

Revenue Source and Electoral Accountability: Experimental Evidence from Local U.S. Policymakers

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Abstract

Existing research suggests that tax-reliant governments are more accountable to citizens. This pattern is consistent with micro-level evidence that citizens who are taxed are more willing and able to demand accountability from leaders. However, there is no evidence on how elected officials themselves view citizen pressures to spend tax and non-earned incomes differently. This is especially important as theories of tax bargaining provide an alternative explanation for the taxation-accountability link. We fill this gap using a set of survey experiments conducted on elected municipal officials in the U.S. We find that officials report being less likely to misuse tax funds, relative to outside grants, and more likely to spend them on citizens' preferences. This is driven by the perception that electoral penalties are higher when tax funds are misused. Officials believe citizens feel stronger ownership over local tax funds and seek more information about how they are used.

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1 Introduction

The argument that taxation leads to better representation and governance is central to many theories of representation and democratization (Bates and Lien, 1985; North and Weingast, 1989; Levi, 1989), both in studies of the historical development of representative governments (Tilly, 1992; Stasavage, 2011), and those on government accountability in contemporary settings (Brautigam, Fjeldstad and Moore, 2008; Prichard, 2015). Consistent with this argument, existing empirical evidence suggests that governments funded primarily by taxes, rather than non-earned revenues such as oil, aid, or grants, exhibit better governance across a range of outcomes (Ross, 2004; Timmons, 2005; Baskaran and Bigsten, 2013; Gadenne, 2016; Fisman and Gatti, 2002; Brollo et al., 2013).

A critical gap in this literature is clear empirical evidence of the mechanisms that link taxation to accountability. Of particular interest are those mechanisms facilitated by the electoral connection between voters and policymakers. Previous work has found that citizens who pay taxes are more willing (Martin, 2014) and able (Rodden, 2005; Paler, 2013) to hold elected officials accountable. However, it is not obvious *a priori* that politicians are aware that taxation affects citizen behavior, or that the effects are strong enough to alter policymakers' electoral incentives, given citizens' low information about funding and the leeway that policymakers often enjoy in their responsiveness to public opinion. This paper addresses this gap by examining how different revenue sources affect elected officials' incentives to respond to citizens' preferences over government spending.

This lack of evidence on the electoral connection is especially concerning as an alternate mechanism can explain the correlations between taxation, representation, and accountability. Theories of tax bargaining posit that the ability to withhold taxes grants citizens a non-electoral source of leverage over revenue-dependent politicians, who grant citizens' demands in order to secure quasi-voluntary tax compliance (Levi, 1989; North and Weingast, 1989; Bates and Lien, 1985). This effectively reverses the direction of causation: tax revenues are higher when governance is good, rather than taxation driving good governance directly.

To advance our understanding of how taxation leads to better accountability, we develop a series of hypotheses that lay out the different mechanisms through which revenue source could affect policymakers' perceptions of their electoral incentives. We then test these hypotheses through a series of surveys, including survey experiments, on a large sample of actual policymakers who allocate government expenditures: elected municipal officials from across the United States. To allow clear causal identification of revenue source's impact on accountability pressures, and to be able to unpack the mechanisms behind this relationship, we focus on elected officials' *beliefs* about how revenue source affects the pressures they face from citizens; the impact of these pressures on electoral outcomes; and the likelihood that local taxes are allocated and spent differently than outside grants. To our knowledge, this is the first survey to systematically examine officials' perceptions of the effects of revenue source on accountability.

U.S. municipal officials are ideal subjects for our research question because their government budgets rely heavily on both local taxes and non-earned revenues in the form of intergovernmental transfers from state and federal agencies. In 2013, these grants accounted for 32% of total revenue (U.S. Census Bureau, 2015).¹ U.S. local officials also play an important role in the provision of public goods and services, accounting for \$1.7 trillion (29.5%) of total government spending within the U.S. (U.S. Census Bureau, 2015) across a range of critically important services such as roads, police and fire protection, schools, parks, and public utilities.

Examining this question in the U.S. context also presents a hard test of the theory. In the U.S., municipal grants are often derived from taxes paid to state and federal governments; citizens who are cognizant of this should treat all government funds equally. However,

¹Local taxes accounted for 36% while fees, including utilities, accounted for another 24%. Though these figures include school districts, the National League of Cities (2016) estimates that intergovernmental transfers from states still accounted for 20 to 25% of municipalities' revenue.

the literature on fiscal illusion suggests that central transfers may obscure the source of funding in citizens' eyes (Oates, 1999; Rodden and Wibbels, 2002; Tanzi, 1996). Additionally, accountability in the U.S. is typically fairly high, thus making it unclear whether patterns of governance and revenue source should hold in this setting. If top-down accountability pressures from the agencies that make grants are sufficiently strong, they may be able to compensate for weak bottom-up accountability pressures from citizens.

We examine two ways in which accountability can break down at the local level. First, officials can spend funds on their own priorities, rather than accurately representing citizens' preferences—what we refer to as *policy incongruence*.² Second, they can *misuse* funds through embezzlement or patronage once they are allocated to a particular project. Our experiments first test whether municipal officials believe that local taxes are more likely to be spent on citizens' preferences, relative to outside grants, and whether misuse is perceived as more likely for non-earned revenues. We then examine the evidence for whether these patterns are driven by stronger bottom-up accountability pressures from citizens, namely whether electoral sanctions for misuse or policy incongruence are perceived as more likely when tax funds are involved. Additional experiments examine the electoral sanctioning mechanism in more detail, testing whether officials believe that citizens have more information about how tax funds are spent and whether citizens are perceived as more likely to demand accountability if tax funds are misused. Finally, we test the perceived extent to which grantors can credibly enforce top-down accountability pressures to spend grants well.

The results demonstrate that elected municipal officials believe that projects using tax funds are significantly more likely to be allocated to citizens' priorities, and less likely to be misused, compared to projects funded by outside grants. Furthermore, elected municipal officials believe that they are more likely to face a challenger, and to ultimately lose office,

²Policy incongruence, by this definition, could include situations in which an official sincerely believes his preferences are more favorable to the public interest than citizens' preferences.

as a result of a scandal involving tax dollars. This effect is driven by perceptions of stronger citizen engagement: officials believe that citizens care more about how tax dollars are spent, relative to grants, and that they are more likely to seek information about how tax funds are spent. Finally, we show that, while grantor agencies are perceived as caring about whether funds are misused, they are also seen as having poor information about local priorities; ultimately, top-down accountability pressures appear unable to compensate for weak bottom-up accountability when spending grant funds.³

Our experiments provide, to the best of our knowledge, the first direct evidence that elected officials believe that they face differential pressures for spending earned and non-earned revenues. We also add to the literature on fiscal decentralization. While it is beyond the scope of this paper to make general claims about the benefits of decentralization, we provide new evidence in support of theories of fiscal illusion, including the mechanisms through which it functions: elected officials appear to believe that funneling taxes through the federal government obscures their origin, making citizens less likely to sanction officials for misuse or misrepresentation. Our results on top-down monitoring by grant agencies suggests additional implications: even in a high-accountability setting such as the United States, top-down monitoring of grant funds appears unable to fully compensate for weaker bottom-up monitoring. As many developing countries have weak top-down monitoring systems, this paper therefore suggests one reason why decentralization appears to have more positive impacts in developed countries (Bardhan, 2002; Treisman, 2007). However, more work is needed to show that this is indeed the case.

³As discussed below, grantor agencies may also fund projects that match their own priorities, even if they are aware that citizens oppose the project.

2 Theories of Revenue Source and Accountability

Following Fearon (1999), we define an accountable government as one that chooses the policies and budget most preferred by citizens, then implements these policies efficiently and without patronage or corruption. This definition suggests two distinct ways in which accountability in the use of government funds can break down. First, officials can spend funds on projects that they themselves prefer, rather than on projects favored by citizens. We refer to this as *policy incongruence*. Second, once funds are allocated officials can *misuse* them in some way. This could include outright embezzlement, but also using funds inefficiently by favoring incompetent contractors, overpaying for services in return for bribes, or overly expanding public payrolls. While the welfare effects of misuse are unambiguously negative, the effects of policy incongruence are not as clear. If, for example, politicians have better information or longer time horizons than citizens, they may prefer policies that are welfare-improving compared to those citizens would prefer (see discussion in Section 6).

A growing literature suggests that both policy congruence and misuse are affected by how governments are funded, with “non-earned” revenues such as central transfers, resource rents, or foreign aid typically seen as detrimental to both. Crossnational analysis shows that taxation and democratization are positively correlated (Ross, 2004), and that government spending and other policies tend to favor those who bear the brunt of taxation (Timmons, 2005). At the subnational level, evidence from Brazil suggests that public goods provision is higher when local governments rely on local taxes for revenues (Gadenne, 2016). Taxation is also linked to misuse more specifically. Baskaran and Bigsten (2013) shows that taxation and corruption are negatively related across sub-Saharan Africa, and similar patterns are evident at the municipal level in Brazil (Brollo et al., 2013). In the U.S., states that rely more heavily on federal transfers have more corruption convictions (Fisman and Gatti, 2002).

One common theory attributes this relationship between taxation and accountability to taxation’s effects on citizens’ ability or willingness to hold government officials accountable: bottom-up accountability pressures may simply be stronger for spending financed by tax-

ation. There are two main versions of this theory. The first argues that taxation makes citizens more willing to take costly actions to sanction poor government performance. The proposed mechanism for this effect is loss aversion: by sending citizens below their reference point, taxation makes citizens more sensitive to the utility they lose due to corruption or non-optimal policy choices; this in turn increases citizens' willingness to punish (Sandbu, 2006; Paler, 2013; Martin, 2014). The second version of the theory posits that taxation either directly grants citizens more information about the government's budget, or makes citizens more willing to pay to monitor the government (Paler, 2013; Gadenne, 2016). This is in line with theories of "fiscal illusion," which argue that citizens do not connect the tax payments they make to one level of government and services received from another level, leading to poor efficiency and accountability outcomes (Oates, 1991, 1999; Rodden and Wibbels, 2002; Tanzi, 1996). More generally, grants can "create the appearance that local public expenditures are funded by non-residents" (Rodden and Wibbels, 2002); central transfers may obscure which level of government should be held responsible for poor performance (Rodden, 2005; Wibbels, 2006).

There is evidence that taxation does indeed impact citizens' ability and willingness to monitor and sanction government behavior. Martin (2014) uses laboratory experiments in Uganda to show that citizens are more willing to pay to sanction leaders when taxed. Experimental evidence from Indonesia suggests that taxed citizens are more likely to pay for information about government performance, supporting the monitoring story, but does not find support for the loss aversion mechanism (Paler, 2013).

There are, however, reasons to doubt whether the micro-level effects of taxation on citizens' information and behavior will be sufficient to affect accountability outcomes in the aggregate. Existing evidence for these micro-level effects relies on survey and laboratory experiments; there is no evidence that these effects persist in the presence of collective action problems and other real-world barriers citizens face in making demands of politicians. It is also possible that citizens are indeed more likely to punish misuse or policy incongruence

when tax dollars are at stake, but that elected officials are either unaware that this is the case, or believe that such pressures are relatively weak. In either case, we should not expect politicians' behavior to be affected.

