

Can Providing Local Data on Aid and Population Needs Improve Development Decision-Making?

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Can Providing Local Data on Aid and Population Needs Improve Development Decision-Making? A Review of Recent Experimental Evidence

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Abstract: Over the past 10 years, geo-referenced data on aid activities has become more widely available. Coupled with improved information on local conditions, these data could uncover underserved areas and help citizens and other stakeholders hold public officials accountable for more effective aid targeting and delivery. We review thirty-one randomized control trials that provide location-specific data on aid, population needs, and performance to citizens and public officials. This body of experimental evidence suggests that the provision of location-specific data to public officials can improve resource allocation and service delivery outcomes, especially when the information that public officials receive is legible, actionable, and inclusive of both aid flows and population needs. It also suggests that citizens can put location-specific data to particularly effective use when they have access to accountability institutions that make it possible to transmit feedback to the politicians and public sector organizations charged with serving their communities.

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Introduction

Over the past 10 years, we have witnessed an explosion in the availability of geo-referenced data on foreign aid activities. To date, AidData and its partners have published data on aid activities worth over \$1.23 trillion covering more than 200,000 subnational locations (Custer et al. 2017).¹ The World Bank, the African Development Bank, the Asian Development Bank, USAID, UNDP, IFAD, and the Global Environment Facility have also made important strides in geo-referencing their projects (World Bank 2011; Sigl-Gloeckner 2015; Lech et al. 2018; BenYishay 2018a) and a growing number of finance and planning ministries across the developing world are now actively tracking where donor-funded activities are taking place—at least to the province or district level (Weaver et al. 2014; Custer et al. 2017).² Consequently, we now know far more about where aid activities occur. Geo-referenced outcome data are also rapidly expanding in number, scope, precision, periodicity, and accessibility (Warren et al. 2016; Koo et al. 2016; BenYishay et al. 2017b, 2017c; Goodman 2019), so we no longer have to settle for general statements and anecdotes about aid clustering in specific localities or bypassing underserved populations.

The joint availability of geo-referenced project data and outcome data has allowed researchers to assess the efficiency of aid allocation across districts, regions, or other subnational units within countries (Briggs 2017, 2018a, 2018b; Ohler et al. 2017; Nunnenkamp et al. 2016; Kotsadam et al. 2018; Dreher et al. 2016; Wayland et al. forthcoming; BenYishay et al. 2018b). A key finding from this literature is that aid agencies generally do a poor job of targeting the neediest areas within countries.³ The availability of geo-referenced project

and outcome data has also paved the way for a new wave of studies that rigorously measure the impacts of aid projects (De and Becker 2015; Dreher and Lohman 2015; Marty et al. 2017; BenYishay 2017, 2018c; Bluhm et al. 2018; Isaksson and Kotsadam 2018a, 2018b; Civelli et al. 2018; Dolan et al. 2019).

However, in addition to these research and evaluation uses, it was always envisaged that location-specific data on aid activities would support *decision-making* within developing countries (Barder 2011; World Bank 2011; Weaver et al. 2014). In many cases, the data was made widely available via web-based portals that support visualizations and otherwise ease access to this information for government officials, donors, civil society, media, and the general public.⁴

Providing finer-grained locational data about aid provision—and complementary data on local needs and the performance of politicians and public sector organizations—can uncover underserved areas and help citizens and other stakeholders hold public officials accountable.⁵ There are many ways to conceptualize what the socially optimal responses by these public officials should look like, but we put forward a fairly direct formulation: where resources are divisible, officials should direct additional resources toward underserved areas.⁶ However, the degree to which public officials actually respond to information in this way depends crucially on a sequence of factors. In Figure 1, we lay out a condensed logic model for this theory of change, identifying the key assumptions required for each step. We then discuss the existing evidence supporting each of these assumptions and highlight under-studied areas.

In this synthesis report, we assess the evidence on the impacts of providing public officials and citizens with geographically disaggregated data on aid or public

¹ AidData has collected these data in close partnership with Development Gateway, Brigham Young University, the University of Texas at Austin, the University of Maryland, Uppsala University, various development finance institutions, and more than a dozen finance and planning ministries across the developing world. These data collection efforts would not have been possible without generous financial support from the U.S. Global Development Lab at USAID, the William and Flora Hewlett Foundation, the John D. and Catherine T. MacArthur Foundation, Humanity United, and the Minerva Research Initiative.

² Countries with aid and debt information management systems that include geo-referenced project data include Haiti, Honduras, Nepal, Niger, the Philippines, Senegal, Timor-Leste, Uganda, Nigeria, Somalia, Colombia, Iraq, Afghanistan, Burundi, Sierra Leone, Bangladesh, the Democratic Republic of the Congo, Ghana, Moldova, Kosovo, Myanmar, Côte d'Ivoire, Cameroon, Cambodia, Kenya, Chad, Burkina Faso, Georgia, Kyrgyz Republic, Mozambique, Ukraine, Rwanda, Madagascar, Laos, Bolivia, Comoros, Liberia, Macedonia, Mauritania, Solomon Islands, Morocco, Sudan, Djibouti, and Yemen.

³ If anything, most aid agencies demonstrate a preference for locating their projects in wealthier areas within countries (Dreher et al. 2016; Briggs 2017, 2018a, 2018b).

⁴ By way of example, see the African Development Bank's MapAfrica platform (<https://mapafrica.afdb.org/>), the World Bank's maps.worldbank.org platform, the Government of Malawi's Aid Management Platform (<http://malawiaid.finance.gov.mw/>), the Government of Myanmar's Mohinga Aid Information Management System (<https://mohinga.info/>), the Government of Cambodia's ODA database (<http://odacambodia.com/>), and Kosovo's Aid Management Platform (<http://amp-mei.net/>).

⁵ Regardless of whether aid derives from a domestic or international source, public officials have a great deal of formal authority and informal influence over how these resources are allocated, both across and within subnational jurisdictions (Cohen 1995; Caldeira 2011; Dreher et al. 2016; Masaki 2017; Marx 2017; Grossman and Michelitch 2018; Harris and Posner 2019).

