ICTD

Tax Earmarking and Political Participation: Theory and Evidence from Ghana

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June 2024

ICTD Working Paper 197

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Summary

Earmarking taxes for specific expenditure categories is thought to be a crucial factor in the development of the early modern European fiscal states and remains a widespread yet fiscally rigid and often inefficient policy tool. I explore a decidedly political logic to the puzzling prevalence of tax earmarking. In this paper, I test an initial micro-behavioural condition for this political logic of earmarking: that general fund taxation may produce more political mobilisation than earmarking would, threatening the political survival of governments in low-capacity states. I outline two interrelated mechanisms for this expectation: citizens' discontent with the absence of government-provided information about the revenue uses of taxpayers' money and the anticipation of increased government discretion over spending policy. I design an online survey experiment with 874 citizens in Ghana to test these implications. The experiment randomly varies different proposals of how to use increased tax revenue from a recent government fiscal capacity programme and measures citizens' intentions to engage politically. The results indicate that earmarking does not produce greater bottom-up accountability pressures than general fund taxation.

Mats Ahrenshop is a postdoctoral researcher at the Department of Politics and International Relations, the University of Oxford. He holds a PhD from the University of Oxford. His research interests cover a broad range of political economy themes, ranging from political participation to state capacity and climate change.

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Acronyms

CESS	Centre for Experimental Social Sciences
CSO	Civil Society Organisation
DPIR	Department of Politics and International Relations, University of Oxford
ESRC	Economic and Social Research Council
EUI	European University Institute
FDR	False Discovery Rate
FMC	Factual Manipulation Check
FWER	Family-Wise Error Rate
H	Hypothesis
IAST	Institute for Advanced Study in Toulouse
ICTD	International Centre for Tax and Development
IMF	International Monetary Fund
LDA	Latent Dirichlet Allocation
MIT	Massachusetts Institute of Technology
OLS	Ordinary Least Squares
OxPo	Nuffield College of Oxford University and Sciences Po
SATE	Sample Average Treatment Effect

1. Introduction

In many countries in recent decades, the practice of earmarking (that is, raising and allocating) particular taxes for specific benefits is widespread (McCleary 1991; Wagner 1991; Wilkinson 1994; Hsiung 2001). It is often promoted by international financial organisations to enhance fiscal transparency and is sometimes even a pre-condition for loan programmes in many developing countries with high levels of corruption and low levels of government accountability (Teja 1988; IMF 2007). Earmarked revenues have been estimated to typically account for between one-third and two-thirds of government expenditures in the United States (Wagner 1991), and many governments in sub-Saharan Africa, most notably in Ghana, Uganda and Côte d'Ivoire, have repeatedly resorted to tax earmarking, especially to finance the provision of health and education services (McCleary 1991). In Kenya, for example, initial decentralisation reforms earmarked 5 per cent of the total national income tax revenue for the Local Authority Transfer Fund to increase funds available to local governments (Sheely 2015). Other prominent examples include spending a portion of the revenue from personal income tax on education or health or earmarking motoring taxes to spend on local infrastructure.

However, recent literature has argued that earmarking (or hypothecation) can be an inefficient fiscal tool. Earmarked funds may cause budget rigidities due to the inability to fund programmes that are in line with new or changing policy priorities (Wilkinson 1994; Flores-Macías 2018). In addition, some earmarked taxes resemble user charges and thus are constrained by the problem of truthfully revealing agents' consumption of the good financed by earmarks or user charges (Gruber 2019). It is unclear why earmarking remains a prevalent tool in public finance, being widely implemented in many developing tax states today while introducing inefficient budgetary rigidities. One way to rationalise this is to explore whether there is a decidedly political logic linked to a government's fear of social mobilisation in response to general fund taxation. This paper tries to think through the puzzling prevalence and persistence of tax earmarking and its political causes and consequences in many emerging 'fiscal states' today. Why and under what conditions governments resort to tax earmarking remains understudied.

In this paper, I focus on the demand side, that is, the political consequences of tax earmarking and, in particular, society's political responses to the state's attempt to increase or reduce spending discretion. We first need to understand whether governments actually have reason to fear differential political mobilisation under the two tax-benefit linkages. Thus, in this paper, I focus on citizens' incentives to influence the government to achieve a variety of goals – that is, to exert voice – and how they might differ in response to different strengths of the tax-benefit linkage.

Although existing scholarship suggests that taxation enhances the will or ability of citizens to become politically engaged and hold governments accountable (Ross 2001; Paler 2013; Martin 2016; Weigel 2020), we have little systematic theoretical and empirical work that explores whether this participation dividend of taxation might be different under different combinations of linking taxes with benefits. Indeed, under some circumstances, tax earmarking might lead to greater government accountability due to improved transparency over the tax price of public goods or increased trust in institutions (Dhillon and Perroni 2001; Meadowcroft 2011; Prichard 2009; 2010; 2015; van den Boogaard *et al.* 2022). The argument is that tax earmarking 'can give taxpayers a say over how tax revenue is spent, improve monitoring expenditures, build trust around taxation and encourage public engagement' (Prichard 2010: 34). Extending this logic, Mosley and Abdulai (2020) argue that earmarking embodies the contractual, explicit side of fiscal contracts and thus strengthens the accountability relationship between citizens and the state. Finally, this expectation emerges as a corollary of recent scholarship that emphasises an 'ownership' mechanism through which taxation produces accountability pressures (de la Cuesta *et al.* 2021). However, this literature has little to say about the consequences of earmarking for the bottom-up accountability *demands* by citizens.

However, we have little systematic theoretical and empirical evidence on the accountability consequences of tax earmarking. In this paper, I contrast the different competing predictions about the political consequences of tax earmarking that follow from (1) the literature on taxation and accountability and (2) a simple decision-theoretic framework, lay out how we would know which predictions are correct and subject them to a preliminary empirical test.

To reduce complexity owing to the multiple parameters involved (citizens, governments, state capacity), I provide a simple decision-theoretic model of the incentives for citizens to engage in costly political action in response to the government's decision to earmark tax revenue or not, yielding results that show the counterproductive role of providing information via earmarking in affecting citizen engagement. This model states that the vagueness of government commitments under general fund taxation increases governments' discretion over spending, which, in the context of many low-capacity states with high levels of informality, would mean greater incentives for rent extraction and coercive taxation (Paler *et al.* 2017; Henn *et al.* 2022). Thus, the signal that general fund taxation sends in many low-capacity states, where beliefs about political efficacy might be more volatile and vulnerable to shocks, is one of potential rent-seeking and corrupt behaviour on the part of the government. In response, citizens are incentivised to (1) seek information to determine if spending is actually misaligned with their preferences and (2) exert voice to reduce future government discretion. These incentives are much weaker under earmarking, as they provide precise

information on the tax-benefit linkage.[1]

I provide a theoretical clarification of the relationship between the tax-benefit linkage and political participation. While most of the existing literature thinks that earmarking taxes has positive consequences for accountability, by formalising intuitions and clarifying mechanisms, as well as making assumptions, we can reach conclusions opposite to the current way of thinking about the political consequences of earmarking. The framework suggests there is a set of important parameters that have an impact on the relationship between tax earmarking and political participation, and it explores which of these parameters' values yield which conclusions. Consequently, what I offer in this paper is a set of intuitions that yield multiple observable and testable implications for future empirical research to embrace with more sophisticated empirical tools than the ones employed in this paper.

Thus, this paper provides only a first attempt at empirically testing these competing claims. I conducted an online survey experiment with 874 respondents in Ghana, a country where tax earmarking has featured prominently in policy debates and citizen engagement in the past decades (Prichard 2009; 2010; 2015). I randomly vary different proposals of how to use increased tax revenue from a government fiscal capacity building programme, that is, whether tax revenues are used to finance a particular public service or whether they contribute to the general government fund. Citizen participation is measured via a series of endline questions that tap into the intentions behind political engagement. Evidence of the proposed mechanism comes from secondary outcome measures of discontent with the lack of government-provided fiscal information and fear of increased government discretion over spending. I present preliminary evidence that tax earmarking makes no difference to citizens' propensity to participate in political life. Two explanations for this null result emerge from the data: citizens may have lacked belief in (1) general government responsiveness to citizen efforts at influencing political life and/or (2) the collective action capacity of society as a whole to overcome coordination problems surrounding political participation. These results suggest that we may need to revise our (positive or negative) view of tax earmarking and its implications for political participation. However, another explanation may well be that the experimental environment was simply too artificial to capture any underlying real-world cost and benefit analyses that citizens may make in response to earmarking. Future work is needed to test more thoroughly the set of intuitions and observable implications that follow from the theoretical framework proposed in this paper.

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[1] Note that this type of social mobilisation is much broader and more general in nature than mere *support for* different tax-benefit linkages (Kallbekken and Aasen 2010; Brockmann, Genschel and Seelkopf 2016; Flores-Macías 2018). Thus, the type of civic engagement examined in this paper has much broader underlying mechanisms than mere tax resistance in the form of reduced tax morale.

2. Background and motivating example

How strongly taxes are linked to particular benefits is defined by the concept of tax-benefit linkage (Gruber 2019). On one end of the spectrum, *earmarked taxation* (or hypothecation) denotes 'the practice of designating or dedicating specific revenues to the financing of specific public services' (Buchanan 1963: 457) or, alternatively, 'the practice of assigning revenue [...] from specific taxes or group of taxes to specific government activities or areas of activity' (McCleary 1991: 82). Thus, revenues from a specific tax are earmarked for a specific spending item. This is sometimes called the Wicksellian Connection between revenue and expenditure (Wicksell 1896; Breton 1996). This makes clear exactly which benefits are associated with a given tax (increase). On the other end of the spectrum, under *general taxation*, tax revenues extracted from citizens make up a consolidated (or general) revenue fund; thus, general taxation is paid into the consolidated fund and general spending is paid out of the consolidated fund (Levi and Kiser 2015; Kiser and Karceski 2017). Here, the relationship between taxes and spending is loose and resembles a general fiscal exchange (Martin, Mehrotra and Prasad 2009). In this case, a given tax (increase) typically finances a wide variety of budgetary spending items.

Thus, one of the crucial differences between earmarking and general taxation that may matter for political behaviour is that under earmarking, the immediate benefit of any given tax (e.g. a public good) is known to the taxpayer, whereas under general taxation, this information is much more vague since citizens may know the tax costs of each tax they already pay yet, under general taxation, they do not know which of these taxes (i.e. in terms of the tax base) is used to finance a particular public good in question; hence, the benefit associated with a given tax (or an increase in the rate of this tax) is unknown to taxpayers.[2] Under general taxation, citizens do not know the revenue purpose of a particular tax (or an increase of this tax) even though they might have the same overall tax burden as they would have under earmarking. Thus, they do not know its immediate tax benefit. Crucially, this vagueness over government spending commitments also increases governments' discretion over spending, which, in the context of many low-capacity states, would mean greater incentives for rent extraction or even

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[2] In some circumstances, earmarking might effectively be achieved through partisan politics and citizens' voting for particular programmatic appeals that 'earmark' revenue for policies that are driven by the ideological orientations of political parties. However, in contexts of high levels of informality, demand for programmatic policy is drastically reduced (Gottlieb 2022).

corruption on behalf of the government.[3]

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[3] Earmarked taxation can take on a wide variety of different forms and different typologies (McCleary 1991; Wilkinson 1994). For analytical clarity, we consider here the case of what is known as *strong and wide* earmarking, denoting the designation of tax revenue to a particular spending purpose where (1) the amount of revenue from the tax determines the amount of spending on the service (*strong*) and (2) revenue is designated for a whole spending function, for example healthcare (*wide*). In either case, what varies between earmarking and general taxation then is the amount of information provided about those tax costs, since in the earmarking case, a specific tax is tied to a particular end use.

3. Theoretical framework

3.1 Preferences

The main contribution of this paper is providing conceptual clarity on how to think about the effect of earmarking on political participation. What would citizen engagement in response to these financing instruments look like? Without this kind of model, we would not know which (alternative) mechanisms to test for or which sources of heterogeneity to account for. In what follows, I model one way to think about the politics of tax earmarking to derive testable and competing implications about the role of the tax-benefit linkage in structuring political participation. This framework explores important parameters in the relationship between earmarking and participation and quantifies under which conditions these parameters yield a given conclusion. I thus provide a set of intuitions which can then be fruitfully explored by future research with more sophisticated empirical tools.

The government announces a tax increase where this tax instrument can either be tax earmarking for a particular public good or contributing to the general consolidated revenue fund. The crucial insight here is precisely that we do not assume the government makes this choice exogenously but endogenously to the trade-off between signalling its type and securing greater policy discretion over spending. This gives citizens varying incentives to lobby the government to achieve various different goals.

Citizens can, in response, lobby the government to obtain a variety of different goals with a cost associated with lobbying. This can be thought of as exerting voice (Hirschman 1972) in the classical sense of political participation and collective action; it may also include activism in interest groups. The benefits from lobbying can represent one of three motivations: greater alignment of the public good provided with individual policy preferences (in the form of the Euclidean distance from the citizen's ideal point), greater information and transparency about spending outcomes for tax revenue; or a reduction of future government discretion over spending tax revenue. Those benefits are obtained with different probabilities, which represent the probabilities that citizen lobbying efforts are successful.[4] Thus, the expected utility from lobbying in response to earmarking is the probability of success times the lobbying benefit minus the cost of lobbying. The central argument is that the benefits from lobbying are twice as large under general fund taxation than under earmarked taxation.