There are also reasons to doubt that central transfers are similar to other non-earned revenue sources. Grants to local governments are themselves often derived from citizens' taxes to higher-level government units. If citizens realize this, they may be equally likely to monitor and sanction local officials for both types of funding; the existing evidence on citizens' behavior comes from settings where the alternative to tax dollars is resource rents or aid. Even if citizens are more likely to monitor and sanction leaders for how they spend local taxes, lower citizen pressures to spend transfers well may be offset if granting agencies have the ability to monitor local government spending, and to credibly threaten to withhold future funding from those who misuse grants. Thus, strong top-down monitoring by grantors could compensate for weaker citizen pressures, resulting in tax and grants funds being used equally as well. This is in line with Olken (2007) and Serra (2012), which find top-down monitoring to be more effective than bottom-up pressures at reducing corruption.

These issues are especially pertinent as there is another plausible explanation for the correlation between taxation and accountability. In most countries, the United States included, citizens pay taxes not only because of the threat of fines, but because they receive benefits in return. Citizens' ability to withhold tax revenue grants them leverage over revenue-dependent politicians, who must offer institutional or policy concessions—including less rent seeking—in order to generate quasi-voluntary tax compliance among citizens (Levi, 1989; North and Weingast, 1989; Bates and Lien, 1985). This suggests that the correlations between taxation and accountability could be driven, not by higher tax revenues lowering corruption, but by politicians deciding to limit corruption and improve policy congruence in order to extract tax revenues more easily.

3 Revenue Source and Policymakers' Perceptions of Voter Behavior

To deepen our understanding of the relationship between taxation and higher accountability, we therefore need a better understanding of whether taxed citizens' demands for higher accountability flow through the electoral connection from voters to their elected representatives. In this paper, we propose that taxation results in more policy congruence and less misuse because policymakers believe that they face more oversight and electoral accountability from constituents on the allocation of locally derived tax dollars as opposed to other outside revenues, such as aid or, in the case of local policymakers, intergovernmental transfers.⁴

We focus policymakers' perceptions of how voters will behave for two reasons. First, this approach provides several methodological advantages, which we discuss in more detail in the next section. Second, our focus on policymakers' perceptions is consistent with foundational theories of representation and legislative behavior, which hinge on elite-level perceptions of the electoral consequences of their actions (Miller and Stokes, 1963; Kingdon, 1967; Mayhew, 1974; Fenno, 1978; Arnold, 1990). As Kingdon explains, a politician's "explicit or implicit theory of voting behavior" "affects his important decisions on roll-calls, policy stands, campaigns, and the like" (Kingdon, 1967, 137-138). In fact, central theories of legislative behavior often dismiss the relevance of the *accuracy* of politicians' theories of voter behavior for explaining their decision-making. For example, in considering the U.S. Congress' penchant for pork-barrel spending, Mayhew (1974) argues that it does not matter

⁴Another potential mechanism would be a selection model, in which candidates and policymakers who are less responsive to citizens' demands between different revenue sources are less likely to win or retain office; this would not require politicians to be cognizant of the role revenue source plays in electoral accountability. While testing this mechanism is outside the scope of this paper, it could strengthen taxation's effects on accountability by strengthening the mechanism tested here.

“how much particularized benefits count for at the polls” (57) as long as “the lore is that they count” (57). Arnold (1990) is even more explicit in the dominance of elected officials’ perceptions of voter behavior over the reality: “What is relevant is how frequently legislators stop to calculate whether their actions in congress might stimulate citizens to reward or punish them at the polls” and not whether their beliefs on this front are accurate (46).⁵ Moreover, this paper’s focus on explaining and measuring policymakers’ perceptions to make inferences about their behavior in office follows the approach taken by several recent works (e.g., Harden, 2013; Butler and Powell, 2014; Butler, Naurin and Öhberg, 2016).

American municipalities provide an excellent, albeit difficult, test of this taxation-accountability link. The United States has around 25,000 municipalities, each of which is responsible for providing a wide range of public goods and services to its residents (U.S. Census Bureau, 2012).⁶ To produce these goods and services, municipal politicians must first allocate funds between different sectors, then actually spend that money on salaries, service provision, infrastructure, and other key areas. While U.S. municipalities do generate local tax revenues, they also receive nearly a third of their funding from intergovernmental transfers (U.S. Census Bureau, 2015).

Understanding how U.S. municipal officials perceive the connection between revenue source and accountability pressures requires several steps. The remainder of this section describes these steps in more detail, using them to derive the testable hypotheses summa-

⁵Though we do not formalize our theory, a focus on politicians’ perceptions is also consistent with a perfect Bayesian equilibrium, in which players optimize their behavior based on their beliefs about their opponents’ strategies, rather than the actual strategies employed by other players. Here, politicians maximize their probability of reelection given their beliefs regarding how citizens will respond to their decisions in office.

⁶We define municipalities as sub-county general purpose governments, which excludes special districts, as identified by the U.S. Census Bureau.

rized in Table 1. First, we must know whether municipal officials believe that they, and other local officials, do in fact treat tax and grant funds differently. In particular, we expect that local officials should report that local revenues are more likely to be allocated to citizen priorities (policy congruence), and less likely to be misused or stolen (misuse) when derived from local taxes (*Hypothesis T1: Accountability* in Table 1). In one of the survey experiments below, we also consider two other common types of funding for purposes of comparison: grants that require matching funds in the form of local taxes (“matching grants”), and grants that are allocated by the municipalities’ state representative, commonly referred to as pork-barrel spending. We expect that perceived misuse and policy incongruence for matching grant spending will be in between tax and pure grant spending. Our expectations for pork spending are less clear; oversight by state-level politicians may improve accountability, but if pork projects are meant to benefit local business partners or specific constituencies, rather than the district at-large, the opposite may occur.

One reason why officials might report that they are more accountable for how they spend local taxes, relative to outside grants, is that they believe that they face stronger pressures from citizens for how they spend local taxes. Given the importance of reelection incentives for politicians, we may expect that these pressures will work through the electoral connection. In particular, officials may believe that those who do not honor citizen priorities when spending tax dollars may be more likely to face electoral challengers in the future, or to actually lose office as a result of misuse or policy incongruence (*Hypothesis T2: Electoral*).

Increased electoral sanctions could occur because citizens are actually more likely to punish misuse or policy incongruence involving tax funds (*Hypothesis T3: Behavioral*), or because they are more likely to find out about misuse or policy incongruence involving tax funds (*Hypothesis T4: Informational*). If the behavioral theory is correct, we should expect that local officials believe that citizens are more likely to see tax dollars as “their” own money, and to care more strongly about tax spending. If the informational theory is correct, we should expect politicians to perceive citizens as more likely to seek out information about

Hypotheses: Taxes and Bottom-up Accountability		
#	Label	Hypothesis: Relative to outside grants...
T1	Accountability	Officials believe that policy incongruence and misuse of funds will be lower for projects funded by local taxes.
T2	Electoral	Officials believe they are more likely to face electoral sanctions for misuse or policy incongruence involving taxes.
T3	Behavioral	Officials believe that citizens care more about how local taxes are spent.
T4	Informational	Officials believe that citizens are more likely to seek information regarding how local taxes are spent.

Hypotheses: Grants and Top-Down Accountability		
#	Label	Hypothesis:
G1	Grant Information	Officials believe that granting agencies will have poor information about policy incongruence involving grants.
G2	Grant Monitoring	Officials believe that granting agencies will have good information about misuse involving grants.
G3	Grant Sanctions	Officials believe that misuse of grant funds will cause a municipality to lose future grants.

Table 1: *Hypotheses*. This table summarizes the hypotheses tested in the survey experiments below.

how tax dollars are spent. As one of the key ways in which citizens receive information about local government is through local media outlets, we may also expect that these outlets will respond to higher citizen interest by being more likely to cover stories involving tax funding.

Finally, if municipal officials are more accountable for how they spend local taxes, relative to outside grants, they must also believe that the “top-down” pressures they face from granting agencies must be insufficient to compensate for lower citizen pressures to spend grant funds well. This could occur if grant agencies lack good information about how grants are spent, or if they are unwilling or unable to impose sanctions when policy incongruence or misuse occurs. There may be significant differences in how granting agencies respond to misuse compared to policy incongruence. The decentralization literature suggests that higher-level granting agencies may lack the local information necessary to determine whether grant-funded projects accord with citizen preferences; agencies may even explicitly fund projects that local preferences make unlikely to be funded otherwise. Thus, we expect that municipal officials perceive granting agencies as lacking good information about citizen preferences, and unlikely to be aware of policy incongruence involving grants (*Hypothesis G1: Grant Information*).

In contrast, we expect granting agencies to treat misuse more severely. Through reporting requirements and audits, we expect municipal officials to believe that granting agencies are likely to find out about misuse (*Hypothesis G2: Grant Monitoring*). If misuse occurs, granting agencies will likewise have stronger incentives to sanction malfeasant cities, likely by cutting off any additional grant funding in the future (*Hypothesis G3: Grant Sanctions*). If this is true, and misuse is still more common among grant-funded projects, we interpret that as meaning that the loss of future funding is perceived by officials as less severe than the loss of a future election.

4 Measuring Policymakers' Perceptions

To examine our hypotheses, we included a set of survey questions on two large, nationwide surveys of elected municipal officials in the U.S., the 2012 and 2014 American Municipal Official Surveys (AMOS 2012 and AMOS 2014). Conducting two rounds of data collection allowed us to analyze our initial results and design a new survey instrument to expand and confirm our findings. The surveys included a variety of questions and experimental elements, which randomized whether a respondent was asked about tax or grant funds. This made it difficult for respondents, who may not want to admit that they believe that they are less accountable to the public for grant expenditures, to adjust their responses accordingly.⁷ The experimental questions also provide leverage on causal inference, allowing us to examine how different factors affect policymakers' perceptions. In this way, we are following other recent work that employs survey experiments to study elites' perceptions and behavior (e.g., Fatas, Neugebauer and Tamborero, 2007; Butler and Dynes, 2016; Butler and Preece, 2016).

Although an analysis of actual budget allocations could be an important component of understanding the effects of revenue sources, our survey approach is advantageous over such an alternative method for several reasons. First, even if sufficiently detailed revenue source and expenditure data could be collected at the municipal level, the lack of exogenous variation in the degree to which American towns and cities rely on taxation makes it difficult to make causal claims. Second, identifying whether officials are more likely to fund citizens' priorities over their own would require detailed data on public opinion and public officials' preferences that are typically not available. Third, even if we could reasonably isolate the causal relationship between revenue sources and expenditures, we would not be able to adjudicate between the potential mechanisms outlined in previous sections. Our measures of

⁷To explain our results, any social desirability bias would have to make officials more concerned about social desirability for questions about tax funds, relative to grants. Such an effect would, we argue, confirm that the effect that we wish to measure does in fact exist.

policymakers' perceptions overcome these barriers and has one additional advantage, namely that such perceptions are in fact the key missing link in existing evidence on taxation and accountability, falling in between overall correlations between revenue source and accountability, and micro-level evidence on citizen behavior.

For AMOS 2012 and AMOS 2014, the population of city officials was constructed by having research assistants search for the websites of each sub-county general purpose government identified by the U.S. Census. If a website was found, they then collected the name and email address of the city's elected officials. This resulted in a list of over 25,000 officials for each survey.⁸ The officials were then invited to participate via an email with a link to the online survey, which was administered using Qualtrics. Two follow-up email reminders were sent in the month after the initial invitation.

