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TRANSPARENCY AND THE QUALITY OF LOCAL PUBLIC SERVICE PROVISION

STREET-LEVEL DISCRETION IN EDUCATION, HEALTH AND INFRASTRUCTURE

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Abstract

Transparency has been widely promoted as a tool for improving public service delivery; however, empirical evidence is inconclusive. We suggest that the effects of transparency on service provision are contingent on the nature of the service. Specifically, transparency is more likely to improve the quality of service provision when street-level discretion is high, since discretion increases information asymmetries, and, in the absence of transparency, allows officials to target public services in suboptimal ways. Using finely grained data from the Vietnam Provincial Governance and Public Administration Performance Index between 2011–2017, we show that communes that experience increases in transparency also experience improved quality of education and health (services characterized by greater discretion), while the quality of infrastructure provision (characterized by less discretion) bears no relation to increased transparency. The findings help us understand when transparency can improve service provision, as well the effects of transparency reforms in non-democratic settings.

Keywords: Transparency; accountability; local government; street-level bureaucracy; Vietnam

International organizations, policy experts, and non-governmental organizations frequently advocate transparency as a means of promoting good governance in general, and a efficient tool for improving public service provision in particular. The dominant arguments derive from the logic of principal-agent theory: Transparency increases the likelihood that principals will detect malfeasance or failure to deliver public services on the part of agents and will enact punishment, thereby deterring the abuse of public power and helping to channel government resources in a fair and efficient manner (Besley, 2006). While such arguments are compelling, the empirical evidence is mixed.

This paper suggests that the effect of transparency on service provision is contingent on the nature of the service in question. Specifically, we argue that transparency is more likely to improve service provision when street-level discretion is high and low-level officials consequently enjoy greater opportunities to target particular individuals within a community. Street-level discretion leads to information asymmetries between principals (both government and the public) and agents (officials tasked with providing services). Transparency reforms can address these asymmetries – giving principals more information with which to effectively monitor their agents, therefore helping to prevent low-level officials from targeting services in suboptimal