoming) studied how health coverage could be expanded to informal workers by measuring willingness to

pay income tax in exchange for the provision of health insurance. They found that informal workers are highly sensitive to the tax amount, while the greater the need for healthcare, or positively perceive the government, the greater the support for such policy. This study aims to contribute to a very nascent subfield of research

## Research Design

In our study, we utilize conjoint experiments to present respondents with two hypothetical profiles of property tax reform, prompting them to express their preferences for each. Despite the abstract nature of these choices, the findings from conjoint experiments yield externally valid estimates that closely resemble real-world outcomes.

### Attributes and levels

We explore strategies for garnering greater support from owners for property taxation. To achieve this, we conducted a conjoint experiment, assessing various program options based on five attributes. These attributes, drawn from existing literature, underwent pre-testing to ensure respondents' comprehension and consensus on their significance. Participants were informed that we sought their input on alternative policies the local government could implement to offer public services in exchange for property rate payments. The five attributes were:

1. Tax level<sup>3</sup>: Individuals assess their maximum willingness to pay (WTP) for

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<sup>3</sup>To accommodate variations in property prices, resulting in differing tax liabilities, enumerators classified properties into three groups based on visual inspection: Low Value (defined as small or dilapidated properties like mud houses), Medium Value (properties of average worth), and High

property taxes in exchange for public services by gauging the perceived increase in well-being against the decrease in income (Cairns, 1993; Pauly, 1995). WTP reflects individuals' readiness and capacity to exchange money for public services (Bala, 1999).

2. Start of service provision: Research indicates that the timing of compensation or distributional measures aligned with reforms is crucial. Social programs initiated before or concurrently with reforms tend to foster greater trust and support compared to programs that commence only after reforms are implemented (IMF, 2013; Guillaume, Zyttek, and Farzin, 2011).
3. Who to pay: We anticipate that support for policies and tax compliance will be greater when the collecting institution is perceived as trustworthy (i.e., less corrupt) and accountable (?). In Ghana, initiatives to formalize the informal sector were undertaken collaboratively with associations, empowering them to collect taxes and subsequently remit the revenues to the government (?).
4. How to pay: Recent reforms have focused on reducing compliance costs by streamlining tax payment methods, favoring online transactions through banks

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Value (modern or large properties in excellent condition). Backcheck surveys have demonstrated a minimal discrepancy rate in property value assessment. Based on enumerators' property value assessment, respondents were presented with one of three potential property tax amount ranges corresponding to their estimated property value (low, medium, or high). These ranges were determined by analyzing the actual distribution of property tax burden in the three study councils, based on the property values:

For Low Value properties: Ranges were set at A and B: K50 and K150, B and C: K150 and K250, C and D: K250 and K350.

For Medium Value properties: Ranges were set at A and B: K250 and K400, B and C: K400 and K550, C and D: K550 and K700.

For High Value properties: Ranges were set at A and B: 500 and 1500, B and C: K1500 and K2500, C and D: K2500 and K3500.

or SMS over direct interactions with tax collectors (?). Not only do online procedures mitigate delays, but they also limit the potential for harassment and corruption by tax collectors (Brautigam, 2008), which could erode trust in the tax system. In Kenya, the adoption of iTax was primarily driven by the desire to mitigate the risk of misconduct by tax collectors (Franzsen, 2017).

5. Perks: Governments may also offer additional perks to property taxpayers aimed at increasing participation in local governance. We included three: (1) Engaging in participatory budgeting, which has gained prominence as a means of fostering interaction between citizens and representatives since the late 1980s (Sheely 2015). These deliberative forums have been shown to enhance development outcomes (Goncalves 2013), increase citizen awareness (Esterling et al, 2011), and allow for updating preferences (Barbaras, 2004; Fishkin et al, 2015; Sandefur et al, 2020). (2) Submit complaints to the local council via text or online regarding inadequate public services. (3) Voting online or by text for public services they would like the local council to provide in their community. Participatory budgeting, the most active form of engagement among the three options, is also perceived to be too onerous to justify and could divert resources that would otherwise be allocated to public service provision (Im, Lee, Cho and Campbell, 2014, Irvin and Stansbury, 2004). Digital participatory budgeting processes may, however, significantly reduce its costs (Grieco et al, forthcoming). The other two forms of engagement, akin to consultative citizen engagement (as opposed to informative and active, Song, 2002), are more cost-effective in engaging large number to citizens though excluding them from the

public budget allocation process.

More formally, using the notation in Bansak and al (2022), in our forced-choice conjoint experiment, each respondent  $i \in \{1, \dots, N\}$  completes  $K=3$  tasks (rounds of comparisons) in which they express their preferences for one of two policies. Each policy has  $L=5$  attributes with levels differing across attributes ( $D_1=D_2=D_5=3$ ,  $D_3=2$  and  $D_4=4$ , see below table). We label the attributes Tax Level, Start of Service Provision, Who to Pay, How to Pay and Perks A, B, C, D and E, respectively and denote their levels such that  $A \in \{0, 1, 2\}$ ,  $B \in \{0, 1, 2\}$ ,  $C \in \{0, 1\}$ ,  $D \in \{0, 1, 2, 3\}$  and  $E \in \{0, 1, 2\}$ . A policy can then be characterized using these values, where  $[abcde]$  denotes a conjoint profile (or policy) whose values on these attributes are such that  $A = a$ ,  $B = b$ ,  $C = c$ ,  $D = d$  and  $E = e$ . We then have  $\prod_{l=1}^L D_l$  or  $3 \times 3 \times 2 \times 4 \times 3 = 216$  possible unique policies. We define each respondent's preference to be a binary relations over the set of possible unique policy profiles, where we assume a strict preference ordering over all  $\prod_{l=1}^L D_l$  unique profiles.

Our experiment begins with a short introduction mentioning the profiles describe two hypothetical property tax policies. Each policy includes the five aforementioned attributes with attributes randomly ordered and attribute levels randomly drawn. Respondents are then asked to choose the policy they prefer, to express their levels of satisfaction for both profiles on a five-point scale (from completely dissatisfied to completely satisfied), before revealing their most and least preferred attribute for each policy. This exercise was repeated two additional times and the respondent were presented with a total of six profiles. The full list of attributes and their values used in the conjoint experiments are presented in Table 1.

Table 1: Concepts and attribute levels

Attribute	Levels
Tax level	<p>The tax on your property would be between A and B</p> <p>The tax on your property would be between B and C</p> <p>The tax on your property would be between C and D</p>
Start of service provision	<p>You would receive new or improved services already 6 months before you start paying tax on your property.</p> <p>You would receive new or improved services at the moment you start paying tax on your property.</p> <p>You would receive new or improved services 6 months after you start paying tax on your property.</p>
Who to pay	<p>You would pay the property rate to Local Council</p> <p>You would pay the property rate to the Chief who would then share it with local council</p>
How to pay	<p>You would have to go in person to pay your property rate</p> <p>Someone would come to your place to collect your property rate</p> <p>You would pay your property rate via USSD, which uses telecom service just like when you load credit on your cell phone</p> <p>You would pay your property rate via a smartphone mobile application, which uses internet just like when you use other applications on your smartphone</p>
Perks	<p>You will be invited to participate in the participatory budget meetings, that is the process of deciding how public money is spent.</p> <p>You will be able to easily submit a complaint by text or online to the local council about public services that were not reasonably provided (i.e. trash not collected on time, pothole on your road, etc.)</p> <p>You will be able to vote online or by text for public services you would like the local council to provide.</p>



## **Relevant attribute for policy support**

Owner or citizen preferences with respect to property tax policy features has - to our knowledge - not been theorized explicitly. As such, we first look to identify policy features susceptible to garnish greater support for property taxation, and whether in the Zambian context, citizens express a preference for a collaboration between local and traditional authorities in raising property tax revenue. The study local councils are in rural areas where property owners have limited financial means and with weak property tax culture. We can therefore anticipate that the tax amount is of primary concern and matter more than other attributes. Given reported lower levels of trust in council (when compared to trust in local authorities), we also expect a significant share of respondents to favor paying the property tax to the chief as opposed to council.