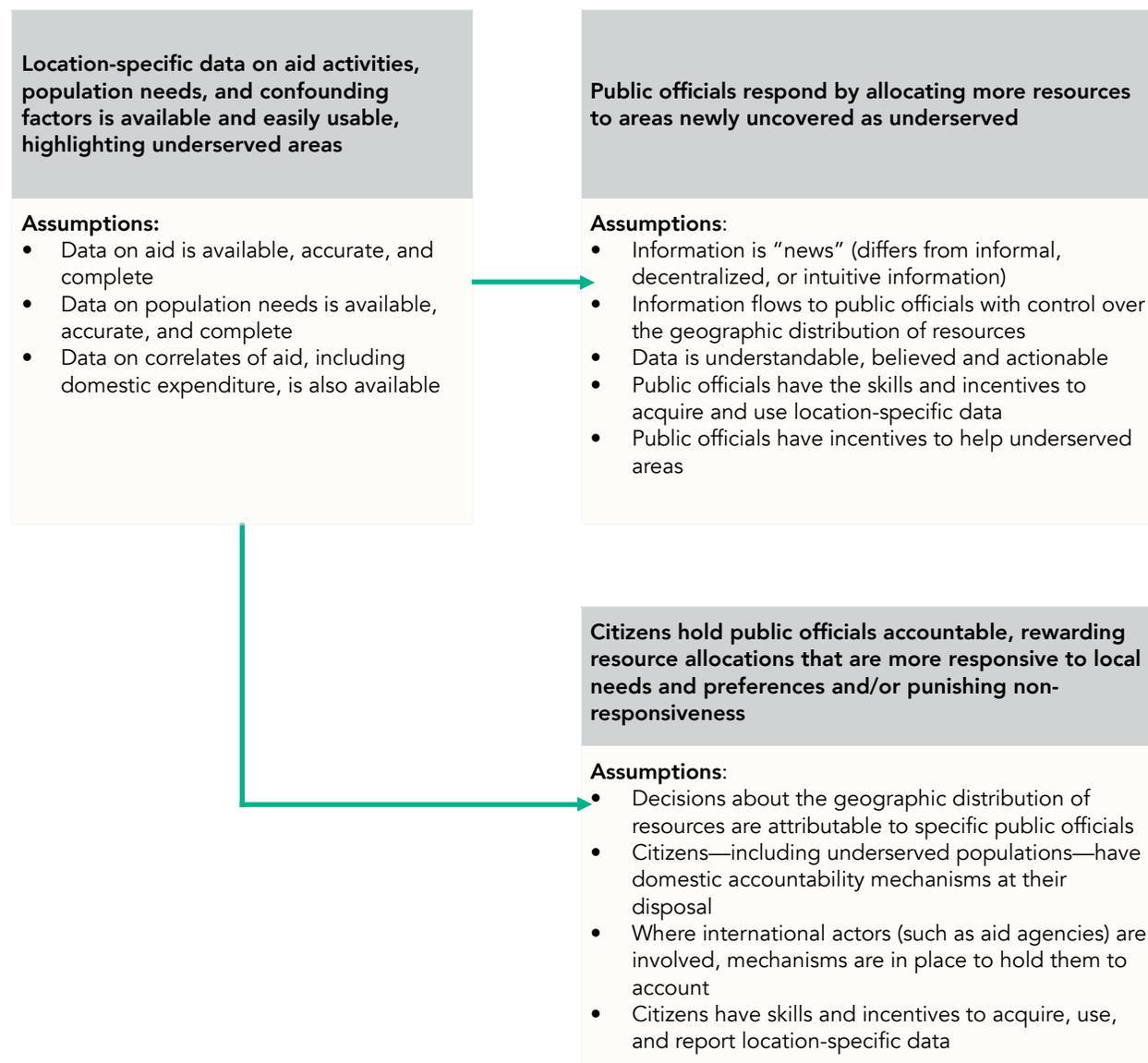
⁶ BenYishay et al (2018b) offer a theoretical framework that describes this formulation. Here, we do not deal with policy choices over the geographic separability or divisibility of resources. For example, policies such as special export zones or industrial policies that constrain targeting in important ways are largely outside the scope of this paper.

expenditure, as well as complementary data on conditions, needs, and performance. There is a much wider literature on informational interventions, but because it is quite large and diverse (see Kosack and Fung 2014; Fox 2015; Cucciniello et al. 2017; Dunning

et al. 2019), we narrow our scope to those studies where the interventions studied involved providing location-specific data. We also concentrate on evidence from experiments that randomly assigned these interventions (see Table 1).

Figure 1: A Theory of Change

How Public Officials and Citizens Might Use Location-Specific Data to Improve Resource Allocation Efficiency and Service Delivery



Providing public officials with location-specific data on aid, public expenditure, and needs/conditions

A number of recent studies seek to evaluate the impacts of providing public officials with disaggregated information on aid and public expenditure activities. This literature is growing, but it remains small—in part because of the challenge of recruiting this population into such studies. Whereas studies that focus on representative populations of local residents can use clustered sampling, household listings, and/or random walks to identify potential participants, generating representative estimates from a specific population of public officials requires that one can identify the full population of interest and gain access to and informed consent from public officials, who often face many competing demands for their attention. These demands are typically more pronounced for those in senior positions and among policymakers in national rather than local offices. Selective acceptance based on public officials' own views of research, data, or transparency can further complicate efforts to recruit public officials for participation in surveys and experiments.

Overcoming most of these challenges, Jablonski and Seim (2017) successfully recruit 310 in-office local councilors in Malawi (93% of all such councilors), whom they survey and observe as they make real decisions about public resource allocations. Seim et al. (2018) extend this sample by recruiting more than a hundred members of parliament (MPs) in Malawi. Taking a different approach, Rogger and Somani (2018) build on a civil servant survey of 1,831 federal, regional, and district officials in Ethiopia, overlaying an experimental data treatment on the 362 organizations at which these officials work. Raffler (2018) surveys 2,800 local government officials in Uganda, with training interventions (focused on the use of highly disaggregated financial data) assigned to a random subset of these officials. Castillo et al. (2018) survey 433 civil servants in Honduras, training a subset of 72 of these on use of the government's official aid information management system. Banuri et al. (2017) enlist 2,800 staff from the World Bank and the UK's Department for International Development to take part in an online survey experiment lasting 30-40 minutes. Recruitment appears to have been most successful when it was embedded as part of an actual aid or government project, creating incentives for participation that extended well beyond the research.

Seim et al. (2018) is one of only two studies that examine the effects of providing information on aid locations to public officials—in this case, the aforementioned local councilors and MPs in Malawi. In a lab-in-the-field setting, these public officials are asked to select several schools within their constituencies to receive public goods (dictionaries, solar lamps, and teacher supply kits) from an international NGO. All participants in the experiment are provided with a map showing area schools; for a randomly assigned subset of participants, the map also shows recent donor-funded interventions at these schools. The researchers first document that this aid information is plausibly novel for approximately 70% of these treated policymakers. When policymakers received new information about a school having already benefitted from an aid project, they were approximately 25% less likely to select this school to receive new public goods relative to the control arm in which this information was not provided. This important finding suggests that policymakers do indeed respond to new data about the geographic distribution of aid and service delivery in their jurisdictions.

Assessing whether this represents a socially efficient response remains difficult, however, in the absence of substantially more detailed information on conditions and needs at these schools. One might be tempted to consider this response as aid “crowding out” domestic public expenditure for the neediest schools, but this was not the case because most aid projects did not target the neediest schools in the first place. The public officials may have therefore been (efficiently) compensating by targeting needy schools that were underserved by donors. Conversely, there is no evidence that politicians targeted *less* needy schools or more politically important areas.

The second study of public officials' responses to geo-referenced aid data took place in Honduras, where Castillo et al. (2018) recruited 433 participants from the national government, donor agencies, and civil society organizations. A subset of these participants took part in one-day trainings on the government's official aid information management system. This training treatment generated gains in awareness and use of the system (in a simulated exercise in the follow-up survey), but respondents' self-reported use of the system in their regular work did not change. The non-response in real world behavior may have been due in part to respondents' genuine concerns about the timeliness and reliability of the information in the system (see Sethi et al. 2017: 34). Indeed, the inconsistent nature of the results reported in Castillo et al. (2018) and the results reported in Jablonski and Seim (2018) may be related to the fact that the former study presented data as part of an official system managed by the national government,

which may have triggered greater caution and suspicion among the study participants.⁷

Another crucial component of interpreting the efficiency of policymaker responses is the availability of reliable information on a population and its needs. Assessing Ethiopian civil servants' knowledge of the local populations they serve, Rogger and Somani (2018) document the frequent and large errors that public officials make: nearly half of their study participants report a district population size that diverges from the recent census by more than 50%. Using administrative and survey data as benchmarks for several features of education, antenatal care use, and agricultural area under cultivation, the researchers find similarly large errors made by officials (the mean absolute error is 51%). They also find that these errors are far more pronounced in organizations where monitoring of service delivery is poorly managed and executed. This is consistent with knowledge gaps around school characteristics observed by Jablonski and Seim (2017).