[4] This allows for the tax-financing instrument to not only affect benefits from lobbying B_l, but also for negative or positive shocks to citizens' beliefs about the probability of successful lobbying when subjected either to an earmarked or non-earmarked tax increase. Alternatively, this probability can be thought of as citizens' perceptions of (1) political efficacy and responsiveness of the system, as well as (2) the credibility of any commitment or announcement the government makes.

3.2 Main assumptions

With this general setup, we can state the main assumptions of this model.

1. Citizens know that only high-type, responsive governments choose to earmark increased tax revenue, and only low-type governments choose not to earmark revenue. Thus, the tax-benefit linkage is a signal about government type p, which then affects whether citizens get additional benefits from trying to reduce the government's desired discretion over spending, B_l. By implication, we assume that citizens do not interpret earmarking as a cheap-talk transparency initiative designed by a low-type government to increase its popularity. This is intuitive since low-type governments potentially receive larger benefits from increasing their discretion over spending, so enable spending on private benefits for a narrow selectorate and winning coalition.

2. The tax-benefit linkage affects short-term fluctuating beliefs about a government's discretion over spending (which constitutes a part of the lobbying benefits) more strongly than long-term beliefs about the general responsiveness of the political system to citizens' lobbying efforts. This means that the decision not to earmark tax revenue is a stronger signal about potential benefits from lobbying the government to reduce its discretion over spending than it is about general political efficacy. This is believable in light of a body of literature showing that political efficacy is a rather deeply ingrained outcome of more long-run processes of socialisation formed over years of experience with government (Lieberman and Zhou 2021). Thus, values of responsiveness might be low in many contexts, but that is unlikely to be due to short-term changes in tax-financing instruments. Rather, a legacy of strong democratic norms, high levels of public contestation and protests, as well as freedom of information laws combined with competitive elections might shape feelings of political efficacy and the effectiveness of lobbying more strongly (Ashworth 2012; Kosack and Fung 2014; Grossman, Michelitch and Prato 2022; Grossman and Slough 2022). This may also travel to the African context, where we do observe citizen accountability pressures via competitive elections (Harding 2020); in fact, norms of ruler contestation and claim-making in this setting go back to pre-colonial institutions of autonomous local communities that constrained precolonial rulers (Bolt *et al.* 2022).

3. Furthermore, citizen mobilisation causes substantial disadvantages for the government, which include revealing information the government does not wish to reveal, changes in policy the government does not wish to change, or reduced electoral prospects. We assume here that citizens are aware of these substantial political costs and that this, in part, drives their baseline beliefs about responsiveness. However, there is enough information uncertainty about likely societal contestation that we can, in this paper, exogenise the choice of the tax-financing instrument and examine political responses to it, regardless of citizens' beliefs about the likely political costs of earmarked and

general fund taxation.

4. All three motivations for citizen lobbying are equally valued by citizens. Getting current policy to align with individual preferences is as valuable to citizens as obtaining information about government spending of tax revenue and reducing the government's future spending discretion. This seems plausible given the central role of information in holding governments accountable for policy outcomes (Dunning *et al.* 2019). Especially in low-information environments, where uncertainty is prevalent, the benefits of obtaining information can be substantive and as large as the benefits of preference alignment or discretion reduction. Similarly, discretion reduction as a medium-to-long-term goal is valuable if citizens' time horizons are sufficiently long. However, reducing the scope for discretion can be immediately relevant for citizens: for example, the next time the government announces a new policy. Thus, even with short time horizons, accountability can be achieved (Ashworth 2012).

5. Under general taxation, citizens can obtain information about government spending **and** reduce future government discretion with a **single** form of lobbying. This is believable, e.g. in the form of writing a letter or signing a civil society organisation (CSO) petition that seeks to address both issues simultaneously. This also implies that information-seeking and lobbying for reduced discretion often happen simultaneously and not sequentially (so that the decision by the government to respond to information-seeking or not does not factor into citizens' choice).

6. We assume that seeking information is valuable to citizens regardless of whether they think the government will actually provide such information or has incentives to strategically release information to fend off potentially politically costly protests. This is consistent with there being some baseline political efficacy, as well as a desire for information about what happens to taxpayers' money.

7. We assume that citizens possess sufficient information to determine the alignment of their preferences with government policy. In addition, their beliefs about government policy might be conditioned by an individual's previous experience with service delivery in low-capacity settings (Castañeda, Doyle and Schwartz 2020). While this might be true in many contexts, *prima facie*, it is relatively easy for citizens to determine whether the **announced** government policy agrees with their preferences, and that is all the model needs to assume. In addition, the empirical case of this paper, Ghana, is a setting in which government effectiveness is significantly higher than in all its neighbouring countries, according to the Worldwide Governance Indicators (World Bank 2023).

3.3 Incentives

Our main task is to determine the different incentive structures for citizens to lobby the government in response to the two financing instruments.

Under earmarking, the government releases perfect information on the specific revenue purpose of the tax increase so that citizens learn exactly whether they are net beneficiaries or net losers from the tax-and-spend policy, that is, the size of the lobbying benefits. The benefits from lobbying under earmarking stem purely from the fact that lobbying to change the earmarked policy becomes more beneficial the further away that policy is from an individual's ideal point, i.e. the greater the lobbying benefits are.[5] Consequently, the condition for lobbying in response to earmarked taxation is that the expected utility from lobbying has to be greater than zero.

Clearly, lobbying is **only** beneficial if the expected benefits from lobbying are greater than the costs of lobbying. Thus, citizens for whom the earmarked policy already represents their ideal point will have no incentive to lobby and choose not to lobby for policy change. By contrast, and assuming earmarking induces some non-zero belief in the success of lobbying (that is, the efficacy of political participation), only citizens for whom the lobbying benefits are greater than zero and the costs of lobbying are sufficiently small have an incentive to lobby the government in response to earmarked taxation. Furthermore, notice here that responsiveness has to be quite high for the expected utility from lobbying to be positive, that is, larger than the cost-benefit ratio of participation. For example, when the costs of lobbying are half the benefits from lobbying, then the inequality is only true when citizens believe that half the time their lobby attempts at changing the earmarked policy will be successful.

Citizens lobby the government in response to earmarked taxation whenever:

a. The benefits from lobbying for policy change are sufficiently high.

b. The costs of lobbying are sufficiently low.

c. Their beliefs about government responsiveness are sufficiently high.

Under general fund taxation, the tax financing instrument is vague, i.e. the tax increase is not directly tied to financing any particular public good but, instead, more loosely related to the general consolidated revenue fund. Thus, citizens do not learn which exact public good(s) are financed by any given tax increase. Crucially, this vagueness over government commitments also increases the government's discretion over spending, which, in the context of many low-capacity states, would mean greater incentives for rent extraction or even

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[5] There are no incentives to lobby the government to obtain information about the revenue target of the tax increase, since that information is already provided nor to reduce future government discretion, since that has already been reduced by virtue of earmarking.

corruption on behalf of the government. Thus, the signal that general fund taxation sends in many low-capacity states is one of potential rent-seeking and corrupt behaviour on the part of the government. In response, citizens have incentives to (1) seek information to determine if spending is actually misaligned with their preferences and (2) exert voice to reduce future government discretion.[6]

The amount and nature of the benefits from lobbying the government in response to general taxation are thus different in two ways:

1. Citizens receive lobbying benefits twice if they choose to lobby the government in response to general fund taxation; that is, every citizen (and not just policy net losers as in earmarking) has two incentives to mobilise. Firstly, they receive benefits from seeking information to find out whether **current** revenue is spent in line with their preferences, that is, exactly where the tax money extracted today will go. Secondly, by choosing not to earmark the tax, the government signals its preference for retaining discretion over spending in the **future**, an outcome that is costly for citizens in the form of forgone utility from the alignment of public policy with individual preferences in future distributions of spending. Thus, citizens receive benefits from exerting voice to politically constrain the government in its spending discretion in the future, e.g. via pushing for earmarking. Thus, preferences for earmarking stem from a desire to obtain spending information from the government necessary for accountability pressures and to reduce the spending discretion of future governments.

2. However, these benefits are partially offset by (1) the costs of lobbying and (2) the probability that these lobbying efforts will be successful. Here, we allow for the possibility that the choice of general fund taxation might not just positively affect lobbying benefits but also negatively affect responsiveness should citizens update about more **general** political efficacy and the political systems responsiveness to citizen lobbying efforts. The crucial insight we will demonstrate below is that even with this constraint, general fund taxation might produce more incentives to lobby the government, assuming that

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[6] Of course, government discretion over spending can be beneficial for co-partisans, co-ethnics or clients within clientelist networks. In this case, discretion is what **enables** the distribution of club goods. However, in this model, even those who benefit somewhat from government discretion have a countervailing incentive to increase overall government responsiveness in future periods since they cannot be sure that their party (or ethnicity) retains political power, especially in contexts of high political uncertainty. This is especially true when examining the politics of earmarking for providing **public** goods that cannot be handed out selectively to particular winning coalitions. Thus, together with the fact that different types of taxes impose different burdens on different segments of society, there will be a distribution of net policy winners and losers under general taxation as well, yet the main intuitions of the argument remain unaffected by this possibility as we assume the type of tax to be uncorrelated with its tax-benefit linkage.

citizens do negatively update, but not drastically so.[7]

In this case, the condition for lobbying in response to a non-earmarked tax increase is that the expected utility from lobbying is greater than zero.

Clearly, this is again true when the expected benefits from lobbying are larger than the cost of lobbying. How small can the belief in general government responsiveness be and still yield positive expected net benefits from lobbying? In other words, how large does the scepticism about the effectiveness of lobbying in citizens' beliefs have to be for citizens to decide not to lobby in response to general taxation? It turns out quite large. Thus, whenever responsiveness is sufficiently small, citizens lobby in response to general fund taxation. For example, when the costs of lobbying are half the benefits from lobbying, then it only needs to be true that responsiveness is greater than one quarter – a dramatically lower belief that the government is responsive and lobbying will be successful compared to the case of earmarking. This is also the condition for comparing levels of participation under general taxation to policy beneficiaries of the earmarked good. When general taxation leads to a reduction in the general beliefs about political efficacy down to responsiveness less than or equal to one quarter, it will not produce greater participation than earmarking, even when compared to those who are policy beneficiaries from the earmarked good. As such, citizens' beliefs about general responsiveness p are different from the fear of future government discretion over spending policy, which is the basis for the benefits of lobbying under general taxation.

Citizens lobby the government in response to general fund taxation whenever:

a. The benefits from lobbying for policy change are sufficiently high.

b. The costs of lobbying are sufficiently low.

c. Their beliefs about government responsiveness are sufficiently high.

Besides quantifying the conditions under which citizens lobby in response to **either** tax-financing instrument, the more interesting question is when one instrument produces more participation than the other. Thus, we now quantify precisely under what conditions general fund taxation produces more political participation than earmarking compared to citizens for whom the earmarked good is not the ideal point. Put differently, when will the expected utility from lobbying under general taxation be greater than the expected utility from lobbying under earmarked taxation?

Clearly, this is true when the expected utility from lobbying under general taxation

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[7] The intuition for why general fund taxation makes citizens fear increased government discretion but not necessarily dramatically-reduced political efficacy is that the latter concept has been shown to be the rather deeply ingrained outcome of the more long-run process of socialisation, formed over years of experience with a government (Lieberman and Zhou 2021). Thus, a one-shot implementation of general fund taxation might not be very informative about general government responsiveness.

is greater than the expected utility from lobbying under earmarking. How large can the negative shock to citizens' beliefs about systemic political efficacy be under general taxation and still obtain greater levels of participation (even compared to those whose ideal point is not congruent with the earmarked good)? The ratio of the two probabilities of systemic efficacy needs to be less than 1:2. For example, if earmarking has increased the prior responsiveness from 0.5 to 0.75, the negative shock to these beliefs under general taxation cannot lead to a decrease of less than 0.35. Whenever general taxation leads to a general reduction in the overall belief that systemic political efficacy is much lower than this (even though there might be possible benefits from trying to reduce government spending discretion), earmarking will produce greater participation among those who are net policy losers.[8]

In short, under certain conditions, general taxation will still yield greater benefits from lobbying even when compared to those in earmarking who stand to gain the most in terms of policy change, that is, net policy losers. This is because the incentives to lobby under general taxation are qualitatively different **and** twice as large as those under earmarking. At the extreme, when the lobbying benefits of earmarking are zero, citizens will choose not to lobby, and thus, the comparison of expected utilities is equivalent to the one in the equation above.[9]

Citizens lobby the government in response to general fund taxation more than in response to earmarking whenever the reduction in beliefs about systemic political efficacy in response to general taxation is small enough. Note that if this is not the case, that is, when earmarking simultaneously increases beliefs about the government's responsiveness sufficiently, policy change becomes a central motivation to engage in politics and may increase in relative importance *vis-à-vis* information seeking and discretion reduction. This is because the likelihood of policy change, conditional on lobbying, increases, and thus, there is a chance

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[8] Note that this condition becomes less strict if we allow for another parameter in the utility function from lobbying in response to earmarking that captures the probability that, in fact, the ideal point is not the earmarked policy. This would represent the probability of the ideal point being incongruent with the earmarked policy, against which the benefits from lobbying would additionally need to be weighed. We omit this additional complication here for simplicity but note that introducing this additional constraint would yield even stronger predictions about the participation dividend of general fund taxation, as is evident from analysing the case of lobbying benefits equal to zero under earmarking as conducted above. This implies that we keep the distribution of policy preferences constant across strengths of the tax-benefit linkage so that preferring a particular kind of policy is unrelated to the tax-benefit linkage.