**Hypothesis 1 (H1):** *Policies with lower tax levels will be favored over policies with medium and high tax amounts. To a lower extent, policies where tax payments are made to the chief will gain greater support.*

This article strives to pinpoint the factors influencing preferences for property taxation, aiming to build a social contract between the government and its constituents. Bender et al. (2021) posited that the preferences of individuals play a pivotal role in shaping reform dynamics and the likelihood of their implementation. We argue that these preferences are shaped by two distinct types of distance: distance to authorities and distance to benefits.

On one hand, distance to authorities hinges on perceptions of the government's

legitimacy, which align closely with conventional notions of social dynamics, emphasizing the necessity of trust establishment before enacting reforms. On the other hand, proximity to benefits reflects individual inclinations and the perceived value of services that the government can offer in return for property taxation. While these two dimensions of distance are intertwined, they remain conceptually separate. Distance to authorities can be seen as the perceived or anticipated reciprocity from tax payments, whereas distance to benefits represents actual reciprocity. We describe how these concepts are measured further below. Through the establishment of social pacts and by reducing the distance to benefits, we argue that governments suffering from low levels of trust can be perceived as more legitimate, thereby strengthening or renewing the social contract. These two dimensions of distance draw from existing literature on trust and social contracts, providing a framework for understanding the dynamics of property taxation preferences.

Trust, which aligns more closely with our "distance to authorities" metric, is regarded as a component of tax morale - a reflection of individual ethics, values, and social norms. There is mounting evidence suggesting that drivers of tax morale, particularly trust, play a significant role in determining tax compliance (Cummings, R. G., Martinez-Vazquez, J., McKee, M., and Benno, T., 2009). Moreover, higher levels of tax morale have been linked with increased support for tax reforms (Prichard, W., Custers, A., Dom, R., Davenport, S., and Roscitt, M., 2019). Strengthening tax morale through trust-building initiatives can promote a form of "quasi-voluntary" tax compliance. However, this can only be effectively achieved through good governance and political accountability (Bates, R., and Lien, D.-H., 1985).

In this context, taxation can serve as the groundwork for a social compact between the government and its citizens by directly associating tax payments with the provision of public goods and services. This connection links revenue mobilization, reciprocity, and accountability, fostering trust and enhancing legitimacy. Examples of such connections between revenue mobilization, reciprocity, and accountability can be observed in Sierra Leone, where expanded property taxation has led greater political engagement by taxpayers, resulting in councils responding to this implicit pressure by providing improved public services (Prichard et al, forthcoming).

Social contracts are characterized by four key parameters: protection, provision, participation, and the production of hegemony (Sobhy, 2021). Both of our distance measures are closely intertwined with the concepts of provision and participation.

Although strengthening property taxation in Zambia holds theoretical appeal, it is not without its challenges, as previously mentioned. This is partly due to citizen perceived limited benefits relative to their costs, exacerbated by lower levels of trust in the government and limited public service provision. Consequently, the benefits of paying property taxes may not be readily apparent, especially to property owners residing in unplanned areas or on customary land and who have yet to receive any forms of services from councils. For this significant subset of the population, we anticipate that our "distance to benefit" metric would be correlated with support for property taxation.

**Hypothesis 2 (H2):** *Property owners with lower distance to benefits are more likely to support property taxation.*

**Hypothesis 3 (H3):** *Property owners with lower distance to authorities are more likely to support policies where the tax amount is paid to that authority.*

### **Empirical approach**

Close to 2'400 respondents were administered the conjoint experiment, which yields around 7'200 choices and rating of nearly 14'400 policies. To identify which attributes drives policy preferences, we compute the average marginal component effect (AMCE), which represents how much the probability of choosing a conjoint profile (policy) would change on average if an attribute switched levels (Hainmueller, Hopkins and Yamamoto, 2014). It can also be thought as the effect of changing an attribute on the expected share of respondents choosing the policy, taken over the distribution of other attributes (Bansak et al., 2022). The AMCE systematically aggregates preference orderings over all possible conjoint profiles while accounting for the multidimensional nature of the policy choice by including both the directionality and intensity of a preference (Abramson et al, 2022), a property common to other estimands such as the average treatment effect (ATE). The AMCE is a valid estimand of the causal effect of different attributes on policy preferences, and is an unbiased estimator, governed under the following limited set of assumptions (Hainmueller et al., 2014):

**Assumption 1:** *Stability and No Carryover Effects.* For each  $i$  and all possible pairs of treatments  $\bar{T}_i$  and  $\bar{T}'_i$ ,

$$Y_{ijk}(\bar{T}_i) = Y_{ijk'}(\bar{T}'_i) \text{ if } T_{ik} = T_{ik'},$$

for any  $j$ ,  $k$ , and  $k'$ .

**Assumption 2:** *No Profile-Order Effects*

$$Y_{ij}(\mathbf{T}_{ik}) = Y_{ij'}(\mathbf{T}_{ik}) \text{ if } T_{ijk} = T'_{ij'k} \text{ and } T_{ij'k} = T'_{ijk},$$

for any  $i$ ,  $j$ ,  $j'$  and  $k$ .

**Assumption 3:** *Randomization of the Profiles*

$$Y_i(\mathbf{t}) \perp\!\!\!\perp T_{ijkl},$$

for any  $i$ ,  $j$ ,  $k$ ,  $l$ , and  $\mathbf{t}$ , where the independence is taken to be the pairwise independence between each element of  $Y_i(\mathbf{t})$  and  $T_{ijkl}$ , and it is also assumed that  $0 < p(\mathbf{t}) \equiv p(\mathbf{T}_{ik} = \mathbf{t}) < 1$  for all  $\mathbf{t}$  in its support.

The first assumption implies that the AMCE should be similar across rounds of policy comparisons, while the second and third assumptions, satisfied in the conjoint experiment's design, implies that AMCE should be comparable irrespective of the order of the profiles or attributes presented.

**Identification of the AMCE** Let  $Y_i([abcde], [a'b'c'd'e']) \in \{0, 1\}$  respondent  $i$ 's potential outcome given the paired forced-choice contest between two profiles  $[abcde]$  and  $[a'b'c'd'e']$ , such that

$$Y_i([abcde], [a'b'c'd'e']) = \begin{cases} 1 & \text{if } [abcde] \succ [a'b'c'd'e'], \\ 0 & \text{if } [abcde] \prec [a'b'c'd'e'], \end{cases} \quad (1)$$

Then the AMCE for an attribute (say A) is defined as the expected difference between the potential outcomes for all paired comparisons where the first policy's attribute equals 1 and the potential outcomes for all paired comparisons where the first policy's attribute equals 0, given a known, prespecified distribution of the other attributes:

$$AMCE_A \equiv E[Y_i([1BCDE], [A'B'C'D'E']) - Y_i([0BCDE], [A'B'C'D'E'])]$$

where the expectation is defined over the joint distribution of candidate attributes from which all attributes other than A for the first policy (i.e.  $B, C, A', B', C', D'$  and  $E'$ ) are drawn and the sampling distribution for the N respondents from the sample population.