Rogger and Somani (2018) overlay an experimental design across the civil servant survey by sending officials from a random sub-sample of organizations the administrative data used as benchmarks, thereby lowering the marginal cost of acquiring this information to near zero. Importantly, these "data packs" were sent as part of formal government communications, through an official circular issued by the Ministry of Public Service and Human Development. Comparing errors made in the survey by officials who were sent the data pack to those made by officials not sent the data pack, Rogger and Somani (2018) find a large impact: error rates are dramatically lower for those receiving the data packs, with treatment effects accruing disproportionately to officials in organizations with relatively weak service delivery monitoring capabilities. In other words, lowering the marginal cost of acquiring this information helped Ethiopian public officials to overcome relatively weak organizational incentives for doing so. In cases where well-managed organizations already incentivize their staff to carefully understand the local needs and conditions of the populations that they serve, public servants will mostly likely respond to these existing incentives and acquire such data without external support.

The incentives for acquiring data and for tailoring allocations to population needs clearly matter, but their effects can vary substantially in different contexts. In a cross-cutting experiment undertaken with the same local

councilor sample discussed above, Jablonski and Seim (2017) show that a transparency treatment (informing councilors that their resource allocation decisions would be conveyed to local oversight committees) caused them to more frequently select schools with greater economic need. Similarly, Banerjee et al. (2018a) show that providing local politicians in Delhi with private information about the quality of local services (audits of toilet and garbage facilities) did not shift their behavior, but media disclosure of their own performance (via report cards) did induce those in high-slum areas to more closely align discretionary funding with the preferences of slum-dwellers.

Yet curiously, Raffler (2018) finds opposite effects from providing incentives for public officials to use data as the basis for their service delivery efforts. The intervention she introduces entails training local councilors as well as bureaucrats on a new, highly disaggregated financial information system implemented by the Ministry of Finance in Uganda. The provision of more detailed information on domestic public expenditure motivated councilors to better monitor and sanction the bureaucrats responsible for public services in their constituencies, but only in cases where these councilors were not politically aligned with the ruling party in the national government (and thus had the greatest incentives to highlight areas that were underserved by the ruling NRM party). In other words, the informational treatments improved the use of more granular financial data only in cases where incentives for data acquisition and use were already quite strong.⁸

Callen et al (2018) introduce a smartphone app that digitizes key aspects of government inspections of rural public health clinics in randomly assigned treatment districts of Punjab, Pakistan. In addition to effects on the actual rate of inspections, the authors find that flagging underperforming clinics in information provided to district-level officials reduced absenteeism by doctors in these locations. Dhaliwal and Hanna (2017), however, tell a more cautionary tale about the potential for broader bureaucratic reform from such technology-based monitoring efforts. Despite initial impacts on medical staff attendance at public clinics in Karnataka, India, there was little demand by both state- and lower-level officials to use the data to discipline absenteeism, and the (apparently successful) pilot was wound down rather than scaled up. These studies again highlight the role that incentives for data use clearly play, even when the data are provided in a timely, understandable, and actionable way.

⁷ On the "trust deficit" that plagues many official data systems and official statistics, see Custer and Sethi 2017 and Sethi and Prakash 2018.

⁸ In a field experiment that Dal Bó et al. (2018) implemented in collaboration with the Government of Paraguay, GPS-enabled cell phones were randomly assigned to agricultural extension agents to test the effects of these government officials knowing that their Ministry of Agriculture supervisors (in 182 district-level offices) could be tracking their whereabouts. The monitoring treatment significantly improved extension agent performance. Similarly, Carlson and Seim (2018) provide experimental evidence from Malawi that donor monitoring at the village level reduces the likelihood of funding diversion by local leaders.

In summary, these studies suggest that a more comprehensive assessment of the conditions under which location-specific data are used by and are useful to public officials will require more investment in experiments that test the strength of existing incentives for data acquisition and data use in different contexts. Over time, we anticipate that this will become less difficult as a growing number of government ministries and agencies in low- and middle-income countries are attempting to institutionalize and routinize the use of subnational decision-making in their policy design and program implementation processes. By way of illustration, consider the Kenya Primary Math and Reading Initiative (PRIMR) program, which was initially implemented in 847 government schools in two counties between 2013 and 2015.⁹ An RCT of the program demonstrated that it was an impactful and cost-effective way of improving student learning outcomes (Piper 2016; Piper et al. 2018a) and it was subsequently scaled up to achieve nationwide coverage and rebranded as the Tusome National Literacy Program. Since then, Ministry of Education officials have begun using subnational data on student learning outcomes through an online dashboard to target scarce instructional support resources across counties and schools. A recent evaluation of this routine government practice of using subnational data—to determine where curriculum support officers should make classroom visits—suggests that it has improved student learning outcomes across Kenya’s 47 counties (Piper 2018b).¹⁰

Providing citizens with location-specific data on aid, public expenditure, needs/conditions, and performance

In comparison to experimental studies that provide public officials with location-specific data on aid and government expenditure, needs and conditions, and performance, there are many more RCTs that estimate the effects of equipping citizens with such data. This literature identifies two primary ways that these types of informational treatments can affect resource allocation and service delivery outcomes: (1) by influencing how citizens select and sanction their political leaders; and (2) by changing the ways that citizens participate in local

governance processes and engage with frontline service delivery institutions.

Selecting and Sanctioning Politicians

In a well-functioning political market, citizens (principals) delegate authority to public officials (agents) to solve problems that affect them. If political agents do not take enough action to solve these problems, they are replaced or disciplined by their principals. However, in many developing countries, political markets do not function efficiently because citizens possess relatively little information about the priorities and performance of public officials (Devarajan and Khemani 2016).¹¹ In response, a growing number of field experiments seek to determine whether interventions that provide citizens with more information about the priorities and performance of public officials can strengthen this principal-agent accountability relationship and thereby increase the efficiency of subnational resource allocation (Dunning et al. 2019).

Buntaine et al. (2018a) provide evidence that when Ugandan citizens are informed of mismanagement of public funds earmarked for their districts, they are less likely to vote for the political incumbents who represent their districts. The opposite is also true: when citizens learn that funds earmarked for their districts are being relatively well managed, they reward political incumbents by voting for them. Similarly, Banerjee et al. (2011) evaluate the political impacts of distributing newspapers to Indian citizens that contained jurisdiction-specific information about the performance of their MPs. This intervention, which sought to educate (potential) voters about how their particular MPs had allocated local development funds across eight public good categories, resulted in higher-performing incumbents receiving more votes. Voters not only used their knowledge about the incidence of public good spending to evaluate the performance of political incumbents, but also considered the qualifications of political challengers to evaluate their likely performance. Cruz et al. (2018a) provide similar evidence from an experiment in the Philippines. In the run-up to mayoral elections in May 2013, they distributed flyers to potential voters with information about how various mayoral candidates intended to allocate local development funding across sectors. This informational

⁹ The PRIMR pilot program provided new literacy and numeracy instructional materials to students and teachers and included elements of instructional support, coaching, and professional development for teachers (Piper et al. 2018a).