[9] A source of heterogeneity not captured in the formal argument above is citizens' prior experience with public goods provision (which may or may not be orthogonal to beliefs about political efficacy). When public goods provision by the formal state is extensive and broad, citizens are more willing to pay taxes (Bodea and LeBas 2016; Castañeda *et al.* 2020), making tax evasion as an exit option less likely and exerting voice more likely. Prior experience with public goods provision may also alter which signals different tax-benefit linkages would send in these contexts. Earmarking tax revenue for successful public goods provision reduces incentives to mobilise politically, whereas general fund taxation in a context of broad-based public goods provision might not be interpreted as a discretion-enhancing strategy by the government, reducing incentives to mobilise. Overall, this line of reasoning does not predict a **difference** in participation rates across different tax-benefit linkages, just that overall levels of participation might be lower.

that changing earmarking's target would be effective. Thus, the pre-existing distribution of policy preferences would matter a lot in this case. Yet, it would be much less relevant under general fund taxation since the policy is unknown *ex ante*. This would change the notion of how strong a commitment earmarking really is, and it would imply that it may be more costly for the government to switch from earmarked item one to earmarked item two than switching from general fund taxation to earmarked taxation. Thus, varying beliefs about government responsiveness induced by the tax-benefit linkage itself may produce competing conclusions.

This theoretical framework formalises three main intuitions:

1. Earmarking and general fund taxation produce different incentives for citizens to engage in costly political action with different motivations for participation. These incentives arise purely due to the differential amount of information provided by the government about the spending purposes of taxation. The signal that general fund taxation sends in many low-capacity states is one of potential rent-seeking and corrupt behaviour on the part of the government. In response, citizens have incentives to (1) seek information about **current** government spending to determine if spending is actually misaligned with their preferences and (2) exert voice to reduce **future** spending discretion the government would enjoy. These incentives will need to be balanced against the probability of government responsiveness to these lobbying efforts, which may be lower under general taxation; yet, as long as these beliefs are not zero, citizen lobbying in response to general taxation should be greater than to earmarked taxation, and it is driven by different motives. In other words, if the negative shock to general political efficacy from general taxation is not too large, general fund taxation should produce higher levels of participation by a broader segment of society, and that goes beyond simply lobbying for policy change.

2. Although citizen voice should be lower on average in response to earmarked taxation than to general taxation, we still expect lobbying to be beneficial in response to earmarked taxation for the subset of citizens for whom the current earmarked good is not the ideal point, as they have an incentive to lobby for policy change. By contrast, **all** citizens have two incentives to engage in political action in response to general taxation: (1) they seek information in the absence of government-provided transparency; and (2) they lobby for greater accountability, as they infer from the government's decision not to earmark that it is trying to increase its future spending discretion and thus rent-seeking. However, the critical difference here is that lobbying benefits are greater than zero under earmarking for some citizens, whereas lobbying benefits are greater than zero for all citizens under general taxation since, in that case, utility is not derived from ideal policy but from more precise policy information and greater government accountability. Thus, even for low values of beliefs in

government responsiveness, general taxation should produce more citizen participation.

3. These implications are particularly visible for citizens whose ideal point is already implemented in the current earmarked policy. In this case, even when beliefs about government responsiveness are very low, general taxation may still produce more citizen mobilisation.

We can derive the following main empirical implications from the propositions above.

Hypothesis 1 (H1): Citizens are more likely to engage in political action in response to general taxation than earmarked taxation.

Of course, the alternative hypothesis (H2) is that citizens are more likely to engage in political action in response to earmarked taxation than in response to general taxation. In addition, if the mechanisms outlined in the theoretical framework above are at play, we should observe that compared to earmarked taxation, citizens are more likely to engage in political action to seek revenue information (H3a) and to reduce government discretion (H3b) in response to general fund taxation. By contrast, compared to general fund taxation, citizens are more likely to engage in political action to change policy (H3c) in response to earmarked taxation, especially when the benefits from the earmarked good are higher (H3d). We should also observe empirically that, compared to earmarked taxation, the higher the increase in participation in response to general fund taxation, the higher the beliefs about government responsiveness (H4a) and the lower the benefits from the earmarked good (H4b).

3.4 Alternative mechanisms

The government's decision to earmark increased tax revenue or not can send signals different from the ones outlined above, possibly reversing the expected relationships between the strength of the tax-benefit linkage and citizen political participation, as described in the previous section. Thus, there are mechanisms that can give rise to an alternative hypothesis, namely that citizens are **less** likely to engage in political action in response to general taxation than to earmarked taxation (H2). There are also two alternative mechanisms that lead to predictions similar to the ones obtained in the fear-of-discretion framework; that is, there might be greater civic mobilisation in response to general fund taxation to reign in the coercive capacity of the state but for reasons different from the ones outlined in the theoretical framework. They are:

1. It could be that, in response to general fund taxation, the magnitude of citizens' negative update about general political efficacy might be larger than the perceived rewards from seeking spending information and reducing the government's discretion and rent-seeking behaviour. Thus, citizens' negative

update of responsiveness beliefs in response to general fund taxation is greater than their positive update of beliefs in response to earmarked taxation (H5a), leading to higher or similar levels of mobilisation under earmarking.

2. Earmarking might send the signal that the government has the power and discretion to decisively and confidently set the tax-benefit linkage and to unilaterally determine the earmarked good without further consultation by civil society and political efficacy (Lieberman and Zhou 2021). Citizens would then be more likely to feel left out of the policy deliberation process, strengthening their incentive to constrain government spending discretion (H5b).

3. Earmarking could also signal that the government is trying to shield certain policy items as private goods for a narrow selectorate from future policy reversal under different governments (Bueno de Mesquita *et al.* 2003; Bueno de Mesquita and Smith 2011). This would be a signal that would increase citizens' incentive to mobilise politically to reduce this form of government discretion over spending. Thus, citizens would be less likely to predict policy reversal of private goods in response to earmarked taxation than general fund taxation (H5c).

4. Earmarking could increase citizens' scepticism of the government and its performance if they associate earmarking with loan conditions by international organisations, such as the International Monetary Fund (IMF). This would reduce the overall evaluation of governments' fiscal performances, as earmarking could be seen as conforming to IMF loan conditions. These are only set out when the IMF does not trust the recipient country enough to spend public revenue responsibly. Thus, citizens would be less likely to evaluate a government as fiscally competent in response to earmarked taxation than general fund taxation (H5d).

Finally, two mechanisms generate a hypothesis that predicts no difference between tax earmarking and general fund taxation (H6a). Firstly, it is possible that citizens are less likely to express willingness to pay taxes (exit) in response to general fund taxation than to earmarked taxation (H6b). According to this logic, citizens exit in response to general fund taxation instead of mobilising, thus producing a null result. Secondly, it is possible that citizens are not more likely to expect other citizens to get involved in politics in response to general fund taxation than to earmarked taxation (H6c). According to this logic, if general fund taxation would really lead to more participation, then heightened beliefs in collective action should accompany that effect.

4. Experimental design and implementation

4.1 Setting

The rest of this paper proceeds with a first preliminary attempt at testing these competing hypotheses. An online survey experiment was conducted with 874 citizens in Ghana recruited via the survey firm Bilendi; this sampling strategy primarily recruited an online convenience sample of young and more educated segments of Ghanaian society, ones who are likely to be mobilised more easily (see Table A1.2.1). The vignettes were intended to manipulate respondents' perceptions of the extent of tax earmarking, which is essentially a continuum of 'varieties of earmarking' when applying the standard public finance taxonomy of hypothecation (Wilkinson 1994). To avoid deceiving participants, I constructed the vignettes using the real-world policy objectives of the current Ghanaian government, as well as presenting **possible** options for how to use tax revenue in a hypothetical case, that is, options the government **could** consider.[10]

Ghana is an ideal case for examining the politics of tax earmarking for several reasons. This includes a prominent example of the political struggle over general taxation and earmarking, which comes from Ghana (Prichard 2009; 2010; 2015). In 2000, public opposition erupted in response to the government's announcement to increase the value-added tax (VAT) rate from 10 to 12.5 per cent, an increase in general tax revenue that would feed into the consolidated revenue fund. Appeasement was only achieved through earmarking revenues from the VAT increase to the newly established Ghana Education Trust Fund. The same public response in the form of mobilisation ensued again in 2003 when another VAT rate increase to 15 per cent was announced without further earmarking. In response to citizens' contestation, the tax increase was renamed the National Health Insurance Levy and allocated to the creation of the National Health Insurance Fund. In March 2022, public opposition to the planned 'e-levy', a highly contested tax on electronic transactions designated for the consolidated revenue fund, was successful in lobbying for a rate reduction from an initial 1.75 per cent to 1.5 per cent (Anyidoho *et al.* 2022). In this context, the politics of earmarked taxation remain highly salient and, therefore, constitute an ideal case for studying the accountability implications of the tax-benefit linkage.

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[10] The pre-analysis plan for this design was pre-registered at https://osf.io/7a5m4. IRB approval was obtained from the University of Oxford Departmental Research Ethics Committee (DREC), Ref. No. SSH_DPIR_C1A_23_047.

4.2 Treatments

Respondents were randomly assigned to read two different vignettes intended to prime them on the extent to which government revenue is earmarked. Respondents in all treatment groups were presented with informational vignettes that start with an introductory tax-and-spend prime:

> The government of Ghana has currently two important policy priorities: (1) improving national public health in the country, which would benefit people like you, and (2) increasing the collection of tax revenues from a broad set of different taxes. The government is currently considering what to do with this additional tax money.

> (See Appendix A1.1 for the full Survey Instrument.)

The general revenue fund treatment, that is, the control group, then read the following text in addition to the introductory prime: 'One option the government can consider is that the money raised through the **extra taxes would go to the general revenue fund managed at the discretion of the government**'. The earmarking treatment group read the following text in addition to the introductory prime: 'One option the government can consider is that the money raised through the **extra taxes would go only to a dedicated government revenue fund which is responsible specifically for these public health policies, the National Health Insurance Fund (NHIF)**'. Treatment assignment was administered via Qualtrics. Treatment groups were balanced across a variety of pre-treatment covariates (Table A1.2.1).

The introductory tax-and-spend text primes public health as a policy issue for two reasons. Firstly, it makes reference to the policy issue to make sure that the policy issue, in this case, public health, is held constant across treatment groups. Secondly, public health was chosen because it prominently features in the history of the politics of tax earmarking in Ghana, as described above, and because the tax-and-spend link is more credible than for other policy issues that are more prone to corruption, such as investment or infrastructure projects. The control group (general revenue fund) then primes a policy option that the government can consider: additional revenue from the tax campaign flows into the general revenue fund instead of being earmarked for a particular spending item. This is done to maximise the internal validity of the experiment, that is, to have a control group that resembles as closely as possible the concept of general fund taxation (the opposite of earmarking). Of course, this might come at the expense of the external validity of the experiment since one could argue that, in reality, no government can credibly commit to not earmark any new additional revenue due to possible political resistance. The treatment group (tax earmarking) then primes another policy option that the government can consider: additional revenue from the tax campaign is earmarked for the National Health Insurance Fund. This institution featured prominently in the 2000s tax episodes in Ghana mentioned

above, as the increase in VAT was earmarked for it directly.

Three points regarding the manipulation of the concepts of interest are worth noting. Firstly, respondents spent, on average, 38 seconds reading the treatment group vignette and 37 seconds reading the control group vignette. Secondly, in a treatment-irrelevant Factual Manipulation Check (FMC), 67 per cent of respondents correctly reported that the topic of the vignette was related to public health and not to digitalisation or agricultural development. Thirdly, in a series of treatment-relevant FMCs, participants' responses reported in Table A1.2.2 weakly suggest that the earmarking and general revenue fund treatments successfully manipulated the underlying concepts of interest. Respondents in the treatment group were more likely to agree with the statement that taxes are closely linked to benefits, more likely to agree with the statement that the government transparently releases spending information, and less likely to agree with the statement that the government has a lot of policy discretion. However, these differences are not statistically significant. To avoid post-treatment variable bias, the results are based on the whole sample and not just on those who passed the manipulation check.