The AMCE's identification is computationally straightforward - traditionally estimated using OLS or logit models, it failed to capture the multilevel nature of the data. As such, in practice, we run a two-level multilevel logistic regression at the respondent unit, controlling for age, gender, education, employment, source of income, and other variables thought to influence willingness to pay tax in the literature. For hypothesis 1, the equation is

$$\begin{aligned}
PolicyRating_{iAk} &= \beta_1 TL_{iAk} + \beta_2 SSP_{iAk} + \beta_3 WTP_{iAk} + \beta_4 HTP_{iAk} \\
&+ \beta_5 SP_{iAk} + \beta_6 X_{iAk} + \epsilon_{iAk}
\end{aligned} \tag{2}$$

where Policy Rating refers to the reported level of satisfaction for a given policy, TL, SSP, WTP, HTP and SP represent the five attributes Tax Level, Start of Service Provision, Who to Pay, How to Pay and Perks, respectively, while X represent key controls. For hypothesis 2 and 3, the equation is

$$\begin{aligned}
PolicyRating_{iAk} &= \beta_1 TL_{iAk} + \beta_2 SSP_{iAk} + \beta_3 WTP_{iAk} + \beta_4 HTP_{iAk} \\
&+ \beta_5 SP_{iAk} + \beta_6 X_{iAk} + \beta_7 \times DIST + \beta_8 TL_{iAk} \times DIST \\
&+ \beta_9 SSP_{iAk} \times DIST + \beta_{10} WTP_{iAk} \times DIST \\
&+ \beta_{11} HTP_{iAk} \times DIST + \beta_{12} SP_{iAk} \times DIST \\
&+ \beta_{13} X_{iAk} \times DIST + \epsilon_{iAk}
\end{aligned} \tag{3}$$

where DIST refers to the dichotomized survey variable that relates to either concepts (distance to benefit or distance to authority). We additionally computed the Marginal Means (MM), which indicate the proportion of instances where respondents select a profile with a specific attribute level, while averaging across all other attributes. Although descriptive in nature, the Marginal Means offer insights into preferences for all feature levels, including baseline values. Consequently, they offer

information on absolute rather than relative favourability, enabling us to pinpoint attribute levels that raise or lower the overall likelihood of a profile being selected.

**Operationalizing distance** To examine Hypotheses 2 and 3, we evaluate two dimensions of distance. We start by operationalizing "distance to benefits" through seven variables. Firstly, we assess the need for public services by ensuring if the respondent: a) has access to public services (defined as accessing at least half of the eight essential services provided by the council); b) expresses satisfaction with the level of public services provided considering local council tax revenues; c) perceives receiving a fair share of public benefits relative to taxes they pay; and d) express willingness to increase tax payments in return for improved services. Secondly, to measure knowledge of the benefits of property taxation, we ask respondents if they know whether a) property taxes funds public service provision; and b) the whether property taxes is predominantly allocated to public services. Thirdly, to evaluate trust in the council's service provision capabilities, respondents are asked if they believe the local council is a good service provider.

Secondly, we operationalize "distance to authorities" by segmenting it into 'distance to local council' and 'distance to traditional authority'. Both segments utilize analogous subconcepts: the first pertains to local political involvement, determined by asking respondents if: a) they perceive the authority to be responsive to people's needs; b) they made attempts to contact the authority (MP, Ward Councilor, or Local Council for distance to the government; Chief or Headman for distance to traditional authorities); and c) believes the authority acts in citizens' interests. Secondly, to measure engagement with authorities through taxation or informal con-



tributions, we ask respondents if they have either paid taxes to the local council or made contributions to traditional authorities. Thirdly, to gauge perceived legitimacy of each authority, respondents are asked if they: a) trust the authority (or its representative, such as the chief or headman); b) have confidence in these authorities; c) would seek their intervention in settling land disputes; d) believe their property falls under the authority's jurisdiction; and e) sought permission from that authority before occupying their property. Descriptive statistics for each concept are provided subsequently.

## **Sample**

The conjoint experiment was embedded in a large property owner survey. The survey included questions on taxpayers' attitudes and perceptions of the tax system and the modules will include questions on tax morale i.e., trust in revenue authority, notions of fiscal exchange, tax compliance, and fiscal devolution in Zambia. Alongside assessing attitudes toward taxation, and the functioning of key aspects of the system, the survey particularly aimed to explore the role of traditional authorities in shaping property tax administration and public attitudes toward property taxation.

It was administered to close to 2,400 respondents in June/July 2023 (and completed in March 2024) across three councils of the Luapula province in Zambia. 800 respondents were surveyed from each council. To capture heterogeneity in perceived legitimacy of and expectations from local and traditional authorities with respect to service delivery, in each council, 400 respondents had their properties registered for property taxation. Most of them were non-compliant, given very low levels of

property tax compliance, and compliance was loosely defined as having paid part of their property taxes in the past year. As such, despite the initial intention to evenly split respondents around property tax compliance, the number of property tax compliant respondents surveyed in Kawambwa, Mansa and Samfya were 110, 170 and 127, respectively. The remaining 400 respondents were split evenly between property owners located within township boundaries but omitted from the current roll and therefore on unplanned areas (informal settlers); and 200 owners located in peri-urban areas outside of township boundaries and falling under the authority of traditional leaders.

Table 2: Descriptive Statistics, by town

	Kawambwa (N=800)	Mansa (N=803)	Samfya (N=793)
Female	0.60 (0.49)	0.64 (0.48)	0.63 (0.48)
Head of household	0.58 (0.49)	0.56 (0.50)	0.57 (0.50)
Household size	5.67 (2.28)	6.01 (2.31)	6.23 (2.60)
Age	40.12 (15.01)	45.91 (15.66)	41.92 (15.83)
Education			
No school	18 (2.2%)	42 (5.2%)	44 (5.5%)
Primary	206 (25.8%)	214 (26.7%)	247 (31.1%)
Secondary	408 (51.0%)	311 (38.7%)	336 (42.4%)
Tertiary	168 (21.0%)	236 (29.4%)	166 (20.9%)
Main source of income			
Self-employed, agriculture	264 (33.0%)	284 (35.4%)	231 (29.2%)
Self-employed, other	184 (23.0%)	166 (20.7%)	209 (26.4%)
Wage-employee, private sector	52 (6.5%)	56 (7.0%)	46 (5.8%)
Wage-employee, public sector	190 (23.8%)	173 (21.5%)	217 (27.4%)
Casual wage-employee	16 (2.0%)	24 (3.0%)	37 (4.7%)
Rental income from property	3 (0.4%)	25 (3.1%)	4 (0.5%)
Investment income	2 (0.3%)	3 (0.4%)	2 (0.3%)
Disability benefits	6 (0.8%)	5 (0.6%)	3 (0.4%)
Economic assistance	12 (1.5%)	5 (0.6%)	2 (0.3%)
Pension	14 (1.8%)	16 (2.0%)	12 (1.5%)
Unemployed	51 (6.4%)	40 (5.0%)	25 (3.2%)
Other	5 (0.6%)	6 (0.7%)	3 (0.4%)
Poverty indicator	1.33 (0.49)	1.31 (0.44)	1.35 (0.56)
Monthly income	3942.53 (4687.99)	4402.00 (5647.74)	4174.30 (9763.53)
Property value			
Low	205 (25.6%)	219 (27.3%)	205 (25.9%)
Medium	397 (49.6%)	415 (51.7%)	420 (53.0%)
High	198 (24.8%)	169 (21.0%)	168 (21.2%)

Mean and standard deviations for continuous and binary variables Counts and percentages for factor variables

Table 3: Descriptive Statistics, by subgroup

	Compliant (N=407)	Non-compliant (N=791)	Informal (N=604)	Customary (N=594)
Female	0.57 (0.50)	0.58 (0.49)	0.69 (0.46)	0.65 (0.48)
Head of household	0.60 (0.49)	0.57 (0.50)	0.55 (0.50)	0.57 (0.50)
Household size	5.93 (2.21)	5.89 (2.30)	6.03 (2.54)	6.05 (2.55)
Age	45.48 (16.57)	42.39 (14.93)	41.30 (15.83)	42.45 (15.69)
Education				
No school	7 (1.7%)	10 (1.3%)	31 (5.1%)	56 (9.4%)
Primary	36 (8.8%)	86 (10.9%)	252 (41.7%)	293 (49.3%)
Secondary	180 (44.2%)	399 (50.4%)	273 (45.2%)	203 (34.2%)
Tertiary	184 (45.2%)	296 (37.4%)	48 (7.9%)	42 (7.1%)
Main source of income				
Self-employed, agriculture	79 (19.4%)	136 (17.2%)	232 (38.5%)	332 (56.1%)
Self-employed, other	78 (19.2%)	185 (23.4%)	170 (28.2%)	126 (21.3%)
Wage-employee, private sector	31 (7.6%)	68 (8.6%)	33 (5.5%)	22 (3.7%)
Wage-employee, public sector	169 (41.5%)	309 (39.1%)	64 (10.6%)	38 (6.4%)
Casual wage-employee	5 (1.2%)	19 (2.4%)	30 (5.0%)	23 (3.9%)
Rental income from property	11 (2.7%)	11 (1.4%)	9 (1.5%)	1 (0.2%)
Investment income	2 (0.5%)	2 (0.3%)	1 (0.2%)	2 (0.3%)
Disability benefits	0 (0.0%)	1 (0.1%)	6 (1.0%)	7 (1.2%)
Economic assistance	1 (0.2%)	2 (0.3%)	5 (0.8%)	11 (1.9%)
Pension	14 (3.4%)	19 (2.4%)	7 (1.2%)	2 (0.3%)
Unemployed	16 (3.9%)	37 (4.7%)	41 (6.8%)	22 (3.7%)
Other	1 (0.2%)	2 (0.3%)	5 (0.8%)	6 (1.0%)
Poverty indicator	1.17 (0.33)	1.20 (0.35)	1.42 (0.53)	1.52 (0.63)
Monthly income	5931.74 (6184.35)	5357.51 (5257.85)	3032.08 (6821.73)	2269.01 (9292.91)
Property value				
Low	17 (4.2%)	51 (6.4%)	283 (46.9%)	278 (46.8%)
Medium	224 (55.0%)	480 (60.7%)	252 (41.7%)	276 (46.5%)
High	166 (40.8%)	260 (32.9%)	69 (11.4%)	40 (6.7%)