¹⁰ Also see Somani (2018) for an impact evaluation of a recent effort to expose district-level Ministry of Education officials in Ethiopia to more granular data about service delivery outcomes, such as enrollments and pupil-teacher ratios.

¹¹ Another key constraint on political market efficiency is the inability of citizens to select and sanction public officials (see North 1981; Olson 1993). That is to say, citizens can have access to information about the priorities and performance of public officials, but still lack accountability institutions that make it possible to select and sanction on the basis of such information.

treatment increased voter knowledge about the proposed sectoral budget allocations of mayoral candidates.¹² It also increased the electoral salience of local development spending: treated individuals were more likely than those not exposed to the informational treatment to report that the local development spending intentions of candidates were important factors when they made voting decisions.¹³ In Sierra Leone, Bidwell et al. (2018) randomly assigned a novel informational treatment—exposure to political debates through a mobile cinema that visited polling stations before the November 2012 parliamentary election—across political jurisdictions. They find evidence that this intervention not only increased voter knowledge of the candidates’ positions but also increased voting for the best-performing candidates during the debates. Additionally, they identify a set of post-election impacts: MPs from treated political jurisdictions held twice as many meetings with their constituents and allocated a substantially larger share of their discretionary public funding to local development projects.

Grossman and Michelitch (2018) report somewhat more nuanced results. They find that public disclosure of performance scorecards for Ugandan district councilors prompted elected officials to implement a larger number of local development projects, but only in *competitive constituencies*. They argue that, in anticipation of being sanctioned during the next round of elections, district councilors facing higher levels of political competition attempted to reach more of their constituents by implementing more local development projects. Cruz et al. (2018a) uncover broadly analogous evidence in the Philippines: in less competitive political jurisdictions, they find that voters know less about the local development spending intentions of mayoral candidates, and dominant incumbents exploit this informational advantage by implementing fewer development projects within their municipalities after

the elections.¹⁴ In a follow-up experiment undertaken several weeks before the 2016 mayoral elections, Cruz et al. (2018b) find that those voters who were informed of a mayoral candidate’s local development spending promises prior to the 2016 election were more likely to reward incumbents who kept their 2013 spending promises.¹⁵ To measure if incumbent mayors kept their 2013 campaign promises, they compare the sectoral distribution of local development projects implemented between 2013 and 2016 and the sectoral spending promises that incumbents made prior to the 2013 elections.¹⁶

Non-Electoral Forms of Engagement with Public Officials

There is also evidence that, independently of the electoral process, access to certain types of information can change the ways that citizens participate in local governance processes and engage with frontline service delivery institutions. Consider the results of a randomized control trial in 572 Indonesian villages that took place between 2012 and 2014. Banerjee et al. (2018b) tested the relative efficacy of two informational interventions that sought to make citizens aware of an important public benefit to which they were entitled, and reduce “leakage” in the distribution of this benefit. The first intervention consisted of a private mailing of information to households about their eligibility to receive a rice subsidy through the Government’s “Rice for the Poor” program and the specific amount of rice that they were entitled to receive. The second intervention consisted of the first informational treatment *and* a public information treatment (a list of eligible beneficiaries of the rice subsidy was publicly posted in the village and information about identification cards for eligible beneficiaries was

¹² Importantly, at baseline, most voters were poorly informed about the local development spending intentions of mayoral candidates (Cruz et al. 2018a).

¹³ Here we focus primarily on informational interventions that affect aid and government expenditure or interventions that provide information about the use of aid and government expenditure. However, there are many other experimental studies that demonstrate the provision of information to citizens can influence the ways that they select and sanction political leaders. For example, Aker et al. (2017) find that an informational intervention in Mozambique—the distribution of a newspaper with location-specific information about a nearby polling station and a mechanism for reporting instances of electoral misconduct—not only affected voter turnout and vote choice, but also increased the willingness of citizens to demand political accountability by sending an SMS with their policy priorities to the president-elect. Also see Pande 2011; Ferraz and Finan 2008, 2011; Humphreys and Weinstein 2012; Fisman et al. 2017; Bobonis et al. 2016; and Avis et al. 2018.

¹⁴ Several observational studies suggest that local politicians may exploit this informational advantage by either implementing highly visible projects right before elections (Labonne 2016; Marx 2017) or claiming credit for donor- and central government-funded development projects (Labonne 2013; Cruz and Schneider 2017). A related strand of experimental research demonstrates that, contrary to conventional wisdom, the local receipt of foreign aid actually improves trust in government and public perceptions of state legitimacy (Dietrich and Winters 2015; Dietrich et al. 2018; Blair and Roessler 2018), which may be due to the fact that citizens attribute the local implementation of foreign-funded development projects to the effort and skill of their local politicians (Guiteras and Mobarak 2016; Brass 2016; Cruz and Schneider 2017; Dolan 2018; Winters et al. forthcoming).

¹⁵ Cruz et al. (2018b) also find that treated individuals consider the mayors who implemented the local development projects that they said they would implement to be more honest and competent.

¹⁶ De Janvry et al. (2012) provide evidence that Brazilian first-term mayors—who, unlike second-term mayors, have re-election incentives—are more likely to be re-elected when they successfully implement a social protection program within their municipalities. They are also more likely to follow transparent program implementation practices. Relatedly, Gulzar and Pasquale (2017) provide evidence that suggests Indian MPs place pressure on bureaucrats to achieve better program performance when they are more confident that they can claim credit for service delivery improvements.

transmitted through a loudspeaker in the village). The first treatment substantially increased village protests and the total rice subsidy received by households. The second treatment was even more effective. Relative to those villages in the first treatment group, villages in the second treatment group organized more protests to hold their local leaders accountable. Eligible households in the second treatment group also received twice as much rice subsidy as eligible households in the first treatment group. Similarly, Pandey et al. (2007, 2009) provide evidence from two experiments in India that randomly assigned exposure to information about the rights and responsibilities of citizens as they relate to village governance and health and education services. They report positive treatment effects on the frequency of village council meetings, community participation in school management and oversight, receipt of citizen entitlements, child health outcomes, and student learning outcomes.

Inter-jurisdictional performance information can also alter the way that citizens engage with local leaders and frontline service delivery institutions. Gottlieb (2016) provides evidence from an experiment in Mali that randomly assigned two different informational treatments to citizens in 95 rural communes. The first intervention provided information to Malian citizens about the size of their local government budget and the state-mandated public good provision responsibilities of their local government. The second intervention provided the first treatment and information about the commune's performance relative to neighboring communes. The first treatment increased citizen expectations of local government performance. The second treatment had heterogeneous effects on citizen expectations of local government performance. When citizens learned that their communes performed well relative to other communes, their expectations of local government increased; however, when they learned that their communes performed poorly relative to other communes, their expectations of government did not increase. Both treatments made individuals more likely to challenge their local leadership during town hall meetings.¹⁷