4.3 Outcome measures

I measure political participation in a variety of ways. Firstly, respondents were asked: 'For each of the following activities, please indicate whether you would engage in politics'. Respondents could then indicate whether they would (1) talk to others in their neighbourhood, (2) sign a petition, (3) contact their local MP, (4) attend a citizen assembly meeting, (5) join a civil society organisation, (6) vote in upcoming elections and (7) join a protest. The number of activities was then aggregated and counted on a scale [0, 7]. This is labelled *Political participation*. Secondly, this procedure was then repeated with slightly different question wordings that tap into the underlying mechanisms. These questions were modified to include the aim or motivation of political participation:

> For each of the following activities, please indicate whether you would engage in politics to [get the government to release information on how it will spend taxpayers' money/reduce the amount of freedom the government will have in the future to decide what happens with your taxes/change how the increased tax revenue from the government's target is spent].

These were labelled *Information seeking*, *Discretion reduction* and *Policy change*, respectively. Finally, respondents were asked an open-ended question: 'Reflecting on your answers, why did you respond the way you did?'.

It is important to bear in mind that this measurement strategy only elicits stated preferences as opposed to revealed preferences. Measuring behaviour in the context of online survey experiments is challenging for a number of reasons. Firstly, political behaviour frequently takes place offline and in people's immediate

environment, so imitating this kind of environment online is difficult. Secondly, available alternatives to stated preference questions are sometimes difficult to justify from an ethical viewpoint. Encouraging people to follow hyperlinks to certain government websites, to have their names put on online petitions or to make donations to political organisations all come with their own practical, logistical and ethical challenges. Thus, this paper taps more into the **latent** dimension of political participation, that is, an underlying hypothetical willingness to engage in politics more generally.

Quantitative text analysis of an open-ended question asked post-treatment confirms that the outcome measure meaningfully represented one way of expressing how and why citizens wanted to become active in political life. The question asked: 'Reflecting on your answers, why did you respond the way you did?'. The word 'government' was by far the most commonly written word, followed by 'citizens', 'country', 'taxes', 'politics', 'protest' and 'right' (see Figure A2.1). Topic modelling confirms this, as is evident in Table A2.2. An entire topic is devoted to words such as 'government', 'taxes', 'know', 'used' and 'accountable'. Another topic includes words such as 'politics', 'vote', 'power', 'change' and 'party'.

4.4 Analysis

To estimate the sample average treatment effect (SATE), I estimate the following Ordinary Least Squares (OLS) regression equation, calculating heteroscedasticity-robust standard errors:

$$Y_i = \beta_0 + \beta_1 K_i,$$

where K_i is a binary variable indicating one of the two experimental groups, and Y_i is the respective outcome variable for any given hypothesis test, as in Table 4.4.1. All Likert-scale outcomes that measure agreement with a statement are transformed into an interval scale that ranges [1, 5], where 5 indicates strong agreement.

In addition, I estimate the main SATE with covariate adjustment by controlling for predictive (of the outcome) pre-treatment covariates X_i; these covariates are respondents' age, gender, education, ethnicity and partisanship, as well as responses to survey questions that asked about their perception of government responsiveness and their preference for carrying out government policy through dedicated agencies. Heterogeneity in treatment effects is tested by interacting the treatment indicator with the moderating variable of interest as pre-registered in the pre-analysis plan; these are the respondents' perceptions of government responsiveness and their perceptions of policy benefits from earmarking, as well as the respondents' co-ethnicity with the main ethnic group, co-partisanship with the incumbent president's party and gender.

For the estimation of the main SATE, several additional p-values are calculated, such as randomisation inference p-values, as well as p-values adjusted for multiple comparisons: the Holm correction to control the False Discovery Rate (FDR) and the Benjamini-Hochberg correction to control the Family-Wise Error Rate (FWER). The open-ended question is analysed by estimating Latent Dirichlet Allocation (LDA) topic models and depicting the most common words written. A pre-registered power analysis confirmed that for the simple difference-in-means analysis of the effect of the treatment on the primary outcome variable Y_I, with 999 respondents, I would be able to detect an effect of 0.05 points on the scale [0, 7] given a standard deviation on the outcome variable of 0.282. After post-hoc power analysis with an empirically determined standard deviation of the outcome variable of 1.99, the adjusted sample size reveals that the design was powered enough to detect an effect size of 0.38.

Table 4.4.1 Hypotheses tests and predictions of treatment effects

Hypothesis	Outcome	Prediction
Panel A: Primary hypothesis		
H1	Y_i	$K_g > K_e$
H2	Y_i	$K_g < K_e$
Panel B: Mechanism		
H3a	$Y_{i:I}$	$K_g > K_e$
H3b	$Y_{i:D}$	$K_g > K_e$
H3c	$Y_{i:P}$	$K_e > K_g$
H3d	$Y_{i:P}$	$K_{e, B_i > 0} > K_{e, B_i = 0}$
Panel C: Heterogeneity		
H4a	Y_i	$K_{g, \theta1 > 0} - K_{e, \theta1 > 0} > K_{g, \theta1 \ngtr 0} - K_{e, \theta1 \ngtr 0}$
H4b	Y_i	$K_g - K_{e, B_i = 0} > K_g - K_{e, B_i > 0}$
Panel D: Alternatives		
H5a	$\lvert \Delta Y_\theta \rvert$	$K_e > K_g$
H5b	Y_L	$K_e > K_g$
H5c	Y_R	$K_g > K_e$
H5d	Y_M	$K_e > K_g$
Panel E: Null results		
H6a	Y_i	$K_g = K_e$
H6b	Y_C	$K_e > K_g$
H6c	Y_E	$K_g = K_e$
Panel F: Manipulation checks		
	$Y_{FMC-TR1}$	$K_e > K_g$
	$Y_{FMC-TR2}$	$K_e > K_g$
	$Y_{FMC-TR3}$	$K_g > K_e$

Source: Author's own data.
Notes: Y_i is the vector of individual lobbying decisions in response to the treatment, indicating general citizen participation. Subscripts {I, D, P} indicate lobbying for information (I), to reduce discretion (D) and to change earmarked policy (P). In addition, $\Delta Y_\theta \equiv Y_{\theta2} - Y_{\theta1}$ which simply denotes the change score from endline to baseline of respondents' beliefs about government responsiveness Y_θ. Subscripts {L, R, M, C, E} denote endline survey measures of citizens' perceptions of being left out of the policy process (L), of the likelihood of policy reversal (R), of the government's management of public finances (M), the reported tax moral measure (C) and expectations about others' involvement in politics (E). Outcomes {$Y_{FMC-TR1}$, $Y_{FMC-TR2}$, $Y_{FMC-TR3}$} denote factual manipulation checks that are specific to the treatment.

5. Results

5.1 Main results

The estimates of the main sample average treatment effect are presented in Table 5.1.1. Column 1 shows the effect of tax earmarking on political participation estimated via OLS. There are no statistically significant differences across treatments in respondents' propensity to engage in politics. The tax earmarking treatment increased the number of activities that respondents would engage in politically by only 0.007 points on a scale [0, 7] and with a control group mean of 4.22. Several additional p-value calculations (randomisation inference, multiple hypothesis testing corrections) confirm this null result. Additionally, this result is robust to covariate adjustment, as reported in Table A2.1. Thus, it appears that tax earmarking does not reduce citizens' incentives to engage in political life, as hypothesised above (H1). At the same time, it does not increase participation and accountability demands, as hypothesised by a growing literature on the political economy of taxation (H2). This null result is, therefore, counterintuitive given the previous expectations of existing literature on the relationship between taxation and accountability.

Table 5.1.1 Effect of tax earmarking on political participation

	Participation	Information seeking	Discretion reduction	Policy change
Tax earmarking	0.007	-0.044	-0.114	-0.189
	(0.150)	(0.153)	(0.154)	(0.149)
Control mean	4.220	4.882	5.013	5.213
RI p-value	0.970	0.773	0.446	0.237
Holm p-value	0.962	0.774	0.461	0.206
Benjamini-Hochberg p-value	0.962	0.774	0.461	0.206
Num. obs.	703	730	740	745

Source: Author's own data.
Notes: *** $p < 0.01$; **$p < 0.05$; *$p < 0.1$. Coefficients on *Tax earmarking* are OLS estimates with heteroscedasticity-robust standard errors. *Participation* is the number of political activities respondents indicated they would engage in. *Information seeking* is the number of political activities respondents indicated they would engage in to seek policy information. *Discretion reduction* is the number of political activities respondents indicated they would engage in to reduce the government's policy discretion. *Policy change* is the number of political activities respondents indicated they would engage in to change current government policy. *Tax earmarking* is a binary indicator for whether the respondent was exposed to the earmarking prime (treatment) or the general fund prime (control).

This is corroborated by the lack of evidence for any of the underlying mechanisms that could lead earmarking to reduce political participation. To uncover underlying mechanisms, Columns 2-4 present the effects of tax earmarking on various motives to engage in political action: information seeking

(H3a), discretion reduction (H3b) and policy change (H3c). The tax earmarking treatment did not make an appreciable difference to any of these outcomes; the coefficients are close to zero in magnitude and not statistically significantly different from zero. None of the additionally calculated p-values indicate statistical significance, and the results are robust to covariate adjustment. Curiously, earmarking even appears to have reduced participation for the sake of policy change, whereas the opposite was predicted by the theoretical framework.

Additional evidence on the precise mechanisms comes from treatment effect heterogeneity. Table 5.1.2 presents the interaction effects between the tax earmarking treatment and perceptions of government responsiveness, as well as policy benefits. The interaction with perceptions of policy benefits from earmarking is not statistically significant and is very small in magnitude (-0.086 and -0.094 on a scale [0, 7]). This suggests that citizens are not more likely to mobilise to change policy in response to earmarked taxation when the benefits from the earmarked good increase (H3d). It also suggests that earmarking does not reduce general participation more when the benefits from the earmarked good decrease (H4b). However, we do observe a positive and statistically significant interaction effect with perceptions of government responsiveness. Tax earmarking **increases** participation more when perceptions of government responsiveness are higher. This makes intuitive sense and is one possible explanation for the overall null result; not enough respondents believed that the government would be responsive to their demands, but those that do are more likely to participate. However, this interaction effect goes in the opposite direction to the one that was predicted by the theory. Hypothesis 4a predicted a negative interaction effect between earmarking and responsiveness on participation; that is, it suggested that tax earmarking reduces participation more than the higher beliefs about government responsiveness.

Table 5.1.2 Effect of tax earmarking on political participation: mechanisms

	Participation	Participation	Policy change
Intercept	3.987***	3.613***	4.217***
	(0.267)	(0.570)	(0.570)
Tax earmarking	-0.581	0.338	0.167
	(0.363)	(0.803)	(0.817)
Responsiveness	0.086		
	(0.088)		
Tax earmarking X Responsiveness	0.199*		
	(0.115)		
Policy benefits		0.155	0.253*
		(0.137)	(0.137)
Tax earmarking X Policy benefits		-0.086	-0.094
		(0.195)	(0.197)
Num. obs.	702	699	741

Source: Author's own data.
Notes: *** $p < 0.01$; **$p < 0.05$; *$p < 0.1$. Coefficients on *Tax earmarking* are OLS estimates with heteroscedasticity-robust standard errors. *Participation* is the number of political activities respondents indicated they would engage in. *Policy change* is the number of political activities respondents indicated they would engage in to change current government policy. *Tax earmarking* is a binary indicator for whether the respondent was exposed to the earmarking prime (treatment) or the general fund prime (control). *Responsiveness* measures respondents' perception of government responsiveness. *Policy benefits* measures respondents' preference for carrying out government policy through dedicated agencies.

5.2 Alternative mechanisms

These null results are also evident in the fact that there is no evidence for any of the alternative mechanisms that would have predicted either higher or lower participation in response to earmarking. A set of different mechanisms could have been at play, possibly reversing the predicted relationship between tax earmarking and political participation. To examine this, Table 5.2.1 presents the effects of tax earmarking on various secondary outcome measures.

Table 5.2.1 Effect of tax earmarking on political participation: alternative mechanisms

	Responsiveness change	Left out	Policy reversal	Government competence
Tax earmarking	-0.016	-0.035	-0.020	0.042
	(0.064)	(0.073)	(0.225)	(0.080)
Control mean	-0.084	3.925	5.178	2.091
Num. obs.	864	867	854	863

Source: Author's own data.
Notes: *** $p < 0.01$; **$p < 0.05$; *$p < 0.1$. Coefficients on *Tax earmarking* are OLS estimates with heteroscedasticity-robust standard errors. *Responsiveness change* measures the baseline-to-endline change in respondents' perceptions of government responsiveness. *Left out* measures respondents' perceptions of being left out of the political deliberation and policy-making process. *Policy reversal* measures respondents' indicated expectation that the next government will reverse spending priorities. *Government*

competence measures respondents' perception of the government's competence in managing the public finances. *Tax earmarking* is a binary indicator for whether the respondent was exposed to the earmarking prime (treatment) or the general fund prime (control).

Firstly, it is possible that the citizens' negative update of responsiveness beliefs under general fund taxation is greater than their positive update of beliefs in response to earmarked taxation (H5a). To examine this possibility, I asked the following question both at baseline and at endline and examined the change score: 'Do you agree or disagree with the following statement: The government is generally responsive to demands made by people like me'. However, there is no evidence that the earmarking treatment affected this change score in any direction since the coefficient magnitude is small (-0.016 with a control group mean of -0.084).