The surveys had response rates of about twenty-three percent (2012) and eighteen percent (2014), which is on par with other recent online surveys of elites (e.g., Fisher and Herrick, 2013; Harden, 2013). Respondents come from a wide variety of municipalities, although policymakers from larger municipalities were slightly more likely to participate. That officials from larger towns were more likely to take the survey also means that respondents are more representative of the types of cities in which most Americans live, reducing concerns about the representativeness of our respondents. About twenty-three percent of the respondents were serving as the municipality's elected chief executive (mayor), with the remaining respondents serving as elected legislators (city councilors or the equivalent). Surveys completed by staff on behalf of an elected official were excluded from the analysis. Because different subsets of the sample received different subsets of the questions described below, the number of observations varies by question. A full description of the survey sample is provided in Appendix A. To simplify presentation, the following section describes the components of

⁸To minimize survey costs, municipalities of fewer than 3,000 residents were excluded from AMOS 2014. Such municipalities are unlikely to have websites, and had low response rates for AMOS 2012.

each survey and reports the results.

5 Results

This section reports the survey measures and results from AMOS 2012 and AMOS 2014. The online appendix reports the full text of each survey question. We first test whether officials report using tax and grant funds differently, then examine the mechanisms behind the results.

5.1 Revenue Source and Spending Decisions

AMOS 2012 included a non-experimental question that directly measures whether municipal officials believe that policy congruence is higher for local taxes, relative to grants. The question explained to respondents that some scholars believed that local taxes were more likely to be spent on citizens' priorities than central transfers, grants, or natural resource royalties, then directly asked officials whether they agreed that "elected officials are more likely to spend local taxes on public goods for the community and on things that their constituents want." To avoid influencing the other survey questions, this question was put at the end of the survey. The majority of respondents (61.7%) agreed at least somewhat with the statement; only 27.8% actively disagreed.⁹ This is especially striking given that any social desirability bias should presumably lead respondents to under-report ever deviating from citizens' wishes. City councilors who responded to the survey are also likely, on average, more public-minded than those who did not, and thus less likely to agree with such a statement.¹⁰

⁹We coded agreement as those who chose "somewhat agree", "agree", or "strongly agree".

¹⁰AMOS 2012 also included two vignette-style survey experiments that attempted to test how revenue source affects budget allocations. These vignettes returned null findings. However, qualitative feedback from respondents confirms that the vignettes were seen as vague

AMOS 2014 included a survey experiment designed to provide evidence for the policy incongruence and misuse hypotheses. In the experiment, each respondent was randomly assigned to either the *misuse* condition or the *policy incongruence* condition. In both conditions, respondents were shown pairs of hypothetical capital improvement projects, and asked in which project they believed misuse (Treatment 1) or policy incongruence (Treatment 2) was more likely to occur. Respondents were given no information about the project, other than the funding source and the fact that it was a capital improvement project.

Four funding sources were possible. The first two funding types—“entirely by local tax dollars” and “entirely by a grant that does not require matching funds”—test the differences between “pure” tax and grant funding. Two additional funding types were included to generate a more nuanced picture of outside grants. The third type was funded “entirely by a grant that was secured by a state legislator whose district overlaps with yours”; this “pork” condition tests whether grants that include top-down pressures from a state-level official would be treated more like tax or grant funds. As many grants require matching funds from the recipient, the final project type was funded “by a grant that includes local matching funds”; we expect that projects funded by such “matching grants” will be in between Tax and Grant, although it is not clear which revenue type they will most resemble. In each case we expect that accountability should be highest for the Tax condition, and lower for all others.

Prior to seeing the project pairs, respondents were given a short prompt explaining either that municipal officials often faced tough choices about whether to spend funds on their own preferences or those of citizens (policy incongruence condition), or that while most officials were honest, sometimes dishonest people use municipal funds improperly (misuse condition). This was designed to minimize social desirability bias and negative responses from officials. The forced-choice design helps to overcome the potentially significant response bias which

and unrealistic. For this reason we exclude the vignettes from our main analysis. The text and results of the vignettes are reported in Appendix C.

may lead officials to under-report the likelihood of either misrepresentation or misuse.

In the analysis, the unit of observation is a single project within a single pair, resulting in eight observations per individual.¹¹ Figure 1 graphs the results of a set of regressions in which the dependent variable is a dummy for whether a project was chosen as more likely to involve poor accountability, and the independent variables are dummies for how the project was funded, using the “Pure Grant” condition as the omitted baseline category. The dots in each figure represent the estimated OLS coefficients from the regressions; the bars show 95% confidence intervals. The coefficients can be interpreted as the percentage point change in the likelihood that a project was chosen as more likely to involve policy incongruence or misuse, relative to a project funded purely by outside grants. Negative coefficients indicate that subjects believed either policy incongruence or misuse was less likely for that funding type relative to Pure Grant.¹²

The left side of Figure 1 depicts the policy incongruence results. As predicted, the results show that officials see projects funded by Local Taxes as most likely to be spent on citizens’ priorities, and Pure Grants the least. Matching Grant projects are viewed as in between Local Tax and Pure Grant, while Pork projects viewed as only slightly better than those funded by Pure Grants. As Pork projects are effectively Pure Grants that were allocated by a state representative, it is notable that this appears to improve perceptions of policy congruence somewhat, perhaps because local officials believe the state representative has the ability, and electoral incentives, to ensure that the funds are used for projects valued by citizens.

¹¹This follows the methodology for analyzing conjoint survey experiments in Hainmueller, Hopkins and Yamamoto (2012); standard errors are clustered by individual.

¹²See Appendix C for full regression results and robustness checks, as well as summary statistics for the pairwise comparisons; the results are robust to limiting the analysis the first pairwise comparison respondents saw in the survey.

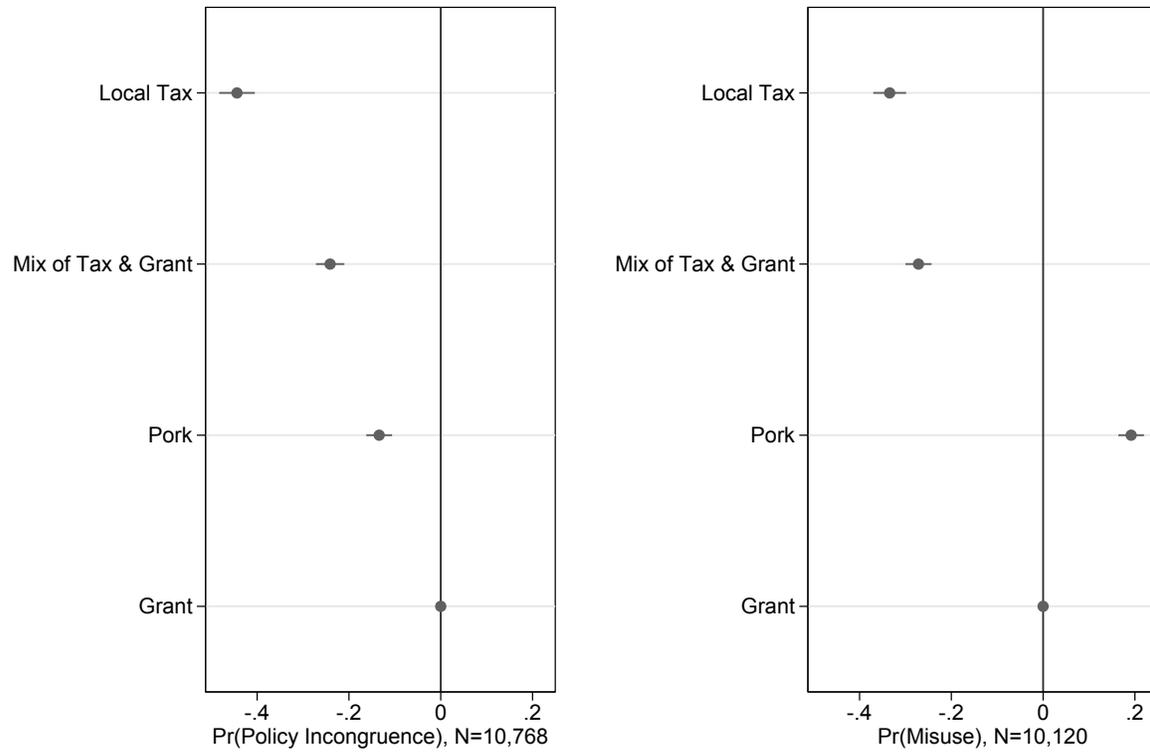


Figure 1: *Regression results: local policymakers' beliefs about revenue types, policy incongruence, and misuse (AMOS 2014).* Dots represent the coefficients from OLS regressions in which a dummy for whether local officials indicated that a project was more prone to policy incongruence (left) or misuse (right) was regressed against dummy variables for each type of revenue source; Pure Grant is the omitted category. Bars represent 95% confidence intervals.

The right side of Figure 1 shows similar results for the Misuse condition. The key difference is that Pork projects are now seen as the most vulnerable to misuse, even more than other Pure Grant projects. This could occur if state representatives at times allocate such funds to assist business supporters, reducing the incentives for oversight. Together, the results suggest that local policymakers believe that the ways in which a project is funded create very different outcomes, affecting both the types of projects that are funded and the likelihood those funds are misused.¹³

5.2 Taxation and Bottom-up Accountability

We argue that revenue source affects the likelihood of misuse or policy incongruence because officials face stronger bottom-up accountability pressures to spend tax dollars well. To provide an initial test of this mechanism, we included an experimental module in AMOS 2012 in which respondents were asked whether they agreed or disagreed with each of a set of statements. Each question randomly varied whether local tax dollars, or some kind of outside grant, was at stake. In total we included six statements; each went to a randomly chosen subset of the full AMOS 2012 sample. Table 2 lists the text of each question and reports the percentage who agreed with each statement, by treatment.¹⁴ The “Diff” column shows the difference-in-means, with standard errors in parentheses.¹⁵

If bottom-up accountability is stronger for local taxes, officials should face higher electoral

¹³While these results measure only perceptions of the relative likelihood of misuse, not absolute differences in likelihood, the results below on bottom-up accountability pressures do indicate real differences in politicians’ incentives to act in the interest of citizens.

¹⁴Responses were on a 7-point Likert scale; this was transformed into a dummy variable for whether a respondent at least “somewhat agreed”, corresponding to 5 or above on the scale.

¹⁵All results are robust to considering the full 7-point scale. See Appendix C.

#	Statement	% who agree			Obs.
		Tax	Grant	Diff.	
1	If a local politician were involved in a minor scandal involving [local tax/federal grant] dollars, he would lose the next election.	95.3	86.3	9.0* (2.2)	720
2	If a local politician used [local tax/federal grant] dollars to award a no-bid contract to a business associate, he would lose the next election.	87.8	85.7	2.1 (2.5)	723
3	Local media pay close attention to how the city spends [local tax/unrestricted grant] revenue.	64.9	55.8	8.5* (3.2)	916
4	Local citizens seek out information about how the city spends [local tax/unrestricted grant] revenue.	49.4	30.8	18.6* (3.2)	919
5	Local citizens care strongly about how the city spends [local tax/unrestricted grant] revenue.	76.6	46.2	30.3* (3.1)	916
6	My constituents think of [local tax/state and federal grant] dollars as “their” money.	87.8	59.4	28.4* (3.2)	682

Table 2: *Revenue source and bottom-up accountability (AMOS 2012)*. Results show the percent of respondents who at least “Somewhat Agree” with the statement in each treatment group. “Diff” indicates the difference in average agreement between the Tax and Grant treatment groups (standard errors in parentheses). The number of observations is lower for statements 1, 2, and 6 because they were included on a different wave of AMOS 2012. * $p < 0.05$.

costs for policy incongruence or misuse involving such funds. Rows 1 and 2 of Table 2 provide initial support for this idea. Row 1 shows that while 86% of officials agreed that a local politician would lose office as a result of a minor scandal involving a federal grant, this increases to 96% when the scandal involves local taxes. However, a similar question involving a no-bid contract did not produce similar results. This may be because no-bid contracts are so common that respondents did not perceive them as scandals.