Björkman Nyqvist et al. (2017) also examine an intervention that involved the provision of inter-jurisdictional performance information. Rather than estimating upstream impacts on the willingness of citizens to participate in local governance processes and challenge local leaders, the intervention focuses on downstream service delivery impacts. They first evaluate the stand-alone effects of a community participation

program in rural Uganda that consisted of meetings between health facility staff and citizens (from within 5 km catchment areas surrounding the health facility), which local community-based organizations implemented to help build a shared vision of how to improve service delivery and monitor health provision at the community level. The second intervention consisted of the community participation program and the provision of easily accessible "report card" data on the performance of the health facility, including quantitative data that benchmarked the facility vis-à-vis other health facilities and a national standard of performance. Across a battery of outcomes (including infant mortality, under-5 child mortality, and healthcare facility utilization), the second treatment was more effective than the first. Without the publication of inter-jurisdiction performance information, the community participation program did not do much to change the behavior of frontline service delivery officials, increase local standards of care, or improve health outcomes. Björkman Nyqvist et al. (2017) emphasize that a key difference between the community participation intervention and the intervention that coupled the community participation intervention with the publication of inter-jurisdiction performance information is that the latter resulted in local action plans, which were jointly developed by and accessible to citizens and their service providers. The actionable and monitorable nature of these plans enabled citizens in rural Uganda to overcome a crucial barrier that has limited the efficacy of many otherwise well-designed and well-implemented informational interventions: a lack of clarity about what can be reasonably expected of service providers and the difficulty of contesting claims that service provision remains poor because of factors outside the control of service providers (Banerjee et al. 2010: 10).¹⁸

Another productive line of inquiry addresses the question of whether and when direct communication and information-sharing between citizens and public officials can lead to virtuous circles of civic engagement and government responsiveness.¹⁹ Trucco (2017) administered a field experiment in collaboration with city officials in Buenos Aires. She finds that when local government officials respond to citizen requests for sidewalk repairs, they effectively crowd in new complainants. Similarly, Buntaine et al. (2017) ran a field experiment in collaboration with the Kampala Capital City Authority (KCCA) in Uganda and found that when the KCCA responded to solid waste reports (complaints) filed by citizen reporters via SMS, it encouraged a new set of citizen reporters to come forward and file complaints of their own. These results suggest that new

¹⁷ Le and Malesky (2017) also provide evidence from a field experiment in Vietnam that the publication of inter-jurisdictional performance information improves the quality of local governance.

¹⁸ Similar results are reported in Björkman and Svensson 2009; Andrabi et al. 2017; Piper et al. 2018a; Reinikka and Svensson 2004, 2005, 2011; Francken et al. 2009.

¹⁹ On the assumptions that underpin virtuous circle models, see Schmelzle and Stollenwerk 2018.

information and communication technologies (ICTs) can have an “enfranchising effect,” which is consistent with another key finding from observational studies: that citizens request and receive more from government when they have higher baseline expectations of public officials (Botero et al. 2013; Holbein 2015; Sjoberg et al. 2017).²⁰ There are also reasons to believe that when the state is responsive to citizen preferences, it can set in motion a virtuous circle whereby voluntary compliance with state rules and regulations increases, the cost of governance declines (as agents of the state do not have to rule via coercion), tax revenues expand, and the state is able to provide even more public goods and services that address citizen needs and requests (Parks et al. 2018; Winters et al. 2018).

However, experimental research has also revealed that new methods and tools for real-time information sharing between citizens and public officials pose major risks that are not yet fully appreciated.

In two different field experiments in Uganda, Grossman et al. (2018) and Buntaine et al. (2018c) evaluate the effectiveness of SMS-based platforms that allow citizens to alert public officials to local needs and problems. Neither study finds any evidence of durable impacts on service delivery outcomes. Buntaine et al. (2018c: 43) summarize why it is so difficult for public sector officials to effectively respond to large volumes of high-frequency and hyper-local data: “[c]itizen monitoring of public services is noisy, inconsistent, and costly to process. It can be frustrating for [public sector] managers to follow-up on information when clarifications are needed prior to acting, since volunteer reporters are not at the disposal of managers. Additionally, the volume of data can be overwhelming, with [public sector] managers scarcely having enough time to process one period of data before more data comes in requiring processing and action.”²¹ Indeed, in one of these field experiments, public sector officials eventually stopped trying to respond to the real-time information streams from the SMS-based citizen reporting platform.²² Previous studies demonstrate that government responsiveness is a crucial determinant of citizen participation in these platforms (Buntaine et al. 2017; Trucco 2017; Sjoberg et al. 2017), so it is easy to see how these types of real-time information sharing mechanisms can set in motion vicious cycles of government disuse and citizen disengagement if they are not carefully designed and proactively managed.

Conclusions in Brief:

1. Public officials need location-specific information about both aid flows *and* the size and needs of the total population.
2. It is important to better understand under what circumstances having the location-specific data come from *official* government sources encourages—or discourages—take-up.
3. The *interpretability* and *actionability* of location-specific data matters.
4. When input (resource allocation) and output (service delivery) data are tethered to political jurisdictions, citizens, politicians, and bureaucrats have stronger incentives to take action.
5. Future experimental research should focus on whether, when, and how the provision of location-specific data to citizens can help specifically hold aid agencies accountable.

What we know, don’t know, and need to know about delivering location-specific data to public officials and citizens

Based on this review of several dozen studies that rigorously evaluated the effects of granting public officials and citizens access to location-specific data, we identify five insights and knowledge gaps that merit greater attention from both funders of programs that provide public officials and citizens with location-specific data and the experimental research community.

First, to make subnational aid targeting more efficient, public officials need to accurately assess the aid-to-need ratio in each location. In other words, they need location-specific information about aid flows (the numerator) *and* the size and needs of the total population (the denominator), as well as any confounding factors such as other public expenditures. Our logic model implies that resource allocation efficiency and service delivery will not improve unless public officials can accurately estimate the numerator and the denominator. On this score, existing experimental evidence is sparse, but the few studies that do exist provide relatively encouraging results (e.g., Jablonski and Seim 2017; Rogger and Somani 2018).

²⁰ Another advantage of these types of ICT tools is that they can “flatten” access to public officials—that is, increase the ease and frequency of communication between traditionally marginalized groups and politicians (Grossman et al. 2014).

²¹ Many of these points are echoed in Grossman et al. (2018), who evaluated the rollout of the U-Bridge program in northwestern Uganda.

²² Buntaine et al. (2018c: 43) report that the “waste management team [at KCCA] even stopped producing weekly action plans in response to the data, because they felt they did not have enough time to act on each one and were spending more effort processing data, as compared to actually responding to the information that they received.”

The question of whether acquiring and using numerator and denominator information is compatible with the individual, organizational, and political incentives of public officials is an entirely separate issue. Here the existing literature raises as many questions as it answers. We know that relatively cheap and simple informational interventions can encourage politicians to allocate public resources in ways that better reflect the distribution of local needs and preferences *within* the jurisdictions that they represent (Buntaine et al. 2018a; Grossman and Michelitch 2018; Cruz et al. 2018a, 2018b; Bidwell et al. 2018). However, we know less about whether, when, and how the provision of location-specific information improves the allocation of resources across subnational jurisdictions. The Government of Kenya's experience scaling the Tusome National Literacy Program provides some preliminary grounds for optimism, as it suggests that subnational data use by government officials resulted in more efficient resource allocation decisions across Kenya's 47 counties. At the same time, it calls attention to the importance of integrating subnational data use into institutionalized and routine national government decision-making processes (Piper et al. 2016a, 2016b, 2017, 2018). To the best of our knowledge, there are no experiments that have evaluated the efficacy of informational interventions that are implemented under these kinds of real-world conditions. We expect that this could be a particularly productive avenue for future research.