Mean and standard deviations for continuous and binary variables Counts and percentages for factor variables

## Results

Though existing studies using conjoint experiments have frequently relied on the forced-choice paired design (e.g., Hainmueller, Hangartner, and Yamamoto, 2015; Hainmueller and Hopkins, 2015; Hankinson, 2018), a growing number of studies have raised some serious concerns of using forced choice outcomes as the dependent

variable (Abramson, Koçak, and Magazinnik, 2022; Ganter, 2023).<sup>1</sup> In this regard, In the empirical analyses, we use the original and dichotomized five-scale preference as our main dependent variable (we present the later below). Still, we also check the results using forced choice outcomes as the dependent variable and find that the main findings remain substantively same.

### **Overall preferences for property tax reform parameters**

The results on general interest for property taxation demonstrates strong support in a reciprocal arrangement between the government and citizens. Close to 64% of respondents positively rated property tax policies, with limited variations between subgroups. Support was highest among owners living on customary land (65.79%), followed by non-compliant owners (64.48%). This could be explained by the fact that public service provision on customary land is limited and not provided by council, while non-compliant owners, while registered with council, may have acted as free riders, benefit from public services without paying for them. They may see property taxation more positively, considering they may be less likely to face enforcement actions. On the other end, support is lower among property tax compliant owners (60.79%), who already face tax burdens, and by owners living on unplanned areas (62.78%). The later group, while not paying taxes, have not benefited from public service provision as much as owners living closer to the center. They may perceive property taxation to be less fair, with revenue less likely to trickle their way.

Figure 1: Average Marginal Component Effect

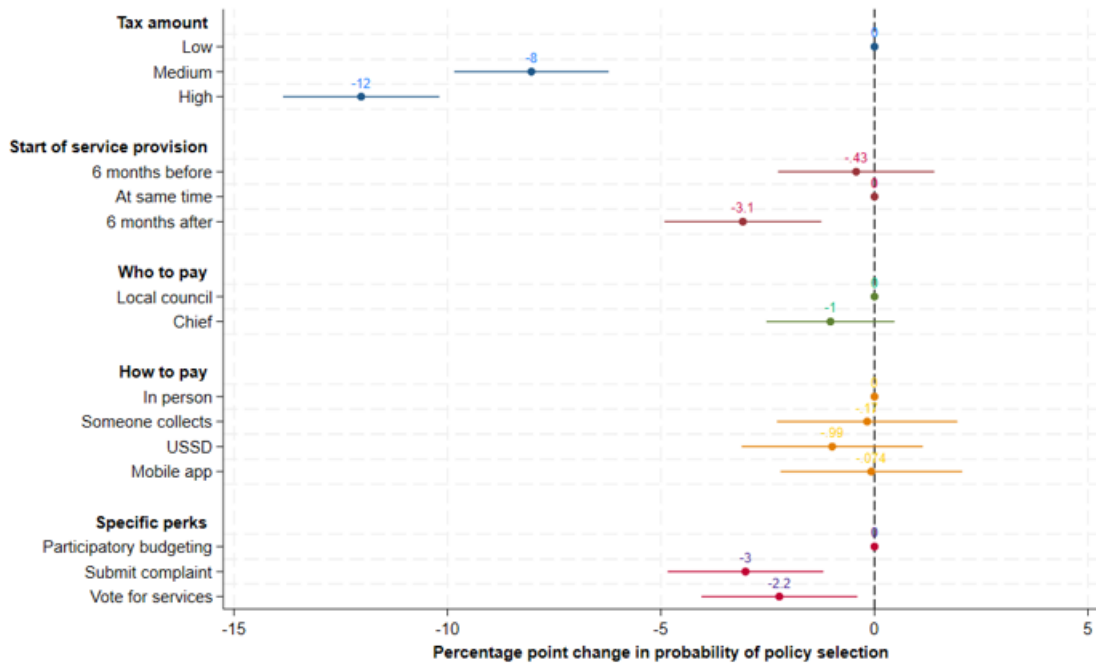


Figure 9 plots the Average Marginal Component Analysis, that is the percentage point change in the probability of a policy being positively rated subject to the presence of a specific attribute level. All results are plotted relative to the baselevel group for each attribute, which is shown as a dot without confidence intervals (confidence intervals displayed are at the 95% level). Looking at attributes likely to affect public support for property taxation, unsurprisingly and as expected in 1, we observe significantly lower ratings for policies with higher tax amount, with probability of positively rating a policy with a high tax amount to be 12% lower than if that same policy had a low tax amount. There seems to be a negative correlation between tax amount and support for property tax policy.

This result provides support for neoclassical economic considerations in supporting a policy, given the financial impact from fulfilling tax obligations. However, we note that respondents' income does not shift preferences. Female respondents and heads of households more likely to support policies, while this is less likely the case if the respondent isn't employed. The property value doesn't seem to affect the value preferences.

We also find statistically significant evidence that the timing of service provision impacts support for property taxation. To manage fiscal burdens, governments can seek to implement the property tax reform before public services are delivered, though at the expense of support. Again, this is not a surprising finding, given low levels of service provision, which has eroded trust in council's ability to provide services.

Surprisingly, however, we find no change in support for property taxation if the tax is paid to the chief or to the local council. And this remains true at the town and subpopulation level. Despite exhibiting lower levels of trust and confidence than in traditional authorities, it appears that local council are equally supported in receiving property tax payment, possibly explained by a general perception of being a good service provider, accounting for the tax revenue councils are able to collect.

Finally, we note that owners somewhat prefer a more active form of engagement in influencing council budgetary allocation by taking part in participatory budgeting processes, as opposed to more passive forms of engagement such as submitting complaints or voting for public services they would like to see in their community.

To better assess difference in support, we present results from the Marginal Means below, as well as policies which gain the widest support.