Rows 3 and 4 of Table 2 provide support for the idea that taxation increases citizens' willingness to seek information about tax spending. Municipal officials are 8.3 percentage points more likely to agree that local media "pay close attention to how the city spends" local tax revenue, compared to grant revenue, and 12.2 percentage points more likely to agree that local citizens "seek out information" about how tax funds are spent. However, even in the tax treatment a minority of respondents believed that citizens were likely to seek out information at all; this points to the potential limitations of the information mechanism. Rows 5 and 6 provide initial evidence for the behavioral hypothesis. Officials were 21 percentage points more likely to report that citizens care strongly about how tax revenue is spent, relative to grant spending, and 28 percentage points more likely to agree that their constituents think of local tax dollars as "their" money. This suggests that officials believe that citizens are significantly more concerned with how tax dollars are spent; the increased sense of ownership is also in line with the loss aversion mechanism in Martin (2014).

While these results suggest a connection between taxation, citizen behavior, and the electoral pressures leaders face, they do not directly connect these elements. To address this, AMOS 2014 included an experimental module in which respondents were asked to evaluate the likelihood that a minor scandal would result in a number of consequences for the official involved. The experiment included three treatment conditions: "Local taxes"; "Outside grants"; and a "Mix of tax and grant funds". This third category was included due to the high number of municipal grants that require matching funds from the recipient community; a priori, it is not clear whether citizens should treat these more like tax or grant funds.

Responses to each question were measured using a 7-point Likert scale.

Analysis was run using a set of four OLS regressions in which the dependent variables were indicators for whether the respondent thought the outcome was at least somewhat likely to occur (equivalent to “5” or higher on the 7-point response scale), and the independent variables were indicator variables for the funding source, with “Pure Grant” funds as the omitted category. Figure 2 graphs the results of these regressions; the dots represent the coefficients from the regressions, and the bars report 95% confidence intervals.

The results provide mixed support for the information mechanism. Relative to the Grant condition, officials believed that citizens were 6.1 percentage points more likely to notice a scandal when funding was derived entirely from local taxes ($p=.01$) and 4.9 percentage points more likely when funding was derived from a mix of tax and grant funds ($p=.04$). However, there is little evidence that local media is more likely to cover a scandal when at least some tax funds are involved. Note that in contrast to the questions on the 2012 survey, this module evaluates the proposed mechanisms in reference to an existing scandal; this may mute taxation’s effect on information as the term “scandal” presupposes at least some publicity.

The results also support the hypothesis that officials will believe that the misuse of tax funds is more likely to have electoral consequences. Respondents believed that officials who misused tax funds were 7.6 percentage points more likely to face a challenger in the future ($p=.00$) and 7.9 percentage points more likely to lose the next election ($p=.013$) than officials who misused Grant funds.¹⁶ This replicates and strengthens the findings from AMOS 2012: even conditional on a scandal, which implies some degree of publicity, officials believe that citizens will pay more attention, and punish the official involved more severely, when tax dollars have been misused.

Interestingly, the higher electoral penalties do not seem to apply for scandals involving a

¹⁶On the full 7-point response scale, the likelihood of losing office was .33 points higher when taxes were involved.

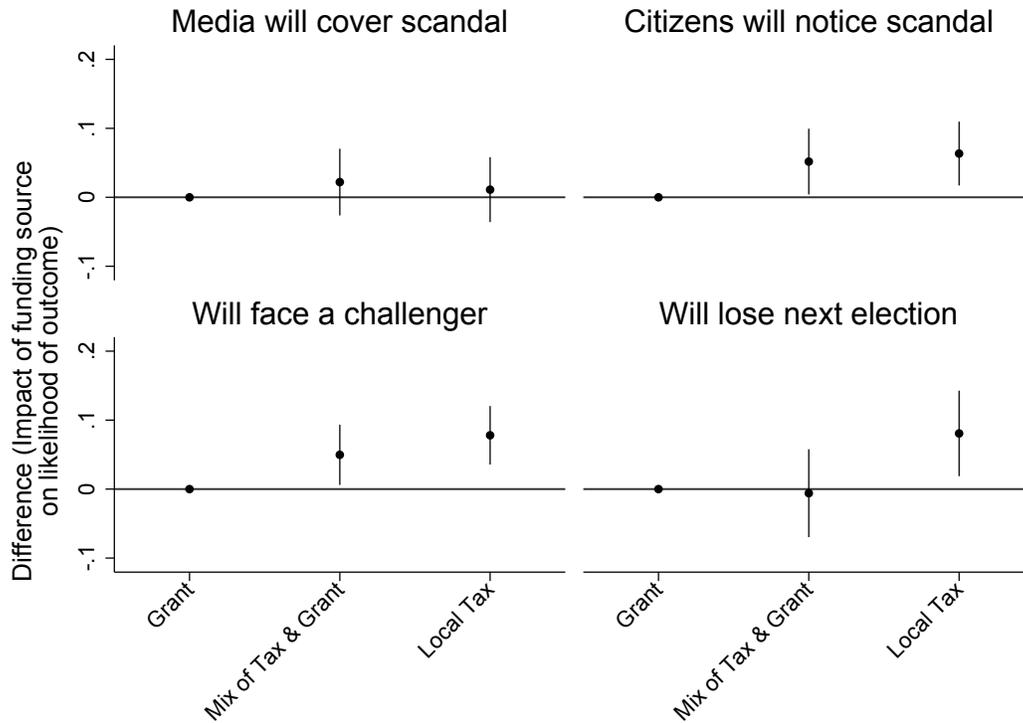


Figure 2: *Effect of revenue source on local policymakers' perceptions of the consequences of a minor scandal (AMOS 2014)*. Dots represent coefficients from one of four OLS regressions. The dependent variable in each regression is a dummy variable indicating whether a respondent thought the outcome was at least “somewhat likely” to occur. The independent variables are dummies for whether the scandal involved local taxes or a mix of tax and grant funds; pure grant funding is the omitted category. Bars show 95% confidence intervals. The number of observations for each statement ranges from 1,103 to 1,106. For full regression results see Supplementary Appendix.

mix of tax and grant funds. When the scandal involved a mix of funding types, respondents appear to believe that it will garner more citizen attention, relative to a scandal involving only grant funds, and lead to electoral challenges, but ultimately has no effect on the likelihood that the embroiled official will lose office. Because the results for the informational effects are the same across the Tax and Mixed conditions, this suggests that information alone is insufficient: citizens must also be willing to translate information into action, and this is less likely for projects funded by a mix of tax and grant funds.

5.3 Grants and Top-Down Monitoring

The results from the previous section show that local elected officials perceive stronger electoral pressures to allocate and spend tax funds in accordance with citizens' preferences, relative to grant funds; these differences are driven primarily by the degree to which citizens are perceived as willing to seek information and subsequently sanction non-accountable officials. However, these weaker bottom-up pressures to use grants well may not matter if grantor agencies are able to compensate with stronger top-down pressures; these could involve monitoring how grant funds are used and withholding future funding from municipalities who fail to use grants well. This section provides evidence on how officials perceive the pressures that grantors are able to exert upon municipalities and discusses why they may not fully counteract weak bottom-up accountability for grants.

AMOS 2014 included a non-experimental module that asked respondents whether they agreed or disagreed with a number of statements concerning top-down monitoring of outside grants. Responses were measured using a six-point Likert scale; for analysis these were recoded as dummy variables that take a value of "1" for those who chose "somewhat agree" (a 4 on the scale) or higher. Table 3 summarizes the results of these questions; Appendices B and C present the full distribution of responses and question wording. The first two questions asked respondents whether they agreed that grantor agencies have good information about local citizens' priorities, and whether they thought grantor agencies care strongly whether

grants are allocated to citizen priorities. Only 54.6% agreed that agencies had good information, while 46.9% believed that agencies cared whether a grant-funded project was spent on citizen priorities. Just 35% of respondents agreed with both statements, indicating that the majority of municipal officials believe that grantors either do not know or do not care when they spend grants on their own priorities, rather than those of citizens. This indicates that municipal officials face only weak pressures from grantor agencies to spend grant funds on citizen preferences, helping to explain the results in Section 5.1 on policy incongruence.¹⁷

#	Statement	Average Response	% who at least "Somewhat Agree"	Obs.
1	Grantors understand citizens' priorities	3.48 (1.34)	54.6	348
2	Grantors don't care about citizens' or officials' priorities	3.63 (1.45)	53.1	341
3	Need to report all budget changes	4.72 (1.14)	87.2	306
4	Grantors heavily monitor spending	4.42 (1.15)	80.8	349
5	Grantors notice how money spent	4.87 (1.08)	89.0	337
6	Misuse reduces chance of getting same grant again	5.07 (1.07)	92.1	330
7	Misuse reduces chance of getting other grants again	4.36 (1.37)	75.9	320

Table 3: *Beliefs about top-down monitoring of outside grants (AMOS 2014)*. Average response is based on a 6-point Likert scale (6="Strongly Agree"). Column 3 reports the percent of respondents who agreed at least somewhat with the statement (4-6 on the scale). The number of observations varies due to nonresponse on some questions.

In contrast, municipal officials report stronger top-down pressures to control misuse. Just

¹⁷The findings are also in line with work on fiscal federalism arguing that local governments will be better able to target spending given citizens' preferences (Tiebout, 1956; Rodden, 2005), but suggest that these benefits may not accrue unless sufficient incentives are present.

over 80% of respondents agree that grantors monitor spending heavily, while 89.0% agree that grantors will notice how grant funds are spent. They also believe that such misuse will have a negative impact on the likelihood that the municipality gets future grants either from that same agency (92.1% agree) or from other agencies (75.9% agree). Together, these responses suggest that top-down accountability pressures are strong when considering corruption and other misuse of funds, and that different grantor agencies are able to coordinate on punishment. Why, then, do we still see that grant-funded projects are perceived as more open to misuse than projects funded by local taxes?

Top-down accountability pressures appear to operate through the threat of withholding future grants, whereas bottom-up accountability directly impacts officials' re-election chances. If potentially self-serving officials have relatively short time horizons, they will care more about reelection this year compared to access to grants several years down the line. Evidence from AMOS 2014 supports the claim that municipal officials have short time horizons. Only 50% of respondents in AMOS 2014 believed that they would still be in municipal government in 5 years' time; thirty-four percent anticipated holding no office after this time, while 11% believed they would hold a higher elected office. As the modal municipal council term is 4 years (National League of Cities, 2015), this suggests that most councilors anticipate holding office for only one or two terms, sharply reducing long-run concerns but increasing short-term electoral fears. This will be especially true if grant funds are spent over a longer time horizon, as is the case for multi-year capital improvement projects. However, this claim is difficult to evaluate using the AMOS data; shorter time horizons should not affect officials' perceptions of the costs of misuse or policy incongruence, only the weight placed on those consequences relative to any short-term benefits.

6 Discussion

Previous work on taxation and accountability suggests that governments that rely on tax revenue are more likely to honor citizens' preferences, and are less prone to corruption and misuse. However, there has been little work demonstrating that citizens' higher willingness to punish misuse or policy incongruence involving tax funds is sufficiently strong to affect elected officials' behavior, or that such officials even recognize that these pressures exist. This paper fills that gap, providing to the best of our knowledge the first evidence that elected officials recognize that citizens' accountability demands vary by revenue source, that these demands affect perceived electoral pressures, and that officials believe that they are more likely to avoid misuse and honor citizens' preferences when spending tax dollars.