Second, the existing literature points to the importance of better understanding the conditions under which having location-specific data come from *official* government sources encourages—or discourages—take-up by those who make resource allocation and program implementation decisions. On the one hand, there are reasons to believe that when official data are plagued by known limitations (related to accuracy, precision, and timeliness), decision-makers may be less responsive to informational treatments that rely on such data (Castillo et al. 2018). On the other hand, several of the most effective informational treatments that we reviewed benefited from the official imprimatur of the government (e.g., Somani 2018; Rogger and Somani 2018; Banerjee et al. 2018; Callen et al. 2018). Therefore, a key question that needs to be answered going forward is how to reconcile the need for government buy-in (an essential ingredient for scalability and sustainability) with the real concerns that public sector decision-makers often have about using

unreliable data (Sandefur and Glassman 2015; Custer and Sethi 2017).²³

A **third** issue that the existing experimental literature brings to light is the importance of the *interpretability* and *actionability* of location-specific data. These obstacles were clearly evident in the two field experiments in Uganda that used SMS and crowdsourcing platforms to channel location-specific information from citizens to public officials (Buntaine 2018c and Grossman et al. 2018). In both of these cases, public officials had difficulty finding the “signal in the noise” of large volumes of high-frequency and hyper-local citizen feedback data. And, even in cases when citizen reporters identified actionable service delivery concerns, public officials often lacked the authority or the resources to directly address these concerns, which dampened enthusiasm among citizens for continued participation in the platforms. Therefore, an important avenue for future research is to determine how platforms that deliver citizen-generated data to public officials can avoid entering cycles of citizen disengagement and government disuse. The experimental results reported in Björkman Nyqvist et al. (2017) may provide an important clue in this regard. They provided legible and actionable information to public officials and citizens and they find strong evidence of treatment effects on service delivery outcomes. They also place special emphasis on two features of the intervention that they believe were especially consequential: (a) the fact that expectations of frontline service delivery providers were made explicit and public, and (b) the fact that there were mechanisms in place for citizens to monitor whether service delivery providers were meeting those expectations at the local level.

Fourth, with respect to the effects of delivering (location-specific) information to *citizens*, a key insight from the literature is that informational interventions are usually more effective in the presence of accountability institutions that allow the intended beneficiaries of a public sector organization's services or activities to provide feedback about what they are receiving or not receiving (Honig et al. 2019). The set of experimental studies that we have reviewed suggest that an effective way of addressing this issue is to tether the collection and publication of information to specific politicians—who represent specific constituencies—so that the locus of accountability is not ambiguous.²⁴ Without access to credible information that is tied to a specific political jurisdiction under the purview of a specific politician, it is

²³ More research is also needed to understand whether, when, and why an increase in the use official government data use can result in negative, unintended consequences. Dhaliwal and Hanna (2017) report results from an experiment in India that involved rolling out the use of a biometric monitoring device to digitally capture the fingerprints of primary healthcare center staff at the start and the end of each work-day. The delivery of these high-quality, real-time attendance data to government health department supervisors reduced staff absenteeism and improved infant health outcomes. However, government officials were generally reluctant to use the data to make determinations about which frontline service delivery staff should receive salary and leave reductions because they feared that doing so would increase dissatisfaction and attrition among doctors and nurses.

²⁴ A first-order question is whether citizens understand the specific responsibilities of the politicians who purportedly represent them. In settings where they do not, there may be scope for testing the efficacy of informational treatments that seek to close this knowledge gap.

more difficult for citizens to select and sanction their leaders on the basis of whether they are making significant efforts to address local needs and preferences.²⁵ Therefore, not all types of locational data will improve resource allocation efficiency and service delivery outcomes. But when input (resource allocation) and output (service delivery) data are tied to political jurisdictions, there are stronger grounds to expect a response because the data in question are more incentive-compatible for both politicians and the bureaucrats that they supervise (Grossman and Michelitch 2018; Cruz et al. 2018a, 2018b; Buntaine et al. 2018a; Banerjee et al. 2011; Bidwell et al. 2018; De Janvry et al. 2012; Gulzar and Pasquale 2017).

At the same time, when citizens are equipped with information that helps them more effectively advocate for targeted benefits to their political jurisdictions, it is not clear that this will result in a more efficient allocation of development resources across geographic space. One risk is that wealthy, educated, and politically consequential localities will secure a disproportionate share of the resources. Indeed, experimental and observational research indicates that aid and government expenditure is often allocated disproportionately to politically privileged geographical areas (Caldeira 2011; Briggs 2012, forthcoming; Jablonski 2014; Dreher et al. 2016; Hoffman et al. 2017; Masaki 2018). Therefore, in the absence of higher-level decision-makers who can enforce a more efficient allocation of resources across localities, informational interventions that target citizens could create even greater skew in geographic distribution of aid (and other development resources). This represents an important gap in the experimental literature that ought to be addressed. Notwithstanding the difficulty of recruiting higher-level decision-makers to participate in surveys and experimental studies, the research community (and their funders) should invest more time, money, and effort in rigorous evaluations of informational treatments that target public officials who allocate resources across subnational jurisdictions.

A **fifth** and final implication relates to provision of location-specific data to citizens and the accountability of aid agencies themselves. Foreign aid is a unique form

of public expenditure. The intended beneficiaries of foreign aid projects do not pay taxes for the goods and services that they receive. Nor do they have many voice, vote, or jurisdictional exit options when such projects are poorly implemented (Martens et al. 2002; Gibson et al. 2002; Whittle 2013). Compared to the domestic recipients of public expenditure, the intended beneficiaries of foreign aid projects have few mechanisms to hold international development organizations accountable if they harm local communities or underperform vis-à-vis their objectives, which is believed to be one of the reasons why foreign aid projects fail or falter during implementation (Easterly 2006: 17; Findley et al. 2017a; Ensminger and Leder-Luis 2018).²⁶

Therefore, an important frontier for future experimental research is to determine whether, when, and how the provision of location-specific data to citizens can help hold aid agencies accountable. Existing experimental evidence provides some grounds to believe that making available more location-specific data on the financiers of specific development projects could lead to higher levels of accountability. We know that citizens in aid-receiving countries generally prefer donor-funded development projects over government-funded development projects because of concerns about corruption in projects that are designed and implemented by the local authorities (Findley et al. 2017a). We also know that citizens are able to differentiate between donors that they believe to provide good value-for-money and those that they believe do not (Findley et al. 2017b; Blair and Roessler 2016, 2018; Winters et al. forthcoming). However, experimental research also suggests that citizens in aid-receiving countries are *rarely able to accurately identify which donors are responsible for specific projects in their local communities* (Baldwin and Winters 2018).²⁷ This fact begs the question of whether, when, and how the provision of more detailed information about the locations of specific donor-funded aid projects to citizens would potentially increase use of accountability mechanisms within aid agencies that allow intended beneficiaries to sound the alarm when projects underperform or cause harm (Gould 2017; Graham and Zvobgo 2017; Honig et al. 2019).²⁸

²⁵ On this point, see Devarajan and Khemani 2016.

²⁶ Paler (2013) provides experimental evidence that citizens are more willing to monitor the use of development expenditure and sanction political incumbents (in a low-information setting) when they are informed that the source of the expenditure is local tax revenue (as opposed to “windfall” revenue like natural resource rents and foreign aid flows).