Secondly, it is possible that citizens are more likely to feel left out of the policy deliberation process in response to earmarked taxation than to general fund taxation (H5b). To test this, I examined answers to the following question: 'Do you agree or disagree with the following statement: Citizens in Ghana are generally left out of the political deliberation and decision-making process'. However, again, there is no evidence that the earmarking treatment affected this perception in any direction; the coefficient magnitude is, again, close to zero (-0.035 with a control group mean of 3.925).

Thirdly, it is possible that citizens are less likely to predict policy reversal of private goods in response to earmarked taxation than to general fund taxation (H5c). To examine this possibility, I looked at answers to the question: 'On a scale from 0-10, how likely do you think it is that a change in the next government will reverse the current spending policies?'. There is, again, no evidence that the earmarking treatment affected this prediction in any direction since the coefficient magnitude is close to zero (-0.02 with a control group mean of 5.178).

Finally, it is possible that citizens are less likely to evaluate a government as fiscally competent in response to earmarked taxation than to general fund taxation (H5d). To test this, I examined answers to the following question: 'Do you agree or disagree with the following statement: The government is generally competent in managing the public's finances'. I find no evidence that the earmarking treatment affected this perception in any direction; the coefficient magnitude is small (0.042 with a control group mean of 2.091).

5.3 Explaining null results

The above results indicate support for a hypothesis that predicted no difference between treatment groups (H6a). To further examine null results, I pre-registered two additional hypotheses that might explain the absence of a treatment effect of earmarking on political participation.

Firstly, it could be that citizens are less likely to express willingness to pay taxes (exit) in response to general fund taxation than to earmarked taxation (H6b). According to this logic, citizens exit in response to general fund taxation instead of mobilising, thus producing a null result. To look at this, I examined answers to the following question: 'Do you agree or disagree with the following statement: Taxpayers must pay the taxes that they owe to the government, regardless of the quality of public services'. However, I find no evidence that earmarked taxation leads to greater expressed tax morale and thus to less exit; the coefficient is small in magnitude (0.023 with a control group mean of 3.185). Thus, citizens do not exit at higher rates in response to general fund taxation, so this explanation is unlikely to make sense of the null results. However, this piece of evidence hints at the absence of a possible ceiling effect: it could have been the case that it was simply too difficult for the earmarking treatment to move already high average levels of participation in the control group. The fact that respondents do not score lower on the tax morale question in response to the earmarking treatment suggests that they do not try to reduce their tax burden in differential ways. Thus, it does not seem to be the case that respondents were motivated by either treatment to fight taxes politically, as is evident from the high levels of agreement with the tax statement in the control group. However, in the absence of a pure control group that did not prime taxation, we cannot rule out these ceiling effects with certainty. Note also that only 12 per cent of respondents scored the highest value of 7 on the main outcome variable, which counts instances of participation; 17 per cent scored below three and 39 per cent above the mean.

Additionally, it is possible that citizens are not more likely to expect other citizens to get involved in politics in response to general fund taxation than to earmarked taxation (H6c). According to this logic, if general fund taxation would really lead to more participation, then heightened beliefs in collective action should accompany that effect. To examine this possibility, I look at answers to the question: 'On a scale from 0-10, how likely do you think it is that others in your neighbourhood will engage in politics in the future?'. I find support for this hypothesis, which predicts that there is no difference between the treatment groups in terms of collective action. There is no statistically significant difference between the earmarking treatment and the general fund control group with respect to respondents' belief in collective action; the coefficient is small in magnitude (0.163 with a control group mean of 5.883). Thus, the earmarking treatment did not depress beliefs in collective action, a process that should have taken place if general fund taxation did, in fact, increase participation. This explanation for the null result makes intuitive sense with regard to the literature on collective action. For there to be any (even expressed) propensity to participate in political life, citizens have to solve the collective action dilemma that presents when confronted with such coordination problems (Olson 1971). The only way out of this is the provision of private benefits (Olson 1971), psychological rewards (Bueno de Mesquita and Shadmehr 2022) or reduced social costs (Paler, Marshall and Atallah 2018).

General fund taxation seems to offer none of these incentives to overcome collective action dilemmas, at least not in comparison with earmarked taxation.

Table 5.3.1 Effect of tax earmarking on political participation: explanations for null results

	Tax morale	Belief in collective action
Tax earmarking	0.023	0.163
	(0.087)	(0.189)
Control mean	3.185	5.883
Num. obs.	866	860

Source: Author's own data.
Notes: *** $p < 0.01$; **$p < 0.05$; *$p < 0.1$. Coefficients on *Tax earmarking* are OLS estimates with heteroscedasticity-robust standard errors. *Tax morale* measures respondents' willingness to pay taxes. *Belief in collective action* measures respondents' reported expectation that others in their neighbourhood would engage in politics in the future. *Tax earmarking* is a binary indicator for whether the respondent was exposed to the earmarking prime (treatment) or the general fund prime (control).

5.4 Heterogeneity

As hypothesised in the pre-analysis plan, treatment effects might vary by co-ethnicity with the main ethnic group, co-partisanship with the incumbent presidential party or respondent gender. Table 5.4.1 presents the interaction effects of the tax earmarking treatment with the respective covariate of interest. Here, we restrict the analysis to the main outcome variable of interest, general political participation.

Firstly, I find no evidence that the earmarking treatment effect varies by co-ethnicity with the main ethnic group. The interaction effect is small in magnitude (0.393 with a control group mean of 4.459) and insignificant. Secondly, I equally find no evidence for heterogeneity according to support for the incumbent presidential party; again, the coefficient of interest is small in magnitude (0.420 with a control group mean of 5.167) and statistically insignificant. Finally, I do find evidence that the treatment might have affected respondents differently depending on their gender. The interaction effect with a binary variable for female is negative and statistically significant. Thus, among female respondents, earmarking appears to have reduced participation (by 0.642 points with a control group mean of 4.473), as predicted in the main hypothesis of the theoretical framework. Investigating this further and unpacking this effect heterogeneity to theorise why earmarking affects men and women differently is a fruitful task for future research.

Table 5.4.1 Effect of tax earmarking on political participation: heterogeneity

	Participation	Participation	Participation
Intercept	4.459***	5.167***	4.473***
	(0.167)	(0.282)	(0.146)
Tax earmarking	-0.209	-0.128	0.278
	(0.226)	(0.385)	(0.195)
Main ethnicity	-0.437**		
	(0.218)		
Tax earmarking X Main ethnicity	0.393		
	(0.304)		
Incumbent supporter		-0.550	
		(0.370)	
Tax earmarking X Incumbent supporter		0.420	
		(0.505)	
Female			-0.548**
			(0.214)
Tax earmarking X Female			-0.642**
			(0.296)
Num. obs.	697	196	702

Source: Author's own data.

Notes: *** $p < 0.01$; **$p < 0.05$; *$p < 0.1$. Coefficients on *Tax earmarking* are OLS estimates with heteroscedasticity-robust standard errors. *Participation* is the number of political activities respondents indicated they would engage in. *Tax earmarking* is a binary indicator for whether the respondent was exposed to the earmarking prime (treatment) or the general fund prime (control). *Main ethnicity* measures respondents' co-ethnicity with the main ethnic group. *Incumbent supporter* measures respondents' co-partisanship with the incumbent presidential party. *Female* is a binary indicator for whether the respondent identifies as female.

6. Conclusion

In this paper, I have provided a theoretical clarification of the relationship between the tax-benefit linkage and political participation. While most of the existing literature suggests that earmarking taxes has positive consequences for the demand for accountability, I specify conditions that would make us reach conclusions opposite to the current way of thinking about the political consequences of earmarking. I present preliminary evidence that tax earmarking may make no difference to citizens' propensity to participate in political life. In a survey experiment conducted in Ghana, presenting respondents with a vignette that primes tax earmarking does not affect the number of political activities they would engage in. The effect magnitude here is close to zero, and the hypothesised mechanisms for any effect do not seem to be at play. Two explanations for this null result emerged from the results: citizens may have lacked belief in (1) general government responsiveness to citizen efforts at influencing political life and (2) the collective action capacity of society as a whole to overcome coordination problems that surround political participation. It is also evident that earmarking did, in fact, reduce participation among female respondents.

However, it is important to bear in mind several limitations of this paper. Firstly, several theoretical ideas were deliberately not investigated, as they lay outside the scope of the project. For example, it was assumed that citizens possess sufficient information to determine the alignment of their preferences with government policy, but this was not explicitly tested. Similarly, it was assumed but not explicitly tested that citizens actually believe a promise by the government to earmark tax revenue. Secondly, the survey experiment did not directly manipulate the actual extent of tax earmarking and, thus, citizens' perceptions thereof, nor did it measure actual participation in political life. All that was done was to present respondents with a vignette as a prime on tax earmarking and then measure **stated** preferences regarding participation. One explanation for the null results might simply be that there were no real-world costs and benefits involved in the experiment, so the experimental environment was simply too artificial. Finally, the survey was only conducted in a single country, Ghana, from which it may be difficult to extrapolate results to other contexts that have not had the same kind of history of contestation surrounding tax policy and especially tax earmarking. The results might be different in, for example, Mexico, where research has shown that earmarked taxes are preferred to general fund taxation (Flores-Macías 2018).

Regardless of these limitations, the results presented in this paper run counter to expectations in the literature on taxation and accountability, as well as to predictions obtained from a simple decision-theoretic framework. On the one hand, several scholars have argued that tax earmarking might lead to greater

citizen demands for government accountability due to improved transparency of the tax price of public goods. On the other hand, a simple decision-theoretic framework based on standard political economy assumptions shows that one can obtain opposite predictions, namely that earmarking reduces participation. However, I find no preliminary evidence for either of these perspectives. Earmarking does not seem to engage the citizenry to a greater or lesser extent than general fund taxation. This suggests that we need to revise our (positive or negative) view of tax earmarking and its implications for political participation. Given the clear limitations of the empirical test employed in this paper, it also suggests the need for more empirically-robust research that tests the intuitions and observable implications derived in the theoretical framework. The preliminary evidence deployed in this paper is certainly not the final word on the subject.

The main implication of the results so far is that governments can continue to expand general fund taxation without having to fear political costs in the form of social mobilisation. If this is correct, governments can harmonise their desire to maintain or increase spending discretion with anticipated political responses. In particular, governments do not need to (1) have accurate information about likely contestation, (2) pre-empt mobilisation by strategically releasing tax-and-spend information, (3) care about political survival when deciding whether to earmark or not and (4) tie their political survival to social mobilisation. Overall, this might help explain why general fund taxation is the more common form of tax-benefit linkage today.

Appendices

Appendix 1 Additional information on experimental design

A1.1 Survey instrument

Q1: How old are you? If you prefer not to say, please write 'Prefer not to say'.

Q2: What is your gender?

- Male

- Female

- Prefer not to say

Q3: What is your highest level of education?

- No formal schooling

- Informal schooling only

- Some primary schooling

- Primary schooling completed

- Intermediate school or some secondary school/high school

- Secondary school/high school completed

- Post-secondary qualifications other than university

- Some university

- University completed

- Post-graduate

- Prefer not to say

Q4: For the following statement, please indicate whether you agree or disagree: 'The government is generally responsive to demands made by people like me'. [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q5: For the following statement, please indicate whether you agree or disagree: 'The government should carry out its policies through specific revenue funds as opposed to involving the general revenue fund and a large state apparatus'. [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q6: What is your ethnic community, cultural group or tribe?

- Akan

- Ewe/Anlo

- Ga/Adangbe

- Dagomba

- Guan

- Gurma

- Grusi

- Mande

- Other

- Prefer not to say

Q7: Do you feel close to any particular political party?

- Yes

- No

- Prefer not to say

[Answer Q7.1 if 'Yes' is selected.]

Q7.1: Which party is that?

- Convention People's Party (CPP)

- National Democratic Congress (NDC)

- New Patriotic Party (NPP)

- People's National Convention (PNC)

- Progressive People's Party (PPP)

- Democratic People's Party (DPP)

- Great Consolidated Popular Party (GCPP)

- National Democratic Party (NDP)

- All People's Convention (APC)

- Prefer not to say

CONTROL GROUP TEXT: The government of Ghana has currently two important policy priorities: 1) improving national public health in the country, which would

benefit people like you; and 2) increasing the collection of tax revenues from a broad set of different taxes. The government is currently considering what to do with this additional tax money.

One option the government can consider is that the money raised through the extra taxes would go to the general revenue fund managed at the discretion of the government.

TREATMENT GROUP TEXT: The government of Ghana has currently two important policy priorities: 1) improving national public health in the country, which would benefit people like you; and 2) increasing the collection of tax revenues from a broad set of different taxes. The government is currently considering what to do with this additional tax money.

One option the government can consider is that the money raised through the extra taxes would go only to a dedicated government revenue fund, which is responsible specifically for these public health policies, the National Health Insurance Fund (NHIF).