By measuring American municipal officials' perceptions of how funds are used, and the top-down and bottom-up pressures they face in allocating and spending such funds, we demonstrate municipal officials believe that local governments are more likely to allocate funds to citizens' priorities, and less likely to misuse funds, when they are derived from local taxes rather than outside grants. Experimental and observational survey data shed light on the mechanisms through which revenue affects decision-making. We find that officials believe that scandals are more likely to lead to electoral losses when tax funds are involved. Further evidence suggests that citizens are perceived both as more likely to seek out information about government spending when taxed and as more likely to actually take action against any misuse. While granting agencies are perceived as willing and able to punish misuse, this does not appear to be strong enough to compensate for weak bottom-up accountability pressures for grants.

Our results also have implications for the study of decentralization, suggesting that funneling taxes through intergovernmental grants appears to obscure funds' origin and lower citizens' accountability demands; any welfare gains from decentralization may be tempered by the extent to which local units depend on outside funding. One common recommendation to mitigate these effects is through requiring municipalities to provide matching funds in the

form of local taxes. However, we find that while matching funds reduce the gap in misuse and policy incongruence, they cannot eliminate it entirely.

This paper also speaks to the literature on representation and policy congruence in U.S. local politics. Recent empirical work on U.S. municipalities finds that while policy outcomes generally reflect citizens' ideological preferences, representation is far from perfect (Tausanovitch and Warshaw, 2013, 2014).¹⁸ Previous explanations for policy incongruence focus on municipalities' constrained ability to make policy due to overlapping jurisdictions and higher-level policies (Morgan and Watson, 1995; Wolman, Strate and Melchior, 1996; Gerber and Hopkins, 2011), or their need to compete for high-income taxpayers who, as a result, have a disproportionate effect on policy (Hunter, 1953; Peterson, 1981). This paper provides an additional explanation for why congruence is not perfect in U.S. municipalities—local policymakers believe they have more leeway in how they allocate outside revenues.

Finally, the results suggest several areas for future research. In this paper we have implicitly assumed that an accountable politician is one who always prioritizes citizens' preferences over his own. However, if an official has better information than citizens, or cares more about long-run impacts, there may be cases where insulating officials from citizens' pressures could lead to improved outcomes. If so, this makes the equilibrium welfare effects of revenue source less clear. Similarly, granting agencies may be unwilling to monitor policy incongruence because they prefer that municipalities spend grants in line with the agency's preferences, rather than those of citizens. We were also unable to examine how revenue source may impact the geographic distribution of public goods and services within a municipality. If taxpayers demand more representation, it could lead to public goods being placed too often in wealthy, tax-paying areas and less in the areas that need them most. Future work should also examine whether the findings here hold in other settings, such as developing countries where democratic norms and institutions are still being established.

¹⁸For a thorough review of the municipal representation literature, see Trounstein (2010).

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Supporting Information and Online Appendix for
“Revenue Source and Electoral Accountability:
Experimental Evidence from Local U.S. Policymakers”

A Details of the 2012 and 2014 American Municipal Official Survey

The questions and survey experiments analyzed in the paper were administered online to a randomly selected subsample of participants in the 2012 and 2014 American Municipal Officials Survey (AMOS). We begin with a detailed description of AMOS 2012.

The sample of city officials for AMOS 2012 was constructed by first obtaining a list of 26,566 municipalities from the U.S. Census Bureau.¹⁹ We defined municipalities as general-purpose local governments using the following categorizations from the Census Bureau:

- *Incorporated Places* – in most states, they are called cities, towns, boroughs, and villages.
- *Consolidated Cities* – these are a “unit of government for which the functions of an Incorporated Place and its county or Minor Civil Divisions have merged.”²⁰
- *Minor Civil Divisions (MCDs)* in CT, ME, MA, MI, MN, NH, NJ, NY, PA, RI, VT, and WI – in these states, they are usually called townships or towns. We included Minor Civil Divisions from these states based on the Census Bureau’s assessment that “Most of the MCDs in [these] twelve states ... serve as general-purpose local governments that can perform the same governmental functions as incorporated places.”²¹

Student research assistants then searched for the website of each municipality on this list in random order. If the research assistants were able to identify the city website, they then collected the name and email address of the elected executive (i.e., mayor) and elected

¹⁹Specifically, AMOS 2012 relied on the Census Bureau’s “Subcounty Resident Population Estimates: April 1, 2000 to July 1, 2009,” which was released on September 2010.

²⁰U.S. Census Bureau. 2012. “Geographic Terms and Concepts – County Subdivision”, http://www.census.gov/geo/reference/gtc/gtc_cousub.html (January 9, 2014).

²¹Ibid.

members of the governing legislative body (e.g., city councilors). The survey itself was created using the web-based program Qualtrics and was administered to municipal officials by emailing them a link to the survey. Each official received three email invitations, sent 2 to 3 weeks apart.

The response rate for AMOS 2012 was around 23%, on par with recent expert surveys of this nature (e.g., Fisher and Herrick 2013, Harden 2013). As illustrated in Figures A-1 and A-2, participants in AMOS 2012 provide broad geographic coverage across the United States. (These same figures for AMOS 2014 look quite similar.)

AMOS 2014 was implemented in a similar fashion as AMOS 2012. One important difference is that AMOS 2014 did not include officials from cities with a population below 3,000. This was done for costs concerns given the low percentage of cities below this threshold that had websites in AMOS 2012 and the significantly lower response rate of officials from these smaller cities. In addition, we also included all of the email addresses obtained for AMOS 2012 in AMOS 2014. AMOS 2014 was conducted in July and August 2014 with 28,725 municipal officials invited to participate. The response rate was 19%. (Our estimated response rates are understated since some of the emails obtained were either erroneous or no longer active. This would be particularly true of emails obtained for AMOS 2012 and used in AMOS 2014 as many of these officials may have no longer been in office two years later. If we had accurate information on the accuracy of the emails, our response rate would be higher.)

There were thus three types of municipalities: (1) municipalities that did not have a website with email addresses available,²² (2) municipalities that did have emails listed but where no official accepted the invitation to take the survey, and (3) municipalities where at least one of the officials took the survey.²³ Figure A-3 shows the relationship between cities'

²²The decision to restrict the sample to city officials with email addresses meant that we also excluded some large cities that provided a contact forms in lieu of email addresses.

²³If any of the emailed officials responded, the municipality is placed in this category.

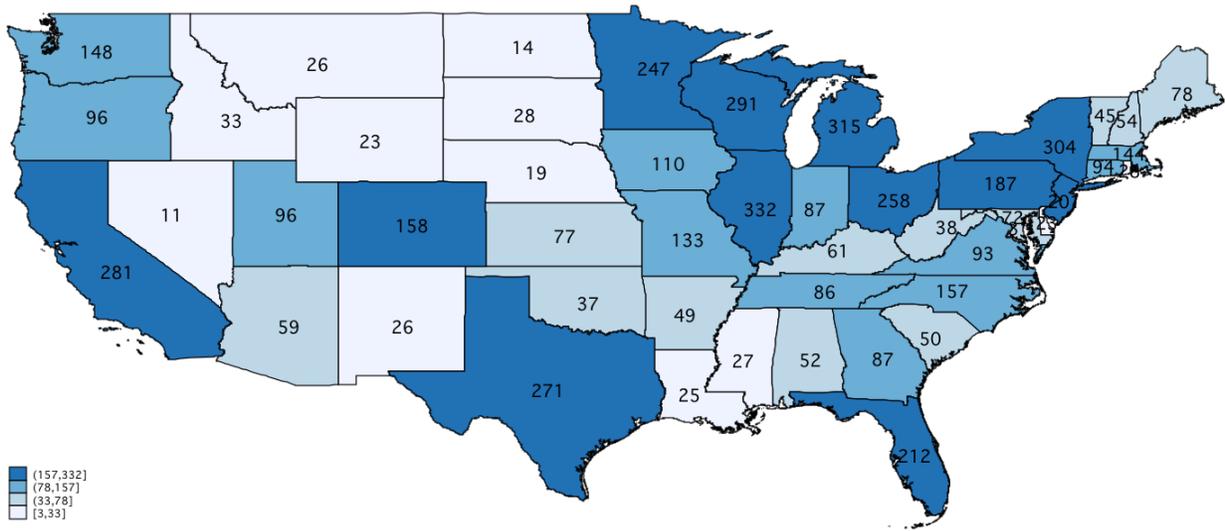


Figure A-1: Number of Municipal Officials (from each State) Participating in 2012 AMOS. Darker colors indicate greater participation in the survey.

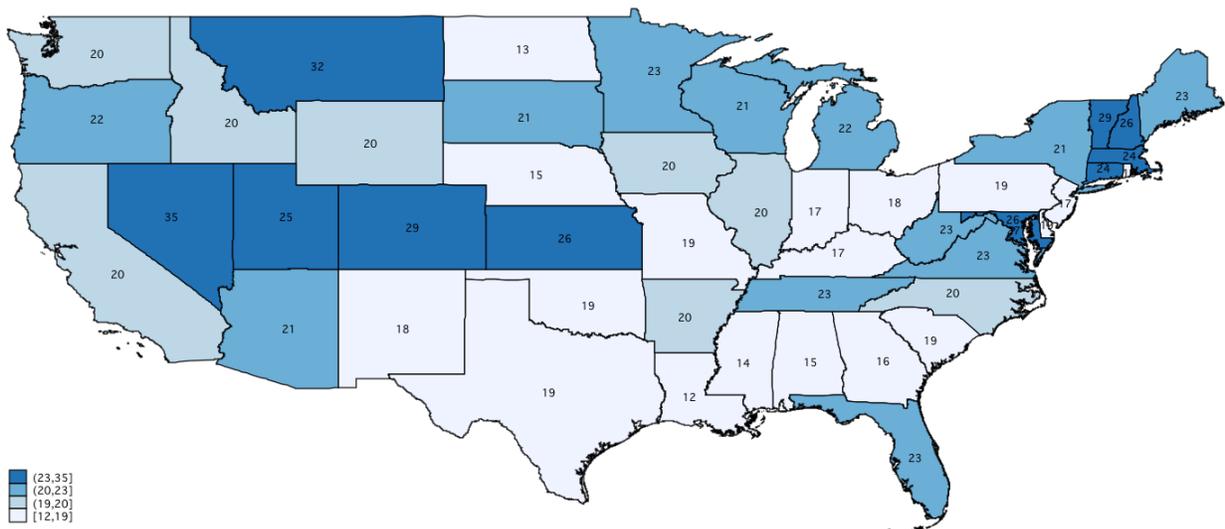


Figure A-2: Response Rates (by State) of Municipal Officials Invited to Participate in 2012 AMOS. Darker colors indicate greater participation in the survey.

population and these three categories. In general, cities with websites and respondents were systematically larger cities than those without websites or respondents. A major source of differences between the AMOS 2012 and 2014 samples stems from the exclusion of cities with a population below 3,000 (unless we already had their officials' emails). Thus, the number of respondents from cities below 3,000 is much lower in the AMOS 2014 sample. At the same time the response rates in cities near the median population increased (which appears to be due to there being more cities below 10,000 with websites that have their officials' email addresses) while the response rates among the largest cities slightly decreased.

TableA-1 provides more descriptive statistics about these three types of municipalities. Like Figure A-3 the table shows that the characteristics of the cities in the 2012 and 2014 samples differ somewhat in terms of population of cities with respondents, but they are quite similar in terms of other city characteristics. For brevity, we refer to numbers from AMOS 2012 in the discussion below of Table A-1.