Figure 2: Marginal Means

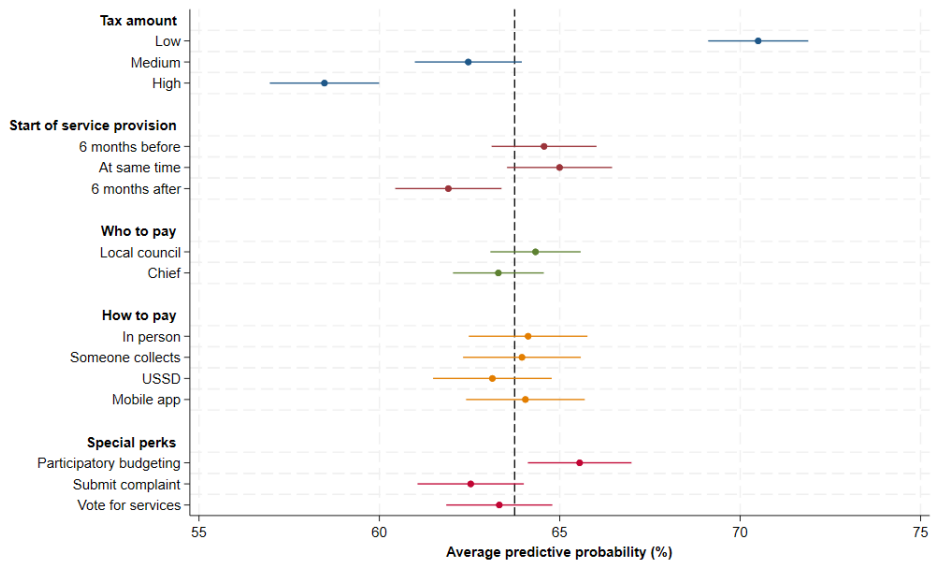
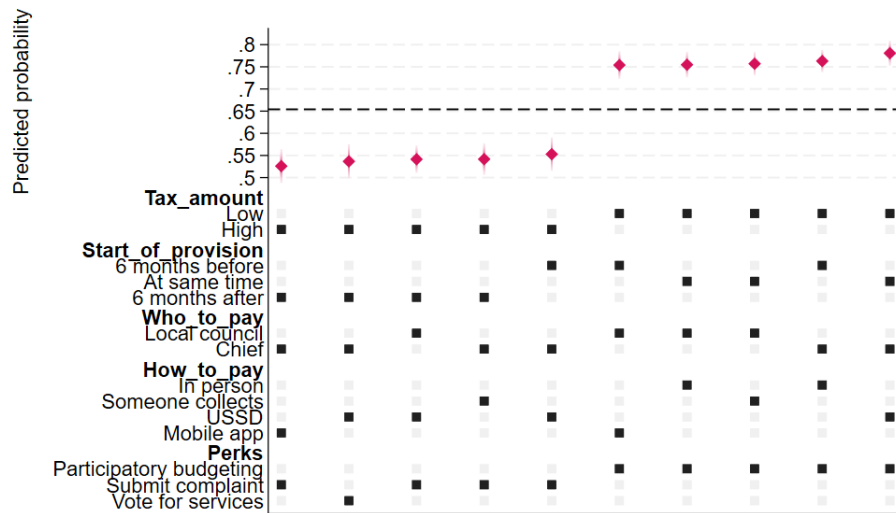


Figure 3: Best and worst policies





## **Distance to benefits**

34.11% of respondents report receiving at least four out of the eight essential public services expected to be delivered by council, with significant variations between subpopulation (10-57%). We find that access to public services only increases support for property taxation at the highest level of taxation. This is also the case for respondents who would agree to pay more taxes in exchanged for more services. This may stem from a broad agreement that the government has the right to tax to help develop the country, but with a clear lack of willingness to pay a significant amount of taxes if some services aren't at least provided. We note however, that believing the council is a good service provider, on the other hand, leads to greater support for policies across nearly all attributes and levels. It is interesting to see that actual service provision does not alter preferences as much as perceived efforts from council.

We note that knowledge about property tax is prevalently low, and as such no heterogenous analysis could be performed.

Figure 4: Access to public services

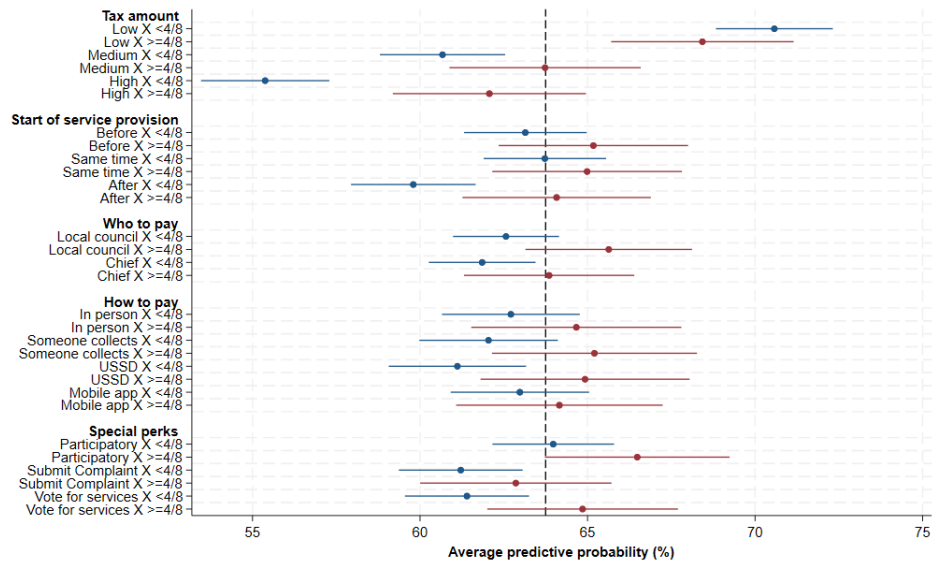
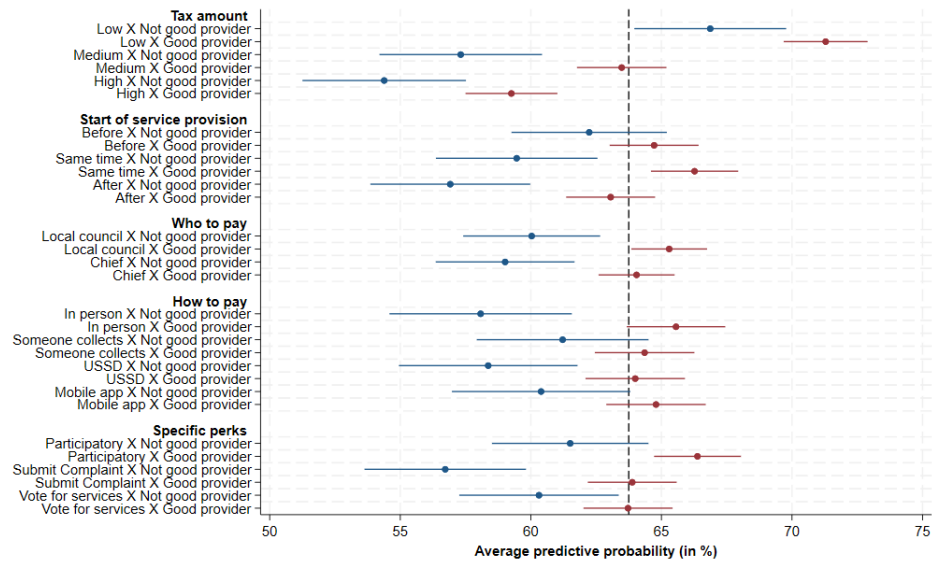


Figure 5: Local council to be a good service provider



### **Distance to authorities**

Looking at the third hypothesis, we find that greater trust and confidence in local council increases support for nearly all attributes and levels. What is interesting is that trust in traditional authorities does not seem to have an impact on respondents' willingness to support a given policy, while confidence in the chief increases support for policies where the property tax is paid to local council, but not to the chief. This result is puzzling, given that the chief outperforms in most metrics, that is in being more responsive to the needs of the people, to be trusted and have more confidence in. Further research, including qualitative interviews, may help better understand this paradox.