Q8: For each of the following activities, please indicate whether you would engage in politics [Yes, no, prefer not to say]:

- Talk to others in my neighbourhood

- Sign a petition

- Contact my local Member of Parliament

- Attend a citizen meeting in my neighbourhood

- Join a civil society organisation

- Vote in upcoming elections

- Join a protest

Q9: For each of the following activities, please indicate whether you would engage in politics to get the government to release information on how it will spend taxpayers' money [Yes, no, prefer not to say]:

- Talk to others in my neighbourhood

- Sign a petition

- Contact my local Member of Parliament

- Attend a citizen meeting in my neighbourhood

- Join a civil society organisation

- Vote in upcoming elections

- Join a protest

Q10: For each of the following activities, please indicate whether you would engage in politics to reduce the amount of freedom the government will have in the future to decide what happens with your taxes [Yes, no, prefer not to say]:

- Talk to others in my neighbourhood

- Sign a petition

- Contact my local Member of Parliament

- Attend a citizen meeting in my neighbourhood

- Join a civil society organisation

- Vote in upcoming elections

- Join a protest

Q11: For each of the following activities, please indicate whether you would engage in politics to change how the increased tax revenue from the government's target is spent [Yes, no, prefer not to say]:

- Talk to others in my neighbourhood

- Sign a petition

- Contact my local Member of Parliament

- Attend a citizen meeting in my neighbourhood

- Join a civil society organisation

- Vote in upcoming elections

- Join a protest

Q12: Reflecting on your answers, why did you respond the way you did? Please write your answer in the text box below. If you prefer not to say, please write 'Prefer not to say'.

Q13: For the following statement, please indicate how likely it is to happen on a scale from 0 to 10. 0 means extremely unlikely, and 10 means extremely likely.

'A change in the next government will reverse the current spending priorities.'

Q14: For the following statement, please indicate how likely it is to happen on a scale from 0 to 10. 0 means extremely unlikely, and 10 means extremely likely.

'Others in my neighbourhood will engage in politics in the future.'

Q15: For the following statement, please indicate whether you agree or disagree: 'The government is generally responsive to demands made by people like me.'

[Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q16: For the following statement, please indicate whether you agree or disagree: 'Citizens in Ghana are generally left out of the political deliberation and decision-making process.' [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q17: For the following statement, please indicate whether you agree or disagree: 'The government is generally competent in managing the public's finances.' [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q18: For the following statement, please indicate whether you agree or disagree: 'Taxpayers must pay the taxes that they owe to the government, regardless of the quality of public services.' [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q19: What is the main policy priority the government wants to pursue according to the text that you just read?

- Public health

- Digitalisation

- Agricultural development

- Prefer not to say

Q20: For the following statement, please indicate whether you agree or disagree: 'The taxes I normally pay are closely linked to particular benefits and services I receive.' [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q21: For the following statement, please indicate whether you agree or disagree: 'The government does a good job at releasing transparent information about how it spends our tax money.' [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

Q22: For the following statement, please indicate whether you agree or disagree: 'The government has a lot of freedom to spend our tax money as it pleases.' [Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree, prefer not to say]

A1.2 Design diagnostics

Table A1.2.1 Balance tests for covariates

	N	Control mean	Tax earmarking	*SE*	*p*
Age	815	28.03	-0.06	0.52	0.91
Female	872	0.45	-0.02	0.03	0.47
Education (cont.)	861	7.10	0.08	0.09	0.38
Main ethnicity	859	0.50	0.02	0.03	0.66
Partisan	811	0.28	0.04	0.03	0.19
Incumbent supporter	233	0.51	0.00	0.07	0.97
Govt responsiveness (cont.)	870	2.73	0.09	0.09	0.29
Policy benefits (cont.)	868	4.01	-0.01	0.05	0.79

Source: Author's own data.
Notes: I report here a series of individual OLS regressions of the main covariate of interest on the treatment indicator. These covariates include various characteristics of the survey respondents. These regressions include heteroscedasticity-robust standard errors.

Table A1.2.2 Factual manipulation checks

	Tax-benefit linkage	Info release	Discretion
Tax earmarking	0.026	0.096	-0.031
	(0.080)	(0.077)	(0.104)
Control mean	2.674	1.995	3.070
Num. obs.	872	871	866

Source: Author's own data.
Notes: *** $p < 0.01$; **$p < 0.05$; *$p < 0.1$. Coefficients on *Tax earmarking* are OLS estimates with heteroscedasticity-robust standard errors. *Tax-benefit linkage* measures respondents' agreement with the statement that taxes and benefits are closely linked. *Info release* measures respondents' agreement with the statement that the government transparently releases information about spending priorities. *Discretion* measures respondents' agreement with the statement that the government has a lot of discretion over spending policy. *Tax earmarking* is a binary indicator for whether the respondent was exposed to the earmarking prime (treatment) or the general fund prime (control).

Appendix 2 Appendices for main results

Table A2.1 Effect of tax earmarking on political participation: covariate adjustment

	Participation	Information seeking	Discretion reduction	Policy change
Tax earmarking	-0.105	-0.095	-0.130	-0.227
	(0.152)	(0.157)	(0.163)	(0.156)
Control mean	2.235	3.346	3.512	4.123
Num. obs.	621	649	659	651

Source: Author's own data.
Notes: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. Coefficients on *Tax earmarking* are OLS estimates with heteroscedasticity-robust standard errors. *Participation* is the number of political activities respondents indicated they would engage in. *Information seeking* is the number of political activities respondents indicated they would engage in to seek policy information. *Discretion reduction* is the number of political activities respondents indicated they would engage in to reduce the government's policy discretion. *Policy change* is the number of political activities respondents indicated they would engage in to change current government policy. *Tax earmarking* is a binary indicator for whether the respondent was exposed to the earmarking prime (treatment) or the general fund prime (control). Covariates included a respondent's age, gender, education, ethnicity and partisanship, as well as responses to survey questions that asked about their perception of government responsiveness and their preference for carrying out government policy through dedicated agencies.
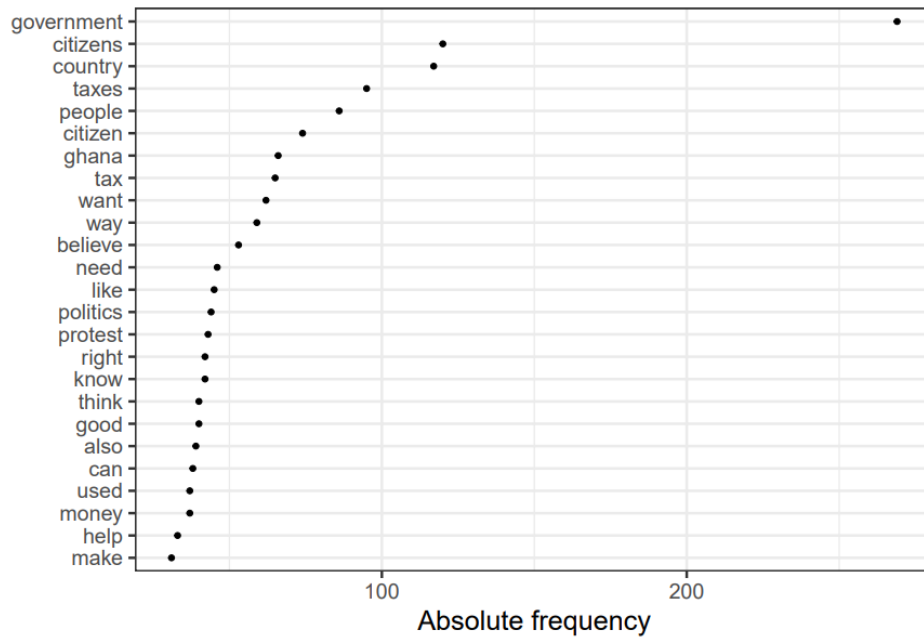
Table A2.2 LDA topic model for comments in open-ended question

Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
government	government	country	government	politics
taxes	citizens	citizen	way	like
citizens	people	want	people	political
tax	think	believe	also	vote
know	things	need	protest	power
used	feel	good	Ghana	change
money	current	development	responded	make
must	needs	better	can	party
accountable	can	decision	right	government
revenue	policies	making	listen	Ghana

Source: Author's own data.
Notes: I post-processed the text data from the comments made in open-ended questions asking why participants responded the way they did into a corpus of English-language comments, cleaned strings and removed common stop words in English. I conducted this for all citizens who answered the question and made a comment. Based on this corpus, I performed a semi-supervised Latent Dirichlet allocation (seeded-LDA) and show here the ten most common words of five topics of comments.

Figure A2.1 Twenty-five most written words in open-ended question

Notes: I post-processed the text data from the comments made in open-ended questions asking why participants responded the way they did into a corpus of English-language comments, cleaned strings and removed common stop words in English. I conducted this for all citizens who answered the question and made a comment. Based on this corpus, this plot shows the absolute frequency with which the top 25 most common words written in the open-ended question occurred.

Appendix 3 Discussion of differences with pre-analysis plan

In the pre-analysis plan, power was calculated with 1,000 respondents as an input. However, due to technical difficulties in the survey implementation, only 874 respondents could be recruited. Thus, I repeat here the power calculation for a set of 874 respondents. The previous power calculation in the pre-analysis plan was as follows:

> For the simple difference-in-means analysis of the effect of the treatment on the primary outcome variable Y_I, with 999 respondents, we would be able to detect an effect of 0.5 points on the scale [0, 7] given a standard deviation on the outcome variable of 0.282.

Here, there was a typo in the effect size: factually correct is 0.05 and not 0.5. With an adjusted number of respondents, as well as an empirically-calculated standard deviation of the outcome variable of 1.99, we can reformulate as follows:

> For the simple difference-in-means analysis of the treatment's effect on the primary outcome variable Y_I, with 862 respondents, we would be able to detect an effect of 0.38 points on the scale [0, 7] given a standard deviation on the outcome variable of 1.99.

In the pre-analysis plan, attrition was mentioned as a contingency that would be examined across treatment groups. The pre-analysis plan read:

> To assess whether attrition is systematically related to the treatments, I will measure whether the respondent completed the survey until after the primary outcomes of interest and then assess whether the probability of attrition is different across treatments.

However, this analysis could not be performed because the survey company only delivered complete interviews conditional on consent to participate.

Appendix 4 Formal model

We model a world in which society consists of a continuum of citizens of size a > 0, indexed by C in [0, a].[11] The government announces a tax increase where this tax instrument can either be tax earmarking for a particular public good or contribute to the general consolidated revenue fund so that T in {e, g}. The crucial insight here is that we precisely do not assume the government to make this choice exogenously, but endogenously to the trade-off between signalling its type and securing greater policy discretion over spending. This gives citizens varying incentives to lobby the government to achieve various different goals.

C can, in response, lobby the government to obtain a variety of different goals, l, so that the action set is A_C = {l, not l} with a cost associated with lobbying, C_l. This can be thought of as exerting voice (Hirschman 1972) in the classical sense of political participation and collective action; it may also include activism in interest groups. The benefits from lobbying B_l can represent one of three motivations: (1) greater alignment of the public good provided with individual policy preferences (in the form of the Euclidean distance from the citizen's ideal point, B_l = -|x − z_C|); (2) greater information and transparency about spending outcomes for tax revenue; or (3) a reduction of future government discretion over spending tax revenue. Those benefits are obtained with probability p_e in [0, 1] and p_g in [0, 1], which represent the probabilities that citizen lobbying efforts will be successful.[12] Thus, the expected utility of lobbying in response to earmarking is:

$$EU(l) = p_e B_l - c_l,$$

and expected utility from lobbying in response to general fund taxation is:

$$EU(l) = 2p_g B_l - c_l.$$

The different specifications of these utility functions reflect the different types of incentives that citizens face in response to an earmarked or non-earmarked tax increase, an intuition we will further develop now.

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[11] We assume that there is some non-zero baseline level of political participation, that is, citizens are generally able to overcome collective action dilemmas some of the time, for example via the provision of private benefits (Olson 1971), psychological rewards (Bueno de Mesquita and Shadmehr 2022) or reduced social costs (Paler, Marshall and Atallah 2018). This may be achieved through taxation itself as a growing literature stipulates that the act of taxing citizens makes them politically more active (Ross 2001; Paler 2013; Weigel 2020). Thus, it may be possible that taxation – no matter the tax-benefit linkage – induces higher levels of participation. The question with which this paper is concerned, however, is whether the tax-benefit linkage differentially shapes this baseline rate of participation.

[12] This allows for the tax-financing instrument to not only affect benefits from lobbying B_l but also for negative or positive shocks to citizens' beliefs about the probability of successful lobbying when subjected either to an earmarked or non-earmarked tax increase. Alternatively, this probability can be thought of as citizens' perceptions of (1) political efficacy and the responsiveness of the system, as well as (2) the credibility of any commitment or announcement the government makes.

A4.1 Main assumptions

With this general setup, we can state the main assumptions of this model.