The mean population of cities in this first category (3,627) is much smaller than those in the second (17,635) or third (36,304), which indicates that larger cities were more likely to have websites with emails and their elected officials were more likely to respond. This relationship between population size and having emails online and/or responding to the survey is illustrated in the density plot in Figure ???. That officials from larger cities were more likely to take the survey also means that respondents are from cities that are more representative of the types of cities in which most Americans live. If all of the cities in our original list of 26,566 cities were ordered from smallest to largest, the median citizen is found in a city with a population of 57,000.

Another important characteristic is the form of government employed by the cities in our sample, as this likely influences the types of individuals selected as policymakers as

Thus the response rate "by city" appears to be greater than the response rate by emailed official.

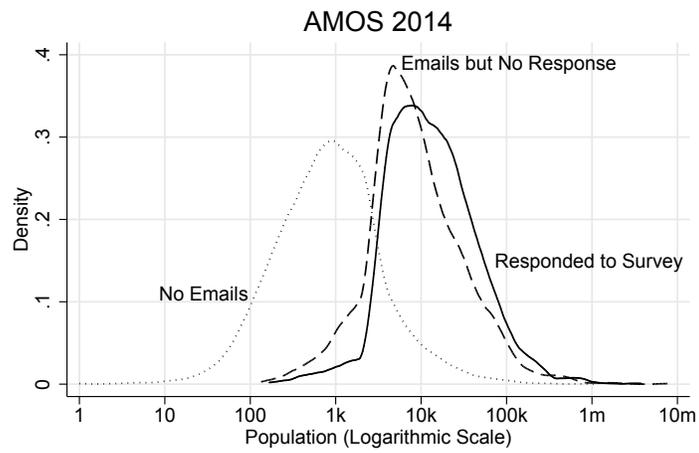
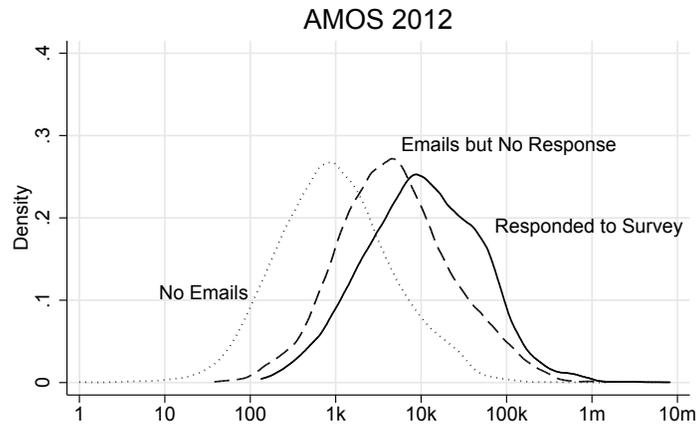


Figure A-3: Density Plot of Cities' Population by Email Availability and Response.

	(1)		(2)		(3)	
	Cities without emails		Cities with emails but no respondent		Cities with at least 1 respondent	
AMOS	2012	2014	2012	2014	2012	2014
Number of Cities	21,889	18,543	1,992	2,414	3,109	3,151
Population (in thousands)						
Mean	3.8	3.1	17.9	26.1	36.9	31.7
Total	83,672	56,862	35,735	63,017	114,832	99,947
Type of Municipality						
% Incorporated Place	29%	19%	24%	23%	19%	17%
% Consolidated City	0%	0%	0%	0%	0%	0%
% Minor Civil Division	71%	81%	76%	77%	81%	83%
Form of Government						
(% of these w/ town meetings)						
% Mayor-Council	61% (2%)	70% (2%)	58% (0%)	53% (1%)	52% (0%)	50% (0%)
% Manager-Council	10% (14%)	9% (15%)	23% (8%)	27% (7%)	33% (5%)	38% (5%)
% Selectmen/Supervisors	27% (76%)	18% (81%)	18% (79%)	17% (86%)	14% (78%)	11% (81%)
% Commission	2% (11%)	2% (9%)	2% (12%)	2% (13%)	1% (18%)	1% (22%)
Demographics (Mean)						
% Black	8%	8%	11%	10%	9%	10%
% Latino	6%	6%	11%	11%	11%	11%
% w/ Some College	20%	19%	20%	20%	20%	20%
% Unemployed	4%	4%	4%	4%	4%	4%
% w/ Unpaid 1st Mortgage	16%	16%	17%	17%	18%	18%
% w/ Unpaid 2nd Mortgage	1%	1%	1%	1%	1%	1%

Table A-1: Details of Cities in AMOS 2012 & 2014. Unit of analysis is a city. Each column presents summary data for cities that fall under the following exclusive categories: (1) “Cities without emails” means cities where none of the email addresses of the city’s elected officials was found; (2) “Cities with emails but no respondent” means cities where emails were found but none of the officials took the survey; and (3) “Cities with at least 1 respondent” means cities where at least one of the officials from that city answered a question in the survey. Data for the Number of Cities and Type of Municipality come from the U.S. Census Bureau’s “Subcounty Resident Population Estimates: April 1, 2000 to July 1, 2009” for AMOS 2012 and “Subcounty Resident Population Estimates: April 2010 to July 1, 2012” for AMOS 2014. Data for the Form of Government come from the Census Bureau’s 1992 Census of Governments. Data for Population and Demographics come from the 2010 U.S. Census.

well as their behavior in office. The Census Bureau²⁴ tracks four forms of government: 1) Mayor-Council, in which the executive (mayor) is elected separately from the elected governing legislature (city council); 2) Manager-Council, in which the executive (city manager) is appointed by the elected city council; 3) Selectmen/Supervisors, common in the Northeast, in which the elected city council is responsible for day-to-day administration; and 4) Commission, in which each member of the elected city council is responsible for one or more departments in the city administration.

Cities with at least one respondent were somewhat less likely to be of the Mayor-Council form (52%) compared to cities without respondents (58%) or emails (61%). They were also much less likely to use the Selectmen/Supervisors model (14% compared to 18% and 27%, respectively). On the other hand, cities with respondents were more likely to use the Manager-Council form (33% compared to 23% and 10%). Such differences largely reflect the differences in city sizes across municipalities with respondents, no respondents, and no published emails. There were few differences across these three categories in terms of racial composition, educational attainment, employment, or unpaid mortgages.

²⁴The data on the form of government used by each city comes from the U.S. Census Bureau's "Census of Governments," which is a survey of municipalities conducted every five years. The most recent publicly available Census of Governments that asked municipalities to identify their form of government was conducted in 1992. This should not be problematic given the stability in the form of government employed by cities. Not all municipalities respond to the survey request; thus, we were only able to match 90% of the cities and respondents in our sample to the Census of Governments survey.

B Survey Instruments

B.1 AMOS 2012

The following questions were included on one or more of the 5 survey waves of AMOS 2012. For all questions the following answer options were possible: Strongly Disagree, Disagree, Somewhat Disagree, Neither Agree nor Disagree, Somewhat Agree, Agree, or Strongly Agree.

The first question was non-experimental:

Some scholars believe that elected officials spend revenue derived directly from their constituents, such as local taxes, differently than they would spend revenue that comes from other sources, such as transfers or grants from higher levels of government, royalties from natural resources, private grants, etc. In sum, scholars think that when the circumstances are exactly the same in every way except for the source of the revenue, elected officials are more likely to spend local taxes on public goods for the community and on things that their constituents want. **Based on your experience as a city councilor, do you agree or disagree with this argument?**

For the following questions, respondents were randomly assigned to either see the questions refer to local tax dollars or grant dollars. The order of the statements were also randomized. Not all respondents were shown all 7 questions; the first two questions were only included on the 3rd and 5th survey waves, while the remaining questions were included on the first survey wave.

1. If a local politician used [local tax / federal grant] dollars to award a no-bid contract to a business associate, he would lose the next election.
2. If a local politician were involved in a minor scandal involving [local tax / federal grant] dollars, he would lose the next election.
3. Local media pay close attention to how the city spends [local tax / unrestricted grant] revenue.
4. Local citizens seek out information about how the city spends [local tax / unrestricted grant] revenue.
5. Local citizens care strongly about how the city spends [local tax / unrestricted grant] revenue.
6. My constituents think of [local tax / state and federal grant] dollars as “their” money.
7. Local government officials have a moral obligation to spend [local tax / unrestricted grant] revenue how citizens want, even if the officials have other spending priorities.

B.2 AMOS 2014

Question text for forced choice comparisons is below.

“Misuse” condition:

While most municipal officials are honest and do their jobs well, there are sometimes dishonest people who will try to misuse money or take advantage of city projects to help themselves and their friends at the expense of the broader public interest. We are going to show you 4 comparisons of capital improvement projects that are funded through different means. For each, please say whether misuse of funds is more likely to occur in project A or project B. We understand that misuse of funds is not common, but are trying to identify where you believe these problems are most likely to occur. We also realize that the projects may seem very general; please give us your best guess of what you think.

“Representation” condition:

Municipal officials often face hard choices about how to allocate funds. In particular, sometimes an official’s constituents would prefer one project, while the official himself feels that a different project would be better for the community. We are going to show you four comparisons of projects that are funded through different means. In each comparison, please say for which project you would be more likely to use the money on what citizens prefer (even when you feel that another project would be better). We realize that the projects may seem very general, please give us your best guess of what you think.

Respondents were then shown pairs of responses drawn from the options described in Section 5.

Figures A-4 and A-5 show the rest of the survey instrument.

On this screen (3rd to last in survey), we are interested in learning more about the grants that your municipality receives from the state and federal government. Please indicate how much you agree or disagree with each of the following statements:

	Strongly Disagree (1)	Disagree (2)	Somewhat Disagree (3)	Somewhat Agree (4)	Agree (5)	Strongly Agree (6)
Agencies that give grants to municipalities like ours have a good sense about what projects our citizens would like best. (1)	<input type="radio"/>					
Provided the money is spent as planned, granting agencies do not consider whether the project is something that citizens want or whether it's only officials who want it. (2)	<input type="radio"/>					
If we change the budget for a grant project even a little, we need to inform the granting agency or there will be consequences. (3)	<input type="radio"/>					
When our municipality receives a grant, the granting agency will heavily monitor how the money is spent. (4)	<input type="radio"/>					
When our municipality receives a grant, the granting agency would notice if money was not spent as promised. (5)	<input type="radio"/>					
If a grant was not spent properly, it would be hard for us to get other grants from that same agency in the future. (6)	<input type="radio"/>					
If a grant was not spent properly, it would be hard for us to get other grants from any agency in the future. (7)	<input type="radio"/>					

Figure A-4

Suppose that in a municipality similar to yours, it came to light that a local elected official has been involved in a minor scandal involving a capital improvement project funded with \$e://Field/scandal} dollars. How likely are each of the following?