²⁷ In a field experiment that took place in ten Ugandan parishes in 2016 and 2017, Baldwin and Winters (2018) report that at baseline 76% of survey respondents who lived close to an important Japanese development project indicated that they had personally visited or heard about the project in question. Yet only 4% of these respondents could correctly identify the financier (Japan) of the project in question. Many respondents admitted that they were not aware of the financier of the project or incorrectly concluded that the project was financed and implemented by the Ugandan Government.

²⁸ These accountability mechanisms include grievance redressal mechanisms (such as the World Bank’s Inspection Panel and the African Development Bank’s Independent Review Mechanism), anti-corruption units, independent evaluation units, and project-level initiatives to collect and respond to beneficiary feedback (community scorecards, anonymous hotlines, and SMS-based information-sharing platforms).

Table 1: Summaries of Studies Included in Evidence Review

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Aker et al. (2017)</i>	<p>Country: Mozambique</p> <p>Precision of Information Provided: Polling location-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Newspapers distributed with location-specific, civic education information. Citizens made aware of mechanism for reporting electoral misconduct.</p> <p>Treatment Effects: Direct effects on vote choice and voter turnout. Increased citizen willingness to communicate (via SMS) their policy priorities to the president-elect.</p>
<i>Andrabi et al. (2017)</i>	<p>Country: Pakistan</p> <p>Precision of Information Provided: Village-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Provision of school report cards.</p> <p>Treatment Effects: Increased test scores, decreased private school fees, and increased primary enrollment.</p>
<i>Baldwin (2013)</i>	<p>Country: Zambia</p> <p>Precision of Information Provided: Chiefdom-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Information on village chief's opinion of their current MP.</p> <p>Treatment Effects: Better-informed voters more likely to vote for village chiefs with ties to their local MP.</p>
<i>Baldwin and Winters (2018)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: Parish-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Information on whether a foreign aid project bypassed the local government.</p> <p>Treatment Effects: Decrease in citizen beliefs about the quality of their local government. Increase in citizen willingness to contribute money to a project that bypassed the government. Limited effects on citizen willingness to comply with the government.</p>
<i>Banerjee et al. (2010)</i>	<p>Country: India</p> <p>Precision of Information Provided: Village-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Treatment 1: Community mobilization intervention. Treatment 2: First treatment and informational intervention presenting village report cards on school enrollment and learning.</p> <p>Treatment Effects: No effects of either treatment on the main outcomes of interest (community involvement, teacher effort, and student learning).</p>

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Banerjee et al. (2011)</i>	<p>Country: India</p> <p>Precision of Information Provided: MP jurisdiction-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: MP scorecards (of legislative activity, committee attendance, and discretionary development funds allocation) and wealth, education, and criminal record of incumbent and top 2 challengers.</p> <p>Treatment Effects: Higher voter turnout, higher vote share, and lower vote buying for better-performing and more qualified incumbents.</p>
<i>Banerjee et al. (2018a)</i>	<p>Country: India</p> <p>Precision of Information Provided: Ward-level</p> <p>Recipient Type: Ward councilors</p>	<p>Nature of Treatment: Disclosure treatment: councilors informed that a leading newspaper would report on their performance before elections. Midterm report cards provided to a sub-sample of councilors to enhance the credibility of the treatment. Confidential audit treatment: councilors received "for your eyes only" reports on toilet/garbage dump conditions in slums in their wards.</p> <p>Treatment Effects: The disclosure treatment increased vote share and the probability of electoral victory for incumbent councilors. Councilors in wards with high slum densities moved spending closer to slum-dweller preferences. The confidential audit treatment resulted in a perverse effect (increased incidence of closed toilets in treated wards).</p>
<i>Banerjee et al. (2018b)</i>	<p>Country: Indonesia</p> <p>Precision of Information Provided: Village-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Treatment 1: Information on rice subsidy eligibility provided to households. Treatment 2: First treatment and information publicly posted and broadcasted in village.</p> <p>Treatment Effects: Treatment 1 increased the number of complaints made and the total rice subsidy received by households. Treatment 2 resulted in more complaints and households receiving twice as much rice subsidy than Treatment 1.</p>
<i>Bidwell et al. (2018)</i>	<p>Country: Sierra Leone</p> <p>Precision of Information Provided: Constituency-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Mobile cinemas at polling stations exposed citizens to political debates before a parliamentary election.</p> <p>Treatment Effects: Strong, positive effects on voter knowledge and vote choice (in favor of the best performing candidates in the debates).</p>

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Bjorkman Nyqvist et al. (2017)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: Health facility-level</p> <p>Recipient Type: Health providers and citizens</p>	<p>Nature of Treatment: Treatment 1: Meetings between citizens and health providers on improving/monitoring services. Treatment 2: First treatment and dissemination of report cards that benchmarked the performance of health providers to each other and to a national standard.</p> <p>Treatment Effects: Treatment 2 reduced infant mortality and under-5 child mortality, and increased health facility utilization.</p>
<i>Buntaine et al. (2017, 2018b, 2018c)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: Zone- and neighborhood-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Information on how the government used citizen reports to improve waste services.</p> <p>Treatment Effects: Citizen participation in reporting program rose over several months, with largest effects for the earliest-recruited and longest-reporting. No effects on trust in government or satisfaction with waste services.</p>
<i>Buntaine et al. (2018a)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: District-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Information on district council performance across jurisdictions (on whether councils followed procurement rules, completed projects, and properly accounted for expenditures).</p> <p>Treatment Effects: No effects on voter turnout or voting for incumbent council chairs. However, provision of information about high (low) levels of financial mismanagement made citizens less (more) likely to vote for incumbent councilors.</p>
<i>Callen et al (2018)</i>	<p>Country: Pakistan</p> <p>Precision of Information Provided: Health clinic-level</p> <p>Recipient Type: Health officials and government inspectors</p>	<p>Nature of Treatment: Government inspectors with smartphones collected real-time data on health clinics that fed into an online dashboard for review by senior health officials. Inspector reports were geo- and time-stamped, and health clinic staff were required to be photographed with the inspector.</p> <p>Treatment Effects: Increase in frequency of rural clinic inspections. Highlighting poorly performing facilities increased doctor attendance.</p>

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Carlson and Seim (2018)</i>	<p>Country: Malawi</p> <p>Precision of Information Provided: Village-level</p> <p>Recipient Type: Village chiefs</p>	<p>Nature of Treatment: Chiefs informed that their distribution of roofing material (iron sheets) to a need family within their village would be monitored by: an international donor (Treatment 1), the government (Treatment 2), or citizens (Treatment 3).</p> <p>Treatment Effects: Treatment 1 significantly reduced aid diversion. Aid diversion was highest in the absence of any monitoring (Treatments 1, 2 or 3).</p>
<i>Castillo et al. (2018)</i>	<p>Country: Honduras</p> <p>Precision of Information Provided: Municipality-level</p> <p>Recipient Type: Government officials and staff from donor agencies and civil society organizations</p>	<p>Nature of Treatment: Participation in a training on the government's aid information management system, including information about the specific locations of foreign aid projects.</p> <p>Treatment Effects: Increased awareness and use of the system in a simulated follow-up exercise. No change in self-reported use of the system in respondents' regular work.</p>
<i>Cruz et al. (2018, 2018b)</i>	<p>Country: Phillippines</p> <p>Precision of Information Provided: Municipality-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Flyers with mayoral candidates' intended sector allocations for local development funds distributed in advance of election.</p> <p>Treatment Effects: Positive effect on voter knowledge of candidate's intentions. Increase in salience of spending intentions to voters. Lower knowledge among voters with dominant incumbent mayors, which dominant incumbents apparently exploit by under-providing development projects.</p>
<i>Dal Bó et al. (2018)</i>	<p>Country: Paraguay</p> <p>Precision of Information Provided: Exact GPS locations</p> <p>Recipient Type: Ministry of Agriculture officials</p>	<p>Nature of Treatment: GPS-enabled cellphones assigned to agricultural extension agents, enabling Ministry of Agriculture supervisors to track their location.</p> <p>Treatment Effects: Significant improvements in agricultural extension agent performance.</p>