Figure 6: Trust in local council

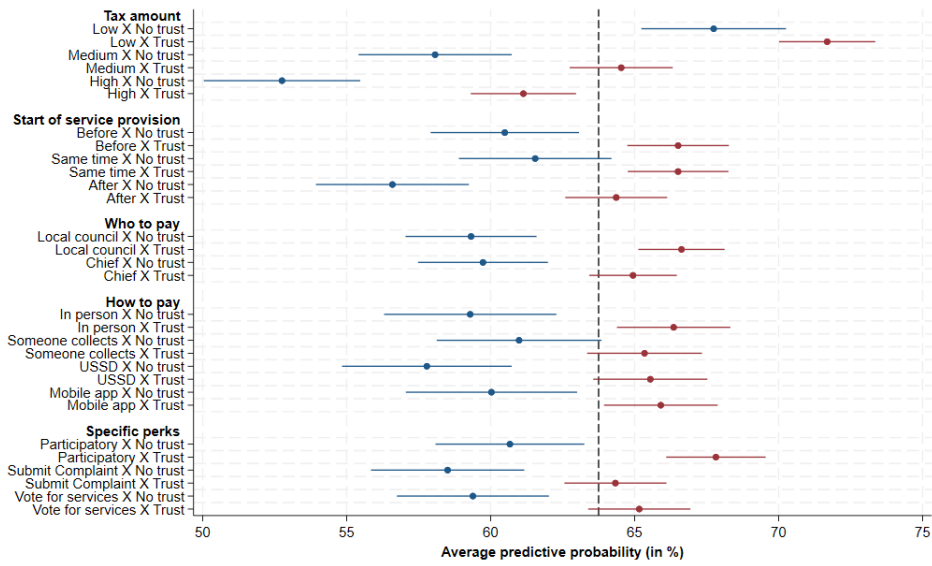


Figure 7: Confidence in local council

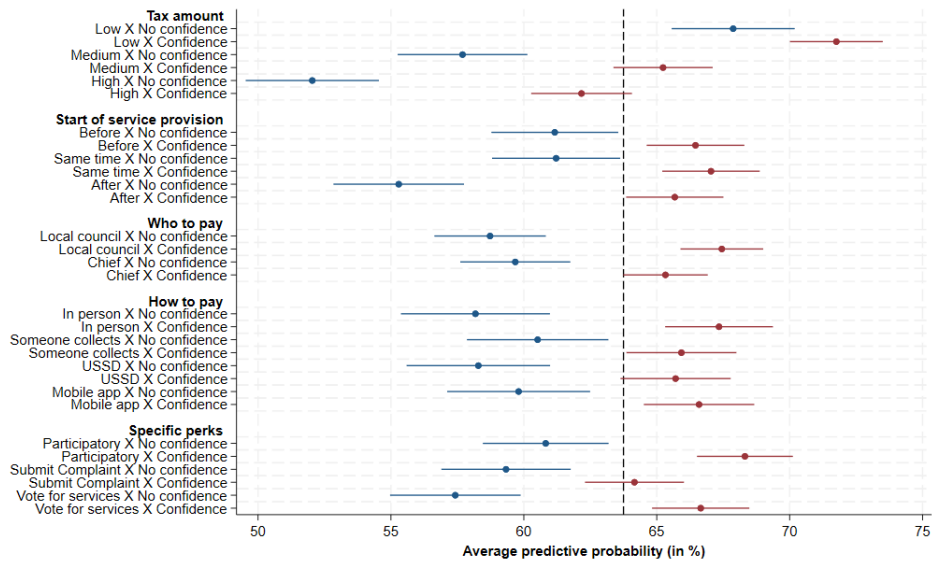


Figure 8: Trust in the chief

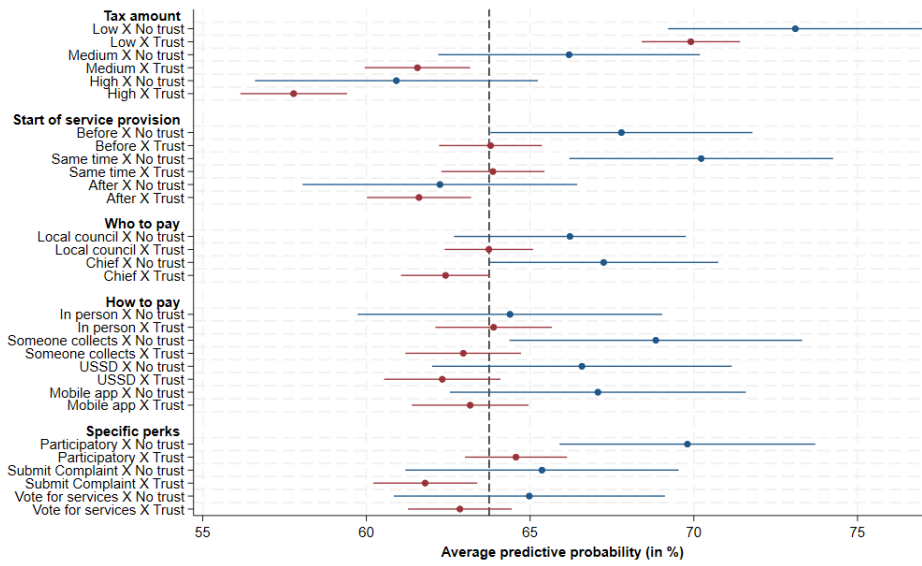
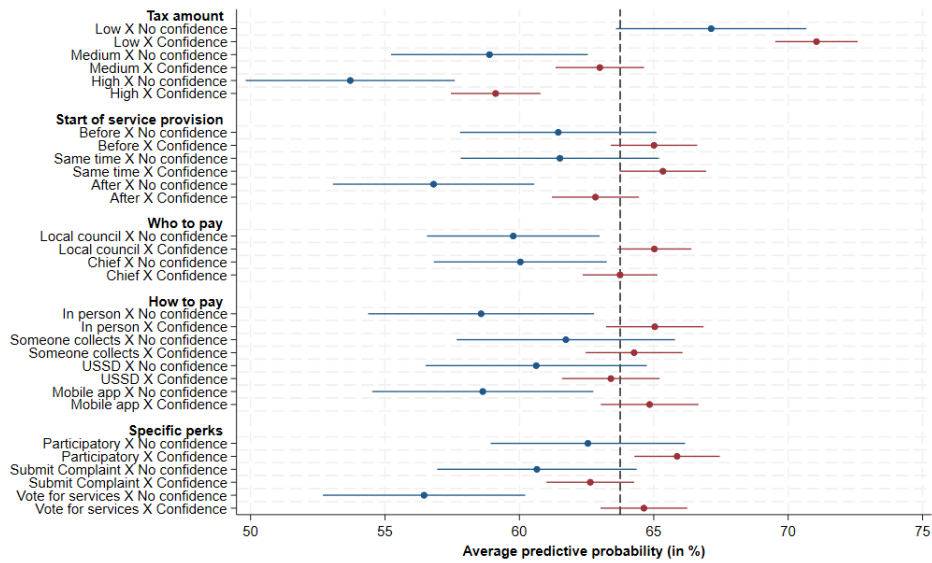


Figure 9: Confidence in the chief



## Conclusion

Revenue mobilization is central to low-income countries, who face increasing number of challenges, from recovering from COVID-19 to rapid urban growth, increasing public expenditures in a context of high economic instabilities (wars, price fluctuations). But crisis could lead to opportunities to reform the system, starting by creating political and economic conditions for better and more tangible government-citizen engagement.

Building accountability from the bottom-up in developing countries is important, but for social contracts to evolve, efforts are needed to legitimize public authority from the top (Hickey and King, 2016). And this can be achieved by strengthening property tax systems. In a complex Zambian context, we assessed whether there was a need, an interest, and critical preferences among the property owners to expand taxation in exchange for public service provision.

We find two core results in this paper.

First, the level of property tax paid matters most for all property owners, while there are no clear preferences for a given authority. If taxes are lower, then public support for such programs is much higher. We find support for service provision to be provided either before or at the time taxes are paid.

Secondly, distance to the benefit and distance to government determine how important the parameters of tax payment and starting date are. The better they perceive council to be a good service provider, or the more they trust or have confidence in council, the more likely they are to support the reform. This shift in preference is not observed for respondents who expressed support for the chief.

Expanding property taxation can help develop social contracts in conventional allocation states to inclusive social contracts, rather than unsocial social contracts. There has been a tendency in post Arab Spring countries for citizens to accept a new social contract that provides political stability but no longer their basic political rights or socio-economic benefits (El-Haddad, 2021; Ibrahim, 2021). The fact this has been tolerated in the short-term however, but that does not mean it is sustainable in the long or even medium-term. With growing economic instability, one needs to perceive property taxation not only as a way to improve public service provision, but to foster good governance, develop the country, and progressively achieve fiscal independence.