1. Citizens know that only high-type, responsive governments choose to earmark increased tax revenue, and only low-type governments choose not to earmark revenue. Thus, the tax-benefit linkage is a signal about government type p, which then affects whether citizens get additional benefits from trying to reduce the government's desired discretion over spending, B_l. By implication, we assume that citizens do not interpret earmarking as a cheap-talk transparency initiative designed by a low-type government to increase its popularity. This is intuitive since low-type governments potentially have larger benefits from increasing their discretion over spending, and so enable spending on private benefits for a narrow selectorate and winning coalition.

2. The tax-benefit linkage affects short-term fluctuating beliefs about the government's discretion over spending (which constitutes a part of B_l) more strongly than long-term beliefs about the general responsiveness of the political system to citizens' lobbying efforts (p). This means that the decision not to earmark tax revenue is a stronger signal about potential benefits from lobbying the government to reduce its discretion over spending than it is about general political efficacy. This is believable in light of a body of literature showing that political efficacy is a rather deeply ingrained outcome of more long-run processes of socialisation formed over years of experience with a government (Lieberman and Zhou 2021). Thus, values of p might be low in many contexts, but that is unlikely to be due to short-term changes in tax-financing instruments. Rather, a legacy of strong democratic norms and high levels of public contestation and protests, as well as freedom of information laws combined with competitive elections, might shape feelings of political efficacy and the effectiveness of lobbying more strongly (Ashworth 2012; Kosack and Fung 2014; Grossman *et al.* 2022; Grossman and Slough 2022). This may also travel to the African context, where we do observe citizen accountability pressures via competitive elections (Harding 2020); in fact, norms of ruler contestation and claim-making in this setting go back to pre-colonial institutions of autonomous local communities that constrained precolonial rulers (Bolt *et al.* 2022).

3. Furthermore, there are substantial costs to the government from citizen mobilisation, which include revealing information the government does not wish to reveal, changes in policy the government does not wish to change or reduced electoral prospects. We assume here that citizens are aware of these substantial political costs and that this, in part, drives their baseline beliefs about p. However, there is enough information uncertainty about likely societal contestation that we can, in this paper, exogenise the choice of the tax-financing instrument and examine political responses to it, regardless of citizens' beliefs about the likely political costs of earmarked and general fund

taxation.

4. All three motivations for citizen lobbying are equally valued by citizens, so they can be compared as B_l or multiples of B_l, such as $2B_l$, as in the model. Getting current policy to align with individual preferences is as valuable for citizens as obtaining information about government spending of tax revenue and reducing the government's future spending discretion. This seems plausible given the central role of information in holding governments accountable for policy outcomes (Dunning *et al.* 2019). Especially in low-information environments, where uncertainty is prevalent, the benefits of obtaining information can be substantive and as large as the benefits of preference alignment or discretion reduction. Similarly, discretion reduction as a medium- to long-term goal is valuable if citizens' time horizons are sufficiently long. However, reducing the scope for discretion can be immediately relevant for citizens, for example, the next time the government announces a new policy. Thus, even with short time horizons, accountability can be achieved (Ashworth 2012).

5. Under $T = g$, citizens can obtain information about government spending **and** reduce future government discretion with a **single** form of lobbying (incurring only C_l instead of $2C_l$). This is believable, e.g. in the form of writing a letter or signing a CSO petition that seeks to address both issues simultaneously. This also implies that information-seeking and lobbying for reduced discretion often happen simultaneously and not sequentially (so that the decision by the government to respond to information-seeking or not does not factor into citizens' choice).

6. We assume that seeking information is valuable to citizens regardless of whether they think the government will actually provide such information or has incentives to strategically release information to fend off potentially politically costly protests. This is consistent with there being some baseline political efficacy, as well as a desire for information about what happens to taxpayers' money.

7. We assume that citizens possess sufficient information to determine the alignment of their preferences with government policy. In addition, beliefs about government policy might be conditioned by an individual's previous experience with service delivery in low-capacity settings (Castañeda *et al.* 2020). While this might be true in many contexts, *prima facie*, it is relatively easy for citizens to determine whether the **announced** government policy agrees with one's preferences, and that is all the model needs to make assumptions. In addition, the empirical case of this paper, Ghana, is a setting in which government effectiveness is significantly higher than in all its neighbouring countries, according to the Worldwide Governance Indicators (World Bank 2023).

A4.2 Incentives

Our main task is to determine the different incentive structures for citizens to lobby the government in response to the two financing instruments.

$T = e$. Under earmarking, the government releases perfect information on the specific revenue purpose of the tax increase so that citizens learn exactly whether they are net beneficiaries or net losers from the tax-and-spend policy, that is, the size of B_l. The benefits from lobbying under earmarking stem purely from the fact that lobbying to change the earmarked policy becomes more beneficial the further away that policy is from an individual's ideal point, i.e. the greater B_l is.[13] Consequently, we have as the condition for lobbying in response to earmarked taxation that:

$$p_e B_l - c_l > 0.$$

Clearly, lobbying is only beneficial if $p_e B_l > c_l$. Thus, citizens for whom the earmarked policy x already represents their ideal point z_C, i.e., when $B_l = 0$, will have no incentive to lobby and choose not to lobby for policy change. By contrast, and assuming earmarking induces some non-zero belief in the success of lobbying $p_e > 0$ (that is, the efficacy of political participation), only citizens for which $B_l > 0$ and the costs of lobbying are sufficiently small have incentives to lobby the government in response to earmarked taxation. Furthermore, notice here that this inequality is true when $p_e > c_l/B_l$. Thus, p_e has to be quite high for the expected utility from lobbying to be positive, that is, larger than the cost-benefit ratio of participation. For example, when the costs of lobbying are half the benefits from lobbying, then the inequality is only true when $p_e > ½$, that is, citizens' belief that half of the time their lobby attempts at changing the earmarked policy will be successful.

Citizens lobby the government in response to earmarked taxation whenever:

a. The benefits from lobbying for policy change (B_l) are sufficiently high.

b. The costs of lobbying (C_l) are sufficiently low.

c. Their beliefs about government responsiveness (p_e) are sufficiently high.

$T = g$. Under general fund taxation, the tax financing instrument is vague, i.e. the tax increase is not directly tied to financing any particular public good but instead more loosely related to the general consolidated revenue fund. Thus, citizens do not learn which exact public good(s) are financed by any given tax increase. Crucially, this vagueness over government commitments also increases the government's discretion over spending, which, in the context of many low-capacity states, would mean greater incentives for rent extraction or even

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[13] There are no incentives to lobby the government to obtain information about the revenue target of the tax increase since that information is already provided; nor to reduce future government discretion since that has already been reduced by virtue of earmarking.

corruption on behalf of the government. Thus, the signal that general fund taxation sends in many low-capacity states is one of potential rent-seeking and corrupt behaviour on the part of the government. In response, citizens have incentives to (1) seek information to determine if spending is actually misaligned with their preferences and (2) exert voice to reduce future government discretion.[14]

The amount and nature of the benefits from lobbying the government in response to general taxation are thus different in two ways:

1. Citizens receive B_l twice if they choose to lobby the government in response to general fund taxation; that is, every citizen (and not just policy net losers as in earmarking) has two incentives to mobilise. Firstly, they receive benefits from seeking information to find out whether **current** revenue is being spent in line with their preferences, that is, exactly where the tax money extracted today will go. Secondly, by choosing not to earmark the tax, the government signals its preference for retaining discretion over spending in the **future**, an outcome that is costly for citizens in the form of forgone utility from the alignment of public policy with individual preferences in future distributions of spending. Thus, citizens receive benefits from exerting voice to politically constrain the government in its spending discretion in the future, e.g. via pushing for earmarking. Thus, preferences for earmarking stem from a desire to obtain spending information from the government necessary for accountability pressures and to reduce the spending discretion of future governments.

2. However, these benefits are partially offset by (1) the costs of lobbying and (2) the probability that these lobbying efforts will be successful, p_g. Here, we allow for the possibility that the choice of general fund taxation might not just positively affect B_l but also negatively affect p_g should citizens update about more **general** political efficacy and the political systems responsiveness to citizen lobbying efforts. The crucial insight we will demonstrate below is that even with this constraint, general fund taxation might produce more incentives to lobby the government, assuming that citizens do negatively update, but not

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[14] Of course, government discretion over spending can be beneficial for co-partisans, co-ethnics or clients within clientelist networks. In this case, discretion is what **enables** the distribution of club goods. However, in this model, even those who benefit somewhat from government discretion have a countervailing incentive to increase overall responsiveness of the government in future periods, since they cannot be sure that their party (or ethnicity) will retain political power, especially in contexts of high political uncertainty. This is especially true when examining the politics of earmarking for providing **public** goods that cannot be handed out selectively to particular winning coalitions. Thus, together with the fact that different types of taxes impose different burdens on different segments of society, there will be a distribution of net policy winners and losers under general taxation as well; yet the main intuitions of the argument remain unaffected by this possibility, as we assume the type of tax to be uncorrelated with its tax-benefit linkage.

drastically so.[15]

In this case, the condition for lobbying in response to a non-earmarked tax increase is that:

$$2p_g B_l - c_l > 0.$$

Clearly, this is again true when the expected benefits from lobbying are larger than the cost of lobbying, such that $2p_g B_l > c_l$. How small can the belief in general government responsiveness be and still yield positive expected net benefits from lobbying? In other words, how large does the scepticism about the effectiveness of lobbying in citizens' beliefs have to be for citizens to decide not to lobby in response to general taxation? It turns out quite large. Precisely, for the equation to still hold, $p_g > 1/2\ c_l/B_l$. Thus, whenever p_g is sufficiently small, citizens lobby in response to general fund taxation. For example, when the costs of lobbying are half the benefits from lobbying, then it only need to be true that $p_g > 1/4$, a dramatically lower belief that the government is responsive and lobbying will be successful compared to the earmarking case. This is also the condition for comparing levels of participation under general taxation to policy beneficiaries of the earmarked good ($B_l = 0$). When general taxation leads to a reduction in the general beliefs about political efficacy down to p_g less than or equal to 1/4, it will not produce greater participation than earmarking, even when compared to those who are policy beneficiaries from the earmarked good. As such, citizens' beliefs about general responsiveness p are different from the fear of future government discretion over spending policy which are the basis for the benefits of lobbying under general taxation B_l.

Citizens lobby the government in response to general fund taxation whenever:

a. The benefits from lobbying for policy change (B_l) are sufficiently high.

b. The costs of lobbying (C_l) are sufficiently low.

c. Their beliefs about government responsiveness (p_g) are sufficiently high.

Besides quantifying the conditions under which citizens lobby in response to **either** tax-financing instrument, the more interesting question is when one instrument produces more participation than the other. Thus, we now quantify precisely under what conditions general fund taxation produces more political participation than earmarking when $B_l > 0$ under earmarking, that is, compared to citizens for whom the earmarked good is not the ideal point. Put differently, when will:

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[15] The intuition for why general fund taxation makes citizens fear increased government discretion but not necessarily dramatically reduced political efficacy is that the latter concept has been shown to be the rather deeply-ingrained outcome of the more long-run process of socialisation, formed over years of experience with a government (Lieberman and Zhou 2021). Thus, a one-shot implementation of general fund taxation might not be very informative about general government responsiveness.

$$2p_g B_l - c_l > p_e B_l - c_l.$$

Clearly, this is true when the expected utility from lobbying under general taxation is greater than the expected utility from lobbying under earmarking, $2p_g B_l > p_e B_l$ (or $p_g B_l > p_e B_l/2$). How large can the negative shock to citizens' beliefs about systemic political efficacy be under general taxation to still obtain greater participation (even compared to those whose ideal point is not congruent with the earmarked good)? Assuming $B_l > 0$ for citizens under earmarking, the above inequality is true whenever $p_g > p_e/2$; that is, the ratio of the two probabilities of systemic efficacy needs to be less than 1:2. For example, if earmarking has increased the prior $p_e = 0.5$ to $p_e = 0.75$, the negative shock to these beliefs under general taxation cannot lead to a decrease down to less than $p_g = 0.75/2 = 0.35$. Whenever general taxation leads to a general reduction in the overall belief that systemic political efficacy is much lower than this (even though there might be possible benefits from trying to reduce government spending discretion), earmarking will produce greater participation among those that are net policy losers.[16]

In short, under certain conditions, general taxation will still yield greater benefits from lobbying even when compared to those in earmarking who stand to gain the most in terms of policy change, that is, net policy losers. This is because the incentives to lobby under general taxation are qualitatively different **and** twice as large as those under earmarking. At the extreme, when $B_l = 0$ in earmarking, citizens will choose not to lobby, and thus, the comparison of expected utilities is equivalent to the one in the equation above.[17]

Citizens lobby the government in response to general fund taxation more than in response to earmarking whenever the reduction in beliefs about systemic political efficacy in response to general taxation is small enough, that is, as long as $p_g >$

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[16] Note that this condition becomes less strict if we allow for another parameter in the utility function from lobbying in response to earmarking that captures the probability that, in fact, $B_l > 0$. This would represent the probability of the ideal point being incongruent with the earmarked policy, against which the benefits from lobbying would additionally need to be weighed against. We omit this additional complication here for simplicity but note that introducing this additional constraint would yield even stronger predictions about the participation dividend of general fund taxation, as is evident from analysing the case of $B_l = 0$ under earmarking as conducted above. This implies that we keep the distribution of preferences over policy constant across strengths of the tax-benefit linkage so that preferring a particular kind of policy is unrelated to the tax-benefit linkage.