	Very Unlikely (1)	Unlikely (2)	Somewhat Unlikely (3)	Undecided (4)	Somewhat Likely (5)	Likely (6)	Very Likely (7)
The media will cover scandal heavily. (1)	<input type="radio"/>						
Citizens will pay attention to the scandal. (2)	<input type="radio"/>						
Someone will run against the official in the next election. (3)	<input type="radio"/>						
The official will lose in the next election. (4)	<input type="radio"/>						

Figure A-5

C Additional Results

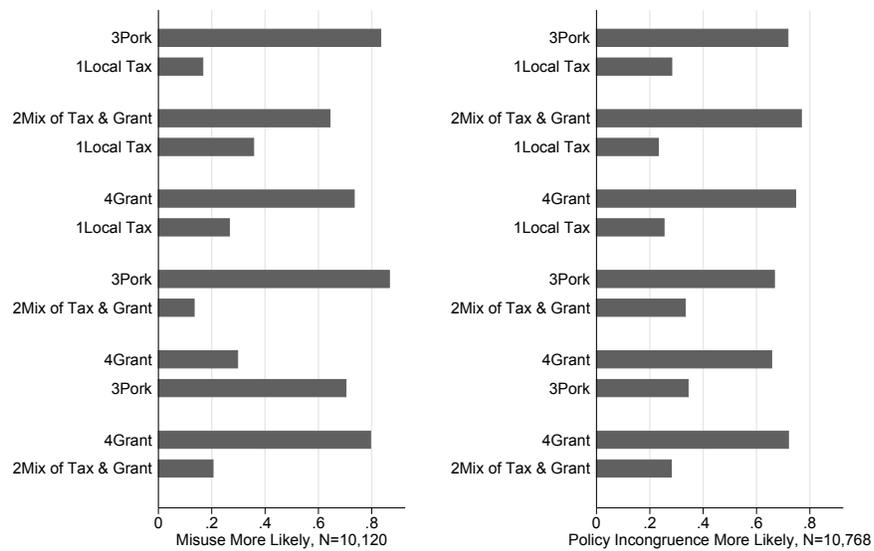


Figure A-6: *Revenue pair results (AMOS 2014)*. The bars show, for each revenue source pairing, the percent of respondents who indicated that they believed policy incongruence (right graph) or misuse (left graph) would be more likely to occur with that type of funding.

	(1)	(2)
	Policy	
	Incongruence	Misuse
Local Tax	-0.44	-0.33
	(0.02)	(0.01)
Mix of Tax & Grant	-0.24	-0.27
	(0.02)	(0.01)
Pork	-0.13	0.19
	(0.01)	(0.01)
Constant (Grant)	0.69	0.59
	(0.01)	(0.01)
Obs.	10,768	10,120
R-squared	0.11	0.18
No. of Clusters	1,346	1,265

Table A-2: Regression results for Figure 1, the forced choice comparisons module in AMOS 2014. These are OLS regressions in which a dummy for whether the project was seen as more prone to policy incongruence (left) or misuse (right) was regressed on dummy variables for each revenue type. The baseline category is Local Tax. Robust standard errors, clustered at the level of each respondent, are in parentheses.

	(1)	(2)	(3)	(4)
	Media will cover scandal	Citizens will notice scandal	Will face challenger	Will lose next election
Local Tax	0.01	0.06	0.08	0.08
	(0.02)	(0.02)	(0.02)	(0.03)
Mix of Tax & Grant	0.02	0.05	0.05	-0.01
	(0.02)	(0.02)	(0.02)	(0.03)
Constant (Grant)	0.87	0.84	0.86	0.72
	(0.02)	(0.02)	(0.02)	(0.02)
Obs.	1,105	1,103	1,105	1,106
R-squared	0.00	0.01	0.01	0.01

Table A-3: Regression results for Figure 2, the effect of revenue source on the perceived likelihood that a minor scandal will affect accountability pressures. These are OLS regressions where the dependent variable is a dummy that takes a value of one if the respondent thought the outcome was at least somewhat likely to occur. The independent variables are dummies for three randomly assigned revenue sources — Local Taxes, a Mix of Local Taxes and Grants, and Grants (which is the omitted category).

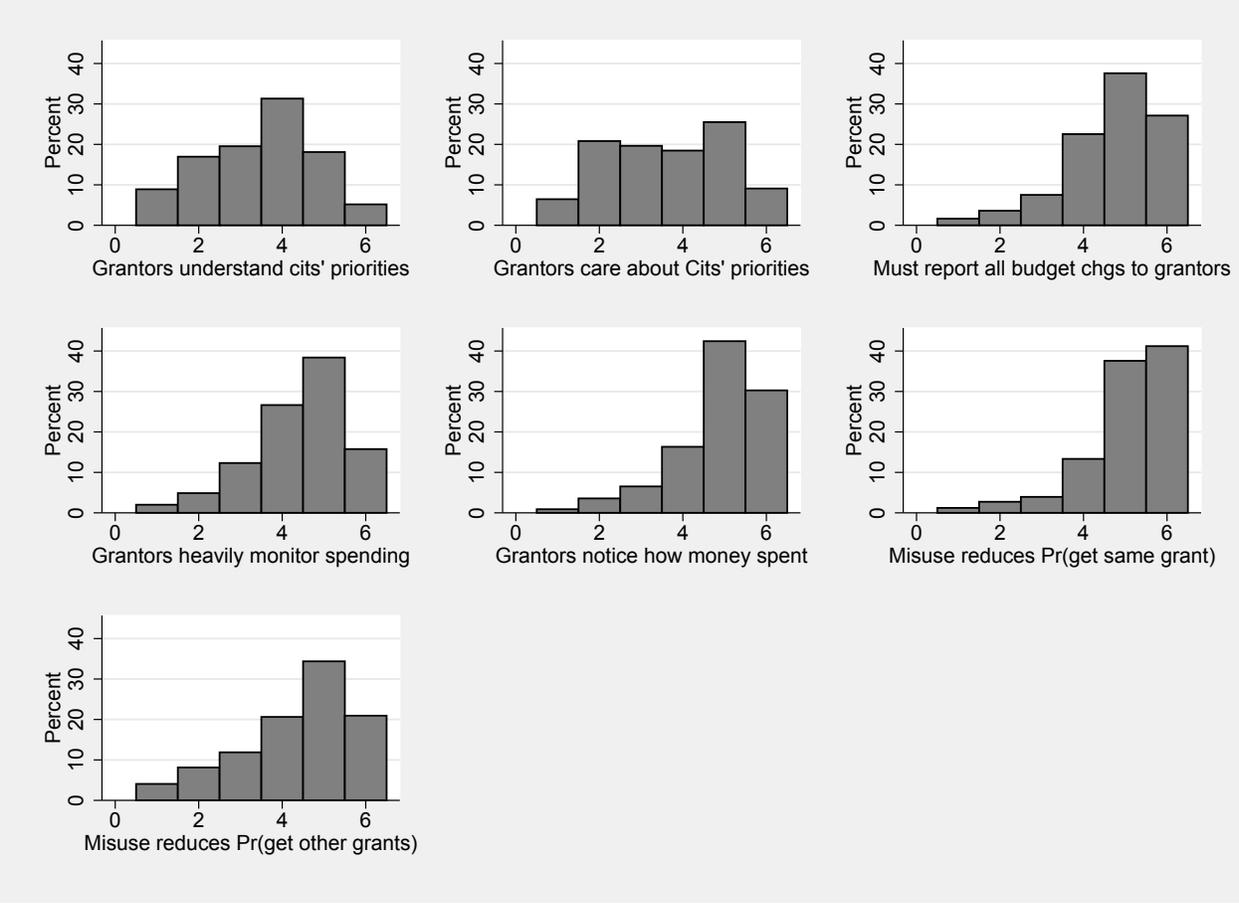


Figure A-7: Distribution of responses from Table 3 (Local policymakers' beliefs about top-down monitoring of outside grants [AMOS 2014]). Local officials reported whether they agreed with each of the 7 statements listed above on a 6-point Likert scale where 1="Strongly Disagree" and 6="Strongly Agree". See Appendix B for full question wording.

C.1 Robustness Checks

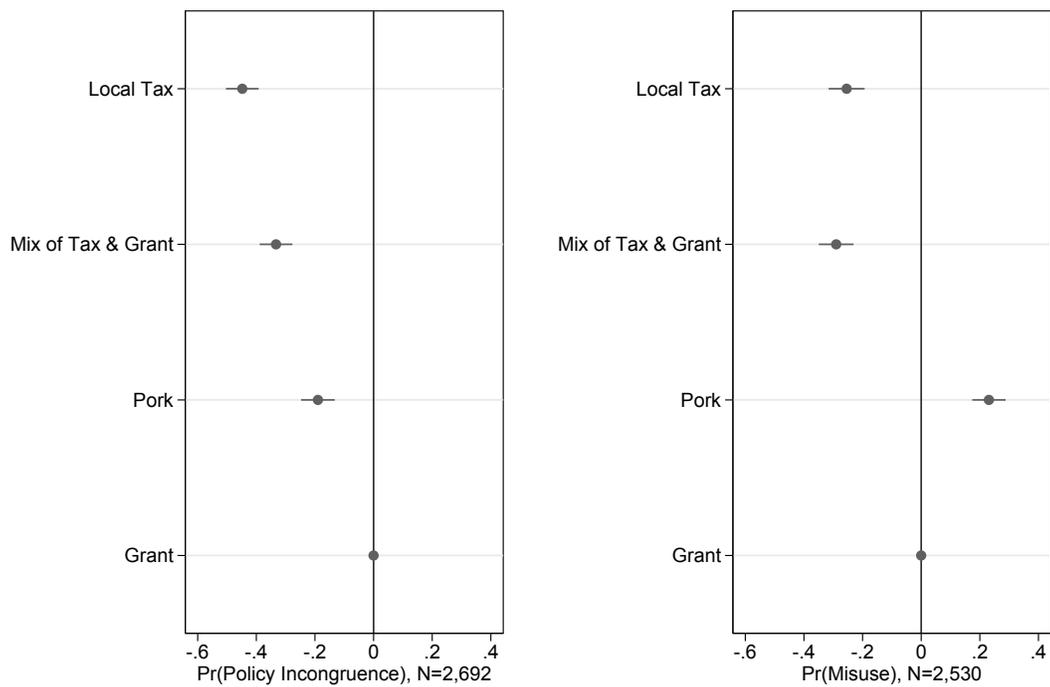


Figure A-8: Regression results from forced choice comparisons modules in Figure 1 limited to the first pairwise comparison viewed by each respondent. This figure plots the regression coefficients from OLS regressions in which a dummy for whether the project was seen as more prone to misrepresentation (left) or misuse (right) was regressed against dummy variables for each revenue type. The baseline category is Local Tax. Dots represent regression coefficients; bars represent 95% confidence intervals. There are 1,346 respondents and 2,692 subject-project observations in the regression on the left on Misrepresentation. There are 1,268 respondents and 2,536 subject-project observations in the regression on the right on Misuse. The complete regression results from this analysis are available in Table A-4 in the Supplementary Appendix.

	(1)	(2)
	Policy	
	Incongruence	Misuse
Local Tax	-0.45	-0.25
	(0.03)	(0.03)
Mix of Tax & Grant	-0.33	-0.29
	(0.03)	(0.03)
Pork	-0.19	0.23
	(0.03)	(0.03)
Constant (Grant)	0.75	0.58
	(0.02)	(0.02)
Obs.	2,692	2,530
R-squared	0.11	0.18
No. of Clusters	1,346	1,265

Table A-4: Regression results for Figure A-8, the forced choice comparisons module in AMOS 2014 limited to the first pairwise comparison viewed by each respondent. These are OLS regressions in which a dummy for whether the project was seen as more prone to misrepresentation (left) or misuse (right) was regressed on dummy variables for each revenue type. The baseline category is Local Tax. Robust standard errors, clustered at the level of each respondent, are in parentheses.