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## Appendix

Table 4: Hypothesis 2, by subgroup

	Compliant (N=407)	Non-compliant (N=791)	Informal (N=604)	Customary (N=594)
Access to public services	0.57 (0.50)	0.48 (0.50)	0.24 (0.42)	0.10 (0.30)
Public services satisfaction	0.89 (0.32)	0.88 (0.32)	0.81 (0.40)	0.75 (0.44)
Receive fair share of services	0.75 (0.43)	0.75 (0.43)	0.63 (0.48)	0.56 (0.50)
Pay more tax for services	0.75 (0.44)	0.79 (0.41)	0.74 (0.44)	0.73 (0.44)
Services funded by property tax	0.22 (0.41)	0.25 (0.43)	0.06 (0.24)	0.07 (0.26)
Property tax spent on services	0.08 (0.27)	0.11 (0.32)	0.02 (0.13)	0.02 (0.15)
Council good service provider	0.81 (0.39)	0.82 (0.38)	0.71 (0.46)	0.64 (0.48)

Mean and standard deviations for continuous and binary variables

Table 5: Hypothesis 3, by subgroup

	Compliant (N=407)	Non-compliant (N=791)	Informal (N=604)	Customary (N=594)
Council acts on concerns	0.80 (0.40)	0.75 (0.43)	0.67 (0.47)	0.63 (0.48)
Attempted to contact council	0.04 (0.21)	0.06 (0.23)	0.04 (0.20)	0.08 (0.28)
Council acts in interest of citizens	0.81 (0.39)	0.78 (0.41)	0.67 (0.47)	0.60 (0.49)
Paid formal tax to council	0.76 (0.43)	0.76 (0.43)	0.16 (0.36)	0.14 (0.35)
Paid tax/contribution to council	0.80 (0.40)	0.80 (0.40)	0.22 (0.41)	0.17 (0.37)
Trust in council	0.73 (0.44)	0.74 (0.44)	0.64 (0.48)	0.56 (0.50)
Confidence in council	0.67 (0.47)	0.65 (0.48)	0.56 (0.50)	0.57 (0.49)
Council settles dispute	0.94 (0.24)	0.91 (0.29)	0.21 (0.41)	0.13 (0.34)
Property on state land	0.96 (0.21)	0.92 (0.28)	0.15 (0.36)	0.04 (0.19)
Council approval to move	0.76 (0.43)	0.73 (0.44)	0.07 (0.25)	0.01 (0.09)
Approve ward councillor's job	0.56 (0.50)	0.55 (0.50)	0.50 (0.50)	0.45 (0.50)
Approve mayor's job	0.58 (0.49)	0.54 (0.50)	0.50 (0.50)	0.47 (0.50)

Mean and standard deviations for continuous and binary variables

Table 6: Hypothesis 4, by subgroup

	Compliant (N=407)	Non-compliant (N=791)	Informal (N=604)	Customary (N=594)
Chief acts on concerns	0.85 (0.36)	0.82 (0.38)	0.89 (0.31)	0.88 (0.33)
Attempted to contact chief	0.00 (0.07)	0.00 (0.06)	0.07 (0.25)	0.13 (0.33)
Chief acts in interest of citizens	0.83 (0.38)	0.83 (0.37)	0.88 (0.32)	0.88 (0.32)
Made contribution to chief/headman	0.01 (0.09)	0.02 (0.14)	0.24 (0.43)	0.21 (0.41)
Made contribution to chief	0.01 (0.09)	0.02 (0.15)	0.25 (0.43)	0.21 (0.41)
Trust in chief	0.85 (0.36)	0.83 (0.37)	0.91 (0.29)	0.88 (0.32)
Trust in headman	0.83 (0.38)	0.80 (0.40)	0.89 (0.32)	0.87 (0.34)
Confidence in chief	0.81 (0.40)	0.77 (0.42)	0.87 (0.34)	0.86 (0.35)
Confidence in headman	0.77 (0.42)	0.74 (0.44)	0.85 (0.35)	0.86 (0.35)
Chief settles dispute	0.04 (0.20)	0.06 (0.25)	0.82 (0.39)	0.88 (0.32)
Property on customary land	0.06 (0.23)	0.10 (0.30)	0.88 (0.32)	0.96 (0.20)
Chief approval to move	0.04 (0.19)	0.09 (0.28)	0.73 (0.44)	0.76 (0.43)
Approve chief's job	0.67 (0.47)	0.64 (0.48)	0.77 (0.42)	0.77 (0.42)

Mean and standard deviations for continuous and binary variables

Table 7: Hypothesis 1

	(1)	(2)	(3)	(4)
<b>Tax amount<sup>(1)</sup></b>				
Medium	-0.425*** (0.049)	-0.426*** (0.049)	-0.426*** (0.049)	-0.445*** (0.054)
High	-0.630*** (0.049)	-0.626*** (0.049)	-0.625*** (0.049)	-0.666*** (0.054)
<b>Start of service provision<sup>(2)</sup></b>				
6 months before	-0.017 (0.049)	-0.019 (0.049)	-0.022 (0.049)	-0.013 (0.053)
6 months after	-0.162*** (0.048)	-0.163*** (0.048)	-0.159** (0.048)	-0.140** (0.053)
<b>Who to pay<sup>(3)</sup></b>				
Chief	-0.053 (0.040)	-0.055 (0.040)	-0.053 (0.040)	-0.017 (0.043)
<b>How to pay<sup>(4)</sup></b>				
Someone collects	-0.007 (0.056)	-0.008 (0.056)	-0.009 (0.056)	-0.056 (0.061)
USSD	-0.058 (0.056)	-0.058 (0.056)	-0.051 (0.056)	-0.087 (0.061)
Mobile app	-0.007 (0.056)	-0.004 (0.056)	-0.004 (0.056)	-0.028 (0.062)
<b>Specific perks<sup>(5)</sup></b>				
Submit complaint	-0.157** (0.048)	-0.155** (0.048)	-0.157** (0.048)	-0.174*** (0.053)
Vote for services	-0.117* (0.049)	-0.117* (0.049)	-0.116* (0.049)	-0.142** (0.053)
Observations	14361	14361	14343	12353
Controls	No	Partial	Yes	Yes

Notes: Estimates from a Two-level logistic model. Base levels (1) Low (2) At the same time (3) Local council (4) In person (5) Participatory budgeting Robust standard errors in parentheses. p-values: \*\*\* <0.001, \*\* <0.01, \* <0.05

Table 8: Hypothesis 2

	Service access	Pay for services	Council provider
<b>Tax amount<sup>(1)</sup></b>			
Medium	-0.522*** (0.061)	-0.499*** (0.099)	-0.490*** (0.097)
Medium X Yes	0.273** (0.104)	0.100 (0.114)	0.071 (0.113)
High	-0.782*** (0.061)	-0.786*** (0.099)	-0.633*** (0.097)
High X Yes	0.448*** (0.103)	0.226* (0.114)	0.003 (0.112)
<b>Start of service provision<sup>(2)</sup></b>			
6 months before	-0.030 (0.060)	-0.058 (0.099)	0.142 (0.096)
Before X Yes	0.040 (0.104)	0.043 (0.114)	-0.223* (0.112)
6 months after	-0.201*** (0.060)	-0.275** (0.098)	-0.127 (0.096)
After X Yes	0.153 (0.102)	0.146 (0.112)	-0.040 (0.111)
<b>Who to pay<sup>(3)</sup></b>			
Chief	-0.037 (0.049)	0.072 (0.080)	-0.051 (0.078)
Chief X Yes	-0.056 (0.084)	-0.163+ (0.092)	-0.014 (0.091)
<b>How to pay<sup>(4)</sup></b>			
Someone collects	-0.034 (0.069)	0.131 (0.112)	0.159 (0.111)
Someone collects X Yes	0.063 (0.118)	-0.186 (0.130)	-0.222+ (0.129)
USSD	-0.082 (0.068)	0.103 (0.114)	0.014 (0.111)
USSD X Yes	0.095 (0.120)	-0.201 (0.131)	-0.096 (0.129)
Mobile app	0.014 (0.069)	0.033 (0.112)	0.117 (0.112)
Mobile app X Yes	-0.040 (0.119)	-0.056 (0.130)	-0.157 (0.130)
<b>Specific perks<sup>(5)</sup></b>			
Submit complaint	-0.142* (0.060)	-0.240* (0.098)	-0.241* (0.096)
Submit Complaint X Yes	-0.047 (0.102)	0.111 (0.113)	0.110 (0.111)
Vote for services	-0.133* (0.060)	-0.242* (0.099)	-0.061 (0.096)
Vote for services X Yes	0.047 (0.103)	0.166 (0.114)	-0.078 (0.112)
Observations	14301	14277	14253