[17] A source of heterogeneity not captured in the formal argument above is citizens' prior experience with public goods provision (which may or may not be orthogonal to beliefs about political efficacy). When public goods provision by the formal state is extensive and broad, citizens are more willing to pay taxes (Bodea and LeBas 2016; Castaneda, Doyle and Schwartz 2020), making tax evasion as an exit option less and exerting voice more likely. Prior experience with public goods provision may also alter which signals different tax-benefit linkages would send in these contexts. Earmarking tax revenue for successful public goods provision reduces incentives to mobilise politically, whereas general fund taxation in a context of broad-based public goods provision might not be interpreted as a discretion-enhancing strategy by the government, reducing incentives to mobilise. Overall, this line of reasoning does not predict a **difference** in participation rates across different tax-benefit linkages, just that overall levels of participation might be lower.

$p_e/2$. Note that if this is not the case, that is, when earmarking simultaneously increases beliefs about the government's responsiveness p_e sufficiently, policy change becomes a central motivation to engage in politics and may increase in relative importance *vis-à-vis* information seeking and discretion reduction. This is because the likelihood of policy change, conditional on lobbying, increases, and thus, there is a chance that changing the target of earmarking would be effective. Thus, the pre-existing distribution of policy preferences would matter a lot in this case. Yet, it would be much less relevant under general fund taxation since the policy is unknown *ex ante*. This would change the notion of how strong a commitment earmarking really is, and it would imply that it may be more costly for the government to switch from earmarked item one to earmarked item two than it is to switch from general fund taxation to earmarked taxation. Thus, varying beliefs about government responsiveness induced by the tax-benefit linkage itself may produce competing conclusions.

This theoretical framework formalises three main intuitions:

1. Earmarking and general fund taxation produce different incentives for citizens to engage in costly political action with different motivations for participation. These incentives arise purely due to the differential amount of information provided by the government about the spending purposes of taxation. The signal that general fund taxation sends in many low-capacity states is one of potential rent-seeking and corrupt behaviour on the part of the government. In response, citizens have incentives to (1) seek information about **current** government spending to determine if spending is actually misaligned with their preferences and (2) exert voice to reduce **future** spending discretion the government would enjoy. These incentives will need to be balanced against the probability of government responsiveness to these lobbying efforts, which may be lower under general taxation; yet, as long as these beliefs are not completely zero, citizen lobbying in response to general taxation should be greater than to earmarked taxation and is driven by different motives. In other words, if the negative shock to general political efficacy from general taxation is not too large, general fund taxation should produce higher levels of participation by a broader segment of society and that goes beyond simply lobbying for policy change.

2. Although citizen voice should be lower on average in response to earmarked taxation than to general taxation, we still expect lobbying to be beneficial in response to earmarked taxation for the subset of citizens for whom the current earmarked good is not the ideal point, as they have an incentive to lobby for policy change. By contrast, **all** citizens have two incentives to engage in political action in response to general taxation: (1) they seek information in the absence of government-provided transparency; and (2) they lobby for greater accountability, as they infer from the government's decision not to earmark that it is trying to increase its future spending discretion and thus rent-seeking.

However, the critical difference here is that only for some citizens is $B_l > 0$ under earmarking, whereas it is $B_l > 0$ for all citizens under general taxation since, in that case, utility is not derived from ideal policy but from more precise policy information and greater government accountability. Thus, even for low values of beliefs in government responsiveness, general taxation should produce more citizen participation.

3. These implications are particularly visible for citizens whose ideal point is already implemented in the current earmarked policy, i.e. for those with $B_l = 0$ chose not to lobby instead and obtain a payoff of 0. In this case, even when beliefs about government responsiveness are very low, general taxation may still produce more citizen mobilisation.

We can derive the following main empirical implication from the propositions above:

H1 Citizens are more likely to engage in political action in response to general taxation than to earmarked taxation.

Of course, the alternative hypothesis (H2) is that citizens are more likely to engage in political action in response to earmarked taxation than to general taxation. In addition, if the mechanisms outlined in the theoretical framework above are at play, we should observe that compared to earmarked taxation, citizens are more likely to engage in political action to seek revenue information (H3a) and reduce government discretion (H3b) in response to general fund taxation. By contrast, compared to general fund taxation, citizens are more likely to engage in political action to change policy (H3c) in response to earmarked taxation, especially when the benefits from the earmarked good are higher (H3d). We should also observe empirically that compared to earmarked taxation, the larger the increase in participation in response to general fund taxation, the better the beliefs about government responsiveness (H4a) and the lower the benefits from the earmarked good (H4b).

References

Anyidoho, N. A.; Gallien, M.; Rogan, M. and van den Boogaard, V. (2022) *Mobile Money Taxation and Informal Workers: Evidence from Ghana's E-Levy*, ICTD Working Paper 146, Brighton: International Centre for Tax & Development (accessed 13 May 2024)

Ashworth, S. (2012) 'Electoral Accountability: Recent Theoretical and Empirical Work', *The Annual Review of Political Science* 15.1: 183–201

Bodea, C. and LeBas, A. (2016) 'The Origins of Voluntary Compliance: Attitudes toward Taxation in Urban Nigeria', *The British Journal of Political Science* 46.1: 215–238

Bolt, J.; Gardner, L.; Kohler, J.; Paine, J. and Robinson J. A. (2022) *African Political Institutions and the Impact of Colonialism*, Working Paper 30582, Cambridge MA: National Bureau of Economic Research

Breton, A. (1996) *Competitive Governments*, Cambridge: Cambridge University Press

Brockmann, H.; Genschel, P. and Seelkopf, L. (2016) 'Happy Taxation: Increasing Tax Compliance Through Positive Rewards?', *The Journal of Public Policy* 36: 381–406

Buchanan, J. M. (1963) 'The Economics of Earmarked Taxes', *The Journal of Political Economy* 71: 457–469

Bueno de Mesquita, B. and Smith, A. (2011) *The Dictator's Handbook: Why Bad Behavior is Almost Always Good Politics*, New York NY: PublicAffairs (Hachette Book Group)

Bueno de Mesquita, B.; Smith, A.; Siverson, R. M. and Morrow, J. D. (2003) *The Logic of Political Survival*, Cambridge MA: MIT Press

Bueno de Mesquita, E. and Shadmehr, M. (2022) 'Rebel Motivations and Repression', *The American Political Science Review* 117.2: 1–17

Castañeda, N.; Doyle, D. and Schwartz, C. (2020) 'Opting Out of the Social Contract: Tax Morale and Evasion', *Comparative Political Studies* 53.7: 1175–1219

de la Cuesta, B.; Martin, L.; Milner, H. V. and Nielson, D. L. (2021) 'Owning It: Accountability and Citizens' Ownership over Oil, Aid, and Taxes', *The Journal of Politics* 84.1

Dhillon, A. and Perroni, C. (2001) 'Tax Earmarking and Grass-Roots Accountability', *Economics Letters* 72.1: 99–106

Dunning *et al.* (2019) '[Voter Information Campaigns and Political Accountability: Cumulative Findings from a Preregistered Meta-Analysis of Coordinated Trials](#)', *Science Advances* 5.7

Flores-Macías, G. A. (2018) 'Building Support for Taxation in Developing Countries: Experimental Evidence From Mexico', World Development 105: 13–24

Gottlieb, J. (2022) 'How Economic Informality Constrains Demand for Programmatic Policy', *The American Journal of Political Science* 68.1: 1–18

Grossman, G; and Slough, T. (2022) 'Government Responsiveness in Developing Countries', *Annual Review of Political Science* 25.1: 131–153

Grossman, G.; Michelitch, K. and Prato, C. (2022) 'The Effect of Sustained Transparency on Electoral Accountability', working paper, unpublished at time of citation

Gruber, J. (2019) *Public Finance and Public Policy*, 6th ed., Worcestershire: Worth Publishers

Harding, R. (2020) 'Who Is Democracy Good For? Elections, Rural Bias, and Health and Education Outcomes in Sub-Saharan Africa', *The Journal of Politics* 82.1: 241–254

Henn, S.; Paler, L.; Prichard, W.; Sanchez de la Sierra, R. and Samii C. (2022) 'Engaging or Avoiding the State: How Empowerment Affects Citizen Payments for Public Services', Working Paper: 1–39, unpublished at time of citation

Hirschman, A. O. (1972) *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States*, Cambridge MA: Harvard University Press

Hsiung, B. (2001) 'A Note on Earmarked Taxes', *Public Finance Review* 29.3: 223–232

IMF (2007) *Manual on Fiscal Transparency*, Washington DC: International Monetary Fund

Kallbekken, S. and Aasen, M. (2010) 'The Demand for Earmarking: Results From a Focus Group Study' *Ecological Economics* 69: 2183–2190

Kiser, E. and Karceski, S. M. (2017) 'Political Economy of Taxation', *Annual Review of Political Science* 20: 75–92

Kosack, S. and Fung, A. (2014) 'Does Transparency Improve Governance?',

Annual Review of Political Science 17.1: 65–87

Levi, M. and Kiser, E. (2015) *Spend and Tax: Why and When States Underprovide Public Goods*, working paper, Berkeley CA: Center on the Politics of Development

Lieberman, E. and Zhou, Y.-Y. (2021) 'Self-Efficacy and Citizen Engagement in Development: Experimental Evidence from Tanzania' *The Journal of Experimental Political Science* 9.1: 1–18

Martin, I. W.; Mehrotra, A. K. and Prasad, M. (eds) (2009) *The New Fiscal Sociology*, Cambridge: Cambridge University Press

Martin, L. (2016) 'Taxation, Loss Aversion, and Accountability: Theory and Experimental Evidence for Taxation's Effect on Citizen Behavior', Working Paper, unpublished at time of citation

McCleary, W. (1991) 'The Earmarking of Government Revenue: A Review of Some World Bank Experience', *The World Bank Research Observer* 6: 81–104

Meadowcroft, J. (2011) 'Accountable and Responsive Government: The Value of Earmarked Taxation', *Economic Affairs* 31.3

Mosley, P. and Abdulai, A.-G. (2020) 'The Political Economy of Progressive Fiscal Contracts in Africa and Latin America', *Development Policy Review* 38: 411–427

Olson, M. (1971) *The Logic of Collective Action: Public Goods and the Theory of Groups*, Cambridge MA: Harvard University Press

Paler, L. (2013) 'Keeping the Public Purse: An Experiment in Windfalls, Taxes, and the Incentives to Restrain Government', *American Political Science Review* 107: 706–725

Paler, L.; Marshall, L. and Atallah, S. (2018) 'The Social Costs of Public Political Participation: Evidence from a Petition Experiment in Lebanon', *Journal of Politics* 80.4: 1–6

Paler, L.; Prichard, W.; Sanchez de la Sierra, R. and Samii, C. (2017) *Survey on Total Tax Burden in the DRC, Final Report*, Research Report, Brighton: Institute of Development Studies (accessed 13 May 2024)

Prichard, W. (2015) *Taxation, Responsiveness and Accountability in Sub-Saharan Africa*, Cambridge: Cambridge University Press

Prichard, W. (2010) *Taxation and State Building: Towards a Governance Focused Tax Reform Agenda*, IDS Working Paper 341, Brighton: Institute of Development Studies (accessed 13 May 2024)

Prichard, W. (2009) *The Politics of Taxation and Implications for Accountability in Ghana 1981–2008*, IDS Working Paper 330, Brighton: Institute of Development Studies (accessed 13 May 2024)

Ross, M. L. (2001) 'Does Oil Hinder Democracy?', *World Politics* 53.3: 325–361

Sheely, R. (2015) 'Mobilization, Participatory Planning Institutions, and Elite Capture: Evidence from a Field Experiment in Rural Kenya', *World Development* 67: 251–266

Teja, R. S. (1988) 'The Case for Earmarked Taxes', *Staff Papers* 35:523–533, Washington DC: International Monetary Fund

van den Boogaard, V.; Prichard, W.; Beach, R. and Mohiuddin, F. (2022) 'Enabling Tax Bargaining: Supporting More Meaningful Tax Transparency and Taxpayer Engagement in Ghana and Sierra Leone', *Development Policy Review* 40.1: e12543

Wagner, R. (1991) *Charging for Government: User Charges and Earmarked Taxes in Principle and Practice*, Abingdon-on-Thames: Routledge

Weigel, J. L. (2020) 'The Participation Dividend of Taxation: How Citizens in Congo Engage More with the State when it Tries to Tax Them', *The Quarterly Journal of Economics* 135.4: 1849–1903

Wicksell, K. (1896) 'A New Principle of Just Taxation', in R. Musgrave and A. Peacock (eds), *Classics in the Theory of Public Finance*, London: Macmillan

Wilkinson, M. (1994) 'Paying for Public Spending: Is There a Role for Earmarked Taxes?', *Fiscal Studies* 15: 119–154

World Bank (2023) *Worldwide Governance Indicators* (accessed 12 May 2024)