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Dhaliwal and Hanna (2017)</i>	<p>Country: India</p> <p>Precision of Information Provided: Primary health center (PHC)-level</p> <p>Recipient Type: Government health department officials</p>	<p>Nature of Treatment: Use of a biometric monitoring device to digitally capture the fingerprints of PHC staff at the start and the end of their work-day. Delivery of this daily attendance data to government health department supervisors.</p> <p>Treatment Effects: Reduction in frontline service delivery staff absenteeism and low-birth weight babies. However, low levels of demand among government officials to use the higher-quality, real-time doctor attendance data to enforce HR policies (via salary and leave reductions) for fear of increasing dissatisfaction and attrition among frontline service delivery staff (in particular, doctors).</p>
<i>Fujiwara and Wantchekon (2013)</i>	<p>Country: Benin</p> <p>Precision of Information Provided: Village-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Town hall meetings on programmatic, non-clientelist platforms held by leading candidates in presidential election.</p> <p>Treatment Effects: No effects on voter turnout. Lower prevalence of clientelism. Lower vote share for a candidate only in villages where a candidate was dominant.</p>
<i>Gottlieb (2016)</i>	<p>Country: Mali</p> <p>Precision of Information Provided: Commune-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Treatment 1: Information on local government capacity and responsibilities provided to citizens. Treatment 2: First treatment and provision of information on commune performance relative to neighbors.</p> <p>Treatment Effects: Treatment 1 increased citizen expectations of local government performance. Treatment 2 made citizens more likely to challenge local government leadership in town halls. Citizen expectations increased (did not change) in communes that performed relatively well (relatively poorly).</p>
<i>Grossman and Michelitch (2018)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: District-level</p> <p>Recipient Type: District politicians and citizens</p>	<p>Nature of Treatment: Performance scorecards of incumbents presented at public meetings (to which politicians were invited) and sent via SMS to citizens.</p> <p>Treatment Effects: Improved politician performance, but only in competitive constituencies. Politicians in competitive constituencies implemented more development projects.</p>

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Grossman et al. (2014)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: Constituency-level</p> <p>Recipient Type: MPs and citizens</p>	<p>Nature of Treatment: MPs were given access to and trained on a case management dashboard where they could read/reply to messages from constituents, and view constituents' priority issues.</p> <p>Treatment Effects: Increase in the ease and frequency of communication between traditionally marginalized groups and MPs.</p>
<i>Grossman et al. (2018)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: Village-level</p> <p>Recipient Type: District officials</p>	<p>Nature of Treatment: Service delivery problems were reported by citizens via SMS to district officials enabled with tablets to read/reply to messages.</p> <p>Treatment Effects: Positive effects on education outcomes, but not health or water outcomes, that vanished after one year.</p>
<i>Jablonski and Seim (2017)</i>	<p>Country: Malawi</p> <p>Precision of Information Provided: Ward-level</p> <p>Recipient Type: Ward councilors</p>	<p>Nature of Treatment: Provision of a map showing area schools. Councillors asked to select 3 out of 9 schools to receive development goods (iron sheets, solar lamps, and teacher supply kits) in the event that their ward is selected through a public lottery. Councillors then informed that their allocation decisions will be communicated to a local oversight committee.</p> <p>Treatment Effects: Increased incumbent councilor allocation of development goods to school communities with high levels of economic need. Incumbent councilors less likely to allocate development goods to school communities based on their political characteristics.</p>
<i>Le and Malesky (2017)</i>	<p>Country: Vietnam</p> <p>Precision of Information Provided: Province-level</p> <p>Recipient Type: Subnational government officials and citizens</p>	<p>Nature of Treatment: Publication of performance information from a cross-province performance benchmarking exercise.</p> <p>Treatment Effects: Increase in quality of local governance as measured by citizen satisfaction with local administrative procedures.</p>

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Pandey et al. (2007)</i>	<p>Country: India</p> <p>Precision of Information Provided: Village-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Information on rights and responsibilities of citizens/ communities related to health/education services and governance.</p> <p>Treatment Effects: Positive effects on prenatal exams/vitamins/tetanus shots, and infant vaccines. Fewer school fees that exceed legal limit. More village council meetings. Better service delivery for low- and mid-to-high castes.</p>
<i>Pandey et al. (2009)</i>	<p>Country: India</p> <p>Precision of Information Provided: State-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Information on rights and responsibilities of citizens/ communities in school management and oversight.</p> <p>Treatment Effects: Positive effects on community participation in school management, receipt of student entitlements, and student learning outcomes.</p>
<i>Raffler (2018)</i>	<p>Country: Uganda</p> <p>Precision of Information Provided: Subcounty-level</p> <p>Recipient Type: Elected and appointed local government officials</p>	<p>Nature of Treatment: Quarterly dissemination of highly disaggregated data on local budget allocations, transfers, and reported expenditures. Participation in training workshop focused on increasing oversight capacity.</p> <p>Treatment Effects: No unconditional effects on programmatic oversight. However, in subcounties where the political leadership was not aligned with the national ruling party, an increase in monitoring efforts and efforts to improve service delivery.</p>
<i>Rogger and Somani (2018)</i>	<p>Country: Ethiopia</p> <p>Precision of Information Provided: District-level</p> <p>Recipient Type: District officials</p>	<p>Nature of Treatment: Distribution of government circular containing official administrative data on service delivery outcomes (e.g. school enrollments, antenatal care).</p> <p>Treatment Effects: Lower error rates for civil servants who received the circular. Higher error rates for organizations where service delivery monitoring was poorly managed.</p>

Study	Parameters	Informational Treatment(s) and Effect(s)
<i>Seim et al. (2018)</i>	<p>Country: Malawi</p> <p>Precision of Information Provided: Ward- and constituency-level</p> <p>Recipient Type: Ward councilors and MPs</p>	<p>Nature of Treatment: Provision of a map showing area schools. A random subset of the maps identified the number and nature of donor-funded interventions at these schools. Councilors asked to select a school to receive education goods (dictionaries, solar lamps, and teacher supply kits). Councilors then informed that their allocation decisions will be communicated to their local oversight committee.</p> <p>Treatment Effects: Politicians less likely to select school communities already benefitting from an aid project to receive education goods. Larger effect among politicians for whom the information was plausibly novel. No evidence that treated politicians increased spending on politically important or less economically needy school communities.</p>
<i>Trucco (2016)</i>	<p>Country: Argentina</p> <p>Precision of Information Provided: City block-level</p> <p>Recipient Type: Citizens</p>	<p>Nature of Treatment: Increase in repairs of damaged sidewalks reported by citizens.</p> <p>Treatment Effects: Positive effect on citizen complaints about other problems in their block and contiguous blocks (mostly in the month after initial repair). Many of these new complaints related to issues with high levels of unmet demand.</p>

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