Notes: Estimates from a Two-level logistic model. Base levels (1) Low (2) At the same time (3) Local council (4) In person (5) Participatory budgeting Robust standard errors in parentheses. p-values: \*\*\* <0.001, \*\* <0.01, \* <0.05

Table 9: Hypothesis 3

	Listens	For the people	Paid tax	Trust	Confidence
<b>Tax amount<sup>(1)</sup></b>					
Medium	-0.480*** (0.092)	-0.469*** (0.093)	-0.356*** (0.067)	-0.493*** (0.084)	-0.518*** (0.078)
Medium X Yes	0.063 (0.109)	0.065 (0.110)	-0.157 (0.099)	0.106 (0.104)	0.162 (0.100)
High	-0.641*** (0.091)	-0.516*** (0.092)	-0.559*** (0.066)	-0.750*** (0.084)	-0.789*** (0.078)
High X Yes	0.021 (0.108)	-0.147 (0.109)	-0.150 (0.099)	0.190+ (0.104)	0.277** (0.100)
<b>Start of service provision<sup>(2)</sup></b>					
6 months before	0.004 (0.090)	0.056 (0.093)	0.065 (0.065)	-0.053 (0.084)	-0.003 (0.077)
Before X Yes	-0.038 (0.107)	-0.105 (0.109)	-0.195* (0.098)	0.053 (0.103)	-0.029 (0.100)
6 months after	-0.185* (0.090)	-0.176+ (0.092)	-0.085 (0.066)	-0.247** (0.084)	-0.294*** (0.077)
After X Yes	0.041 (0.107)	0.039 (0.108)	-0.160+ (0.097)	0.134 (0.103)	0.221* (0.099)
<b>Who to pay<sup>(3)</sup></b>					
Chief	-0.047 (0.074)	0.036 (0.075)	-0.084 (0.053)	0.021 (0.068)	0.047 (0.063)
Chief X Yes	-0.008 (0.087)	-0.125 (0.089)	0.064 (0.080)	-0.110 (0.084)	-0.160* (0.081)
<b>How to pay<sup>(4)</sup></b>					
Someone collects	0.051 (0.105)	-0.037 (0.105)	0.067 (0.076)	0.085 (0.096)	0.117 (0.089)
Someone collects X Yes	-0.082 (0.125)	0.023 (0.124)	-0.170 (0.112)	-0.139 (0.118)	-0.193+ (0.115)
USSD	-0.070 (0.104)	-0.104 (0.107)	-0.060 (0.075)	-0.075 (0.096)	0.005 (0.089)
USSD X Yes	0.021 (0.123)	0.070 (0.126)	0.018 (0.113)	0.032 (0.118)	-0.092 (0.115)
Mobile app	0.076 (0.106)	0.011 (0.108)	0.012 (0.076)	0.037 (0.098)	0.081 (0.090)
Mobile app X Yes	-0.109 (0.125)	-0.006 (0.127)	-0.037 (0.113)	-0.061 (0.120)	-0.121 (0.115)
<b>Specific perks<sup>(5)</sup></b>					
Submit complaint	-0.152+ (0.090)	-0.256** (0.093)	-0.102 (0.066)	-0.108 (0.083)	-0.075 (0.077)
Submit Complaint X Yes	-0.009 (0.107)	0.143 (0.109)	-0.118 (0.097)	-0.076 (0.102)	-0.145 (0.099)
Vote for services	-0.070 (0.090)	-0.102 (0.091)	-0.079 (0.065)	-0.065 (0.083)	-0.170* (0.076)
Vote for services X Yes	-0.062 (0.107)	-0.020 (0.108)	-0.078 (0.098)	-0.077 (0.102)	0.080 (0.099)
N. of obs.	14278	14157	14331	14314	14313

Notes: Estimates from a Two-level logistic model. Base levels (1) Low

(2) At the same time (3) Local council (4) In person (5) Participatory budgeting

Robust standard errors in parentheses. p-values: \*\*\* <0.001, \*\* <0.01, \* <0.05

Table 10: Hypothesis 4

	Listens	For the people	Trust	Confidence	Confidence headman
<b>Tax amount<sup>(1)</sup></b>					
Medium	-0.296*	-0.636***	-0.384**	-0.422***	-0.408***
	(0.132)	(0.133)	(0.139)	(0.114)	(0.108)
Medium X Yes	-0.149	0.237+	-0.053	-0.008	-0.032
	(0.142)	(0.143)	(0.149)	(0.127)	(0.122)
High	-0.495***	-0.540***	-0.654***	-0.673***	-0.504***
	(0.131)	(0.134)	(0.140)	(0.117)	(0.110)
High X Yes	-0.147	-0.094	0.030	0.051	-0.157
	(0.141)	(0.144)	(0.150)	(0.129)	(0.123)
<b>Start of service provision<sup>(2)</sup></b>					
6 months before	0.170	0.050	-0.135	-0.003	0.024
	(0.133)	(0.135)	(0.140)	(0.115)	(0.110)
Before X Yes	-0.218	-0.087	0.131	-0.014	-0.057
	(0.143)	(0.145)	(0.150)	(0.127)	(0.122)
6 months after	-0.104	-0.260+	-0.424**	-0.234*	-0.224*
	(0.129)	(0.133)	(0.138)	(0.115)	(0.109)
After X Yes	-0.056	0.118	0.309*	0.105	0.098
	(0.139)	(0.143)	(0.147)	(0.127)	(0.122)
<b>Who to pay<sup>(3)</sup></b>					
Chief	0.081	-0.005	0.055	0.013	-0.030
	(0.107)	(0.109)	(0.112)	(0.094)	(0.089)
Chief X Yes	-0.159	-0.056	-0.123	-0.079	-0.030
	(0.115)	(0.117)	(0.120)	(0.104)	(0.100)
<b>How to pay<sup>(4)</sup></b>					
Someone collects	0.336*	0.317*	0.238	0.159	0.115
	(0.149)	(0.153)	(0.158)	(0.133)	(0.127)
Someone collects X Yes	-0.398*	-0.380*	-0.286+	-0.199	-0.152
	(0.161)	(0.164)	(0.169)	(0.146)	(0.141)
USSD	0.015	0.234	0.116	0.103	0.058
	(0.148)	(0.151)	(0.157)	(0.133)	(0.126)
USSD X Yes	-0.078	-0.335*	-0.196	-0.187	-0.136
	(0.160)	(0.163)	(0.168)	(0.147)	(0.140)
Mobile app	0.266+	0.347*	0.142	0.003	0.129
	(0.151)	(0.151)	(0.157)	(0.132)	(0.126)
Mobile app X Yes	-0.313+	-0.413*	-0.179	-0.013	-0.170
	(0.163)	(0.163)	(0.168)	(0.146)	(0.141)
<b>Specific perks<sup>(5)</sup></b>					
Submit complaint	-0.090	-0.233+	-0.241+	-0.096	0.021
	(0.131)	(0.134)	(0.138)	(0.115)	(0.109)
Submit Complaint X Yes	-0.078	0.084	0.099	-0.071	-0.216+
	(0.141)	(0.144)	(0.147)	(0.127)	(0.122)
Vote for services	-0.279*	-0.357**	-0.261+	-0.305**	-0.159
	(0.129)	(0.132)	(0.137)	(0.114)	(0.108)
Vote for services X Yes	0.187	0.280*	0.173	0.240+	0.066
	(0.139)	45 (0.142)	(0.147)	(0.126)	(0.121)
Observations	14301	14187	14205	14193	14145

Notes: Estimates from a Two-level logistic model. Base levels (1) Low

(2) At the same time (3) Local council (4) In person (5) Participatory budgeting

Robust standard errors in parentheses. p-values: \*\*\* <0.001, \*\* <0.01, \* <0.05