#	Statement	Average response on 7-point scale, by treatment group			Obs.
		Tax	Grant	Diff.	
1	Local government officials have a moral obligation to spend [local tax/unrestricted grant] revenue how citizens want, even if the officials have other spending priorities.	4.22	3.87	.035 ^{**} (0.11)	914
2	If a local politician were involved in a minor scandal involving [local tax/federal grant] dollars, he would lose the next election.	6.01	5.36	0.64 ^{**} (0.10)	720
3	If a local politician used [local tax/federal grant] dollars to award a no-bid contract to a business associate, he would lose the next election.	5.21	5.20	0.01 (0.11)	721
4	Local media pay close attention to how the city spends [local tax/unrestricted grant] revenue.	4.63	4.41	0.22 [*] (0.11)	916
5	Local citizens seek out information about how the city spends [local tax/unrestricted grant] revenue.	4.02	3.50	0.52 ^{**} (0.10)	917
6	Local citizens care strongly about how the city spends [local tax/unrestricted grant] revenue.	5.14	4.16	0.98 ^{**} (0.10)	916
7	My constituents think of [local tax/state and federal grant] dollars as “their” money.	5.76	4.70	1.05 ^{**} (0.11)	680

Table A-5: Robustness check of Table 2 (Local policymakers’ beliefs of how revenue source affects their intrinsic motivations and bottom-up accountability), using the full 7-point scale (AMOS 2012). Local policymakers were randomly assigned to see statements concerning local taxes or a form of grant funding. They were then asked to indicate how much they agreed or disagreed with each statement, where 1=“Strongly Disagree” and 7=“Strongly Agree.” These results show the average response in the Tax (Column 3) and Grant (Column 4) treatment groups. Column 5 (Diff.) indicates the difference between these means. The number of observations (Column 6) differs across statements because they were included in different rounds of the survey and administered to randomly selected subsets of respondents that varied in size in each of those rounds. Across nearly all of the statements, local policymakers believe they face more bottom-up accountability with local tax spending. * $p < 0.05$, ** $p < 0.01$, two-tailed.

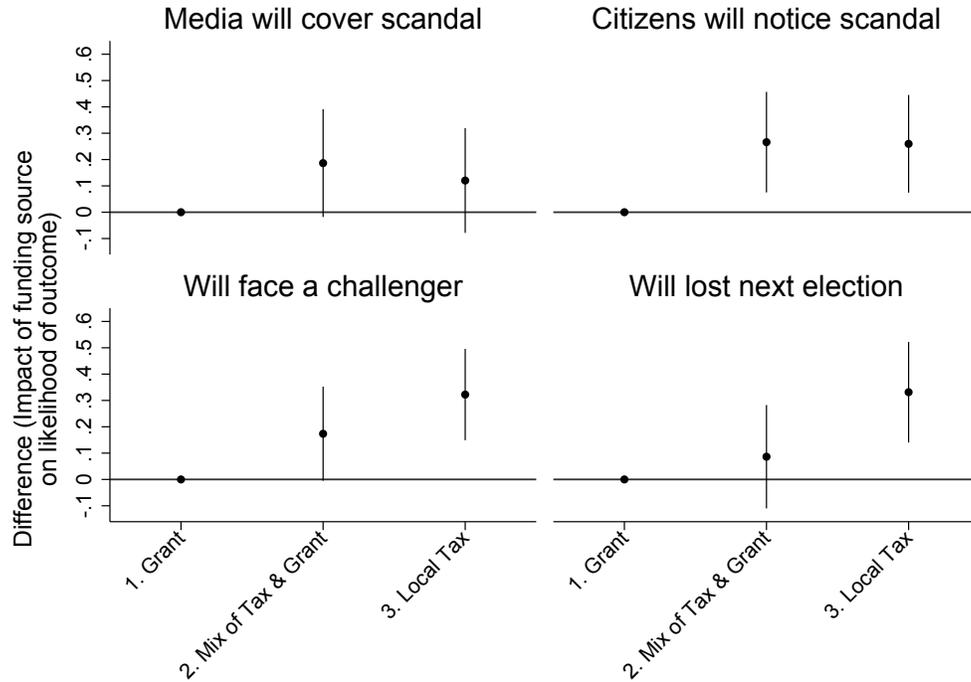


Figure A-9: Effect of revenue source on the perceived likelihood that a minor scandal will affect accountability pressures, using full 7-point scale for the dependent variable instead of the binary measure used in Figure 2. Each dot represents a coefficient from one of four OLS regressions where the dependent variable in each regression indicates how likely respondents thought that each outcome would occur if an elected official were involved in a scandal. The four outcomes are indicated in the key above. Each dependent variable, which is a 7-point scale where 1 = “Very Unlikely” to 7 = “Very Likely,” is regressed on dummies for three randomly assigned revenue sources — Local Taxes (on left), a Mix of Local Taxes and Grants (on right), and Grants (which is the omitted category). Bars show 95% confidence intervals. The number of observations for each statement ranges from 1,103 to 1,106. The complete regression results from this analysis are available in Table A-6 in the Supplementary Appendix.

	(1)	(2)	(3)	(4)
	Media will cover scandal	Citizens will notice scandal	Will face challenger	Will lose next election
Local Tax	0.12 (0.10)	0.26 (0.09)	0.32 (0.09)	0.33 (0.10)
Mix of Tax & Grant	0.18 (0.10)	0.27 (0.10)	0.17 (0.09)	0.09 (0.10)
Constant (Grant)	5.78 (0.07)	5.53 (0.07)	5.81 (0.06)	5.12 (0.07)
Obs.	1,105	1,103	1,105	1,106
R-squared	0.00	0.01	0.01	0.01

Table A-6: Regression results for Figure A-9, the effect of revenue source on the perceived likelihood that a minor scandal will affect accountability pressures, using full 7-point scale for the dependent variable. These are OLS regressions where the dependent variable indicates how likely respondents thought that each outcome would occur measured on a 7-point scale where 1 = “Very Unlikely” to 7 = “Very Likely,.” The independent variables are dummies for three randomly assigned revenue sources — Local Taxes, a Mix of Local Taxes and Grants, and Grants (which is the omitted category).

C.2 Vignette-Style Survey Experiments in AMOS 2012

As mentioned in Section 5, AMOS 2012 included an additional test of the general equilibrium hypothesis. This section describes the survey instrument used. Depending on random assignment, the vignette discussed either local tax revenues or outside grant revenues. There are two versions of the vignette; each was given to a different, randomly-selected subsample of the AMOS 2012 respondents. There are no statistically significant differences between the tax and grant treatments in any of the outcome measures. Qualitative feedback from respondents suggests that many respondents found the vignettes frustrating and unrealistic, complaining that they did not reflect the normal process through which decisions over grant spending are made. Respondents felt that municipalities rarely had discretion on which projects to fund with grant revenue once the grants were received as was presented in the vignettes. For this reason they are excluded from the primary analysis.

Figure A-10: Text of First Vignette: Part 1

Scenario 3, Part 1: Steven Jones is on the city council of a medium-sized town. In the past few years, the city has cut and delayed projects because of budget shortfalls. But now, due to an increase in local tax revenue, the city will be able to reverse some of the cuts to capital improvement projects.

The council is currently voting on which capital project to fund with the increase in local tax revenue. The money is sufficient to fund one of two projects – the first is supported by many voters, but many of the councilors, including Mr. Jones, would prefer the second project.

What's the probability that that Mr. Jones will vote to use the increase in local tax revenue to fund the FIRST PROJECT, which is supported by many voters, instead of the second project?

	0	10	20	30	40	50	60	70	80	90	100
Much more likely to pick 2nd project.											
Somewhat more likely to pick 2nd project.											
Equally likely to pick either project.											
Somewhat more likely to pick 1st project.											
Much more likely to pick 1st project.											
% Probability he'll vote for 1st Project		10									
(Click or drag the bar)											

>>

Figure A-11: Text of First Vignette: Part 2

Scenario 3, Part 2:
Mr. Jones ultimately voted to use the increase in local tax revenue to fund the 1st project (which was supported by many voters) instead of the 2nd project (which was preferred by many councilors).

Given **Mr. Jones' vote to use the increase in local tax revenue to fund the 1st project** (which was supported by many voters), what kind of an impact, if any, would his vote have on his re-election chances if he were facing a challenger in an upcoming election?

	Very Negative Impact	Negative Impact	Somewhat Negative Impact	No Impact	Somewhat Positive Impact	Positive Impact	Very Positive Impact				
	-100	-80	-60	-40	-20	0	20	40	60	80	100
(Click or drag bar)											

Given **Mr. Jones' vote to use the increase in local tax revenue to fund the 1st project** (which was supported by many voters), how likely is it that each of the following will occur?

	Very Unlikely	Unlikely	Somewhat Unlikely	Undecided	Somewhat Likely	Likely	Very Likely
Mr. Jones will publicize his vote to his constituents.	<input type="radio"/>						
Voters will notice what has happened to the funding.	<input type="radio"/>						
Voters who supported the 1st project won't vote for Mr. Jones.	<input type="radio"/>						
The local media will cover the vote.	<input type="radio"/>						
The other candidate will publicize Mr. Jones' vote to his constituents.	<input type="radio"/>						

>>

Figure A-12: Text of Second Vignette

In the second section, we are trying to learn about how municipal officials make decisions by giving you a number of scenarios and asking how you would act in each instance. We have intentionally kept these scenarios short and focused on key elements in order to not take up much of your time.

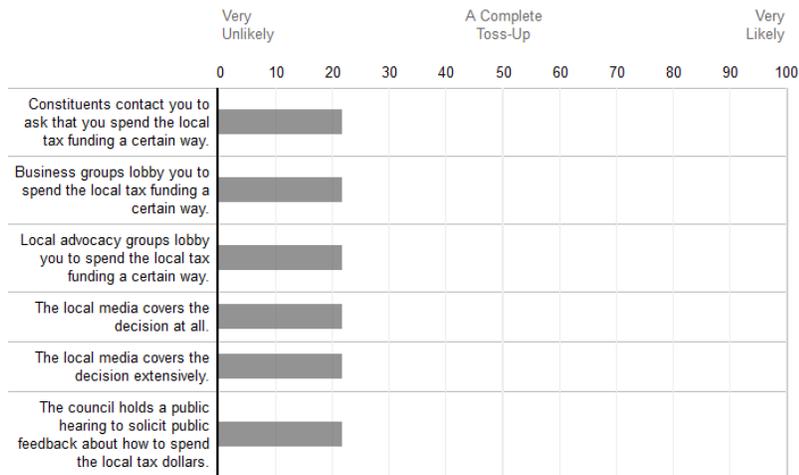
Scenario 1: Imagine that you are on a city council in a municipality similar to yours. The city has a dedicated fund from local tax revenues that must be used on capital improvement projects.

The city is considering to use the fund for two different projects:

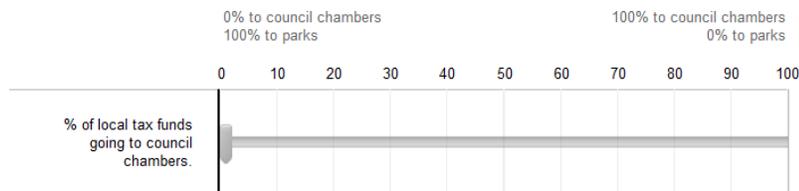
1. The city's parks have very old playgrounds with little equipment. In the past, some of your constituents have asked you whether it is possible to renovate them.
2. The city's council chambers are old and run-down. You and many other council members feel that renovating the chambers would improve the city's image.

The money from the local tax is sufficient to fully fund only one project or provide partial funding for both projects. As the chair of the finance committee, you are in charge of putting together a suggested budget, in particular what percent of the local tax revenue to spend on parks and what percent to spend on council chambers. The proposal you make is likely to be accepted without change.

As you and other council members discuss how to use the local tax money, how likely is each of the following?



Drag the bar below to indicate what percent of the local tax funding you would allocate to renovating the council chambers. The remaining percent would go towards upgrading the parks.



0% 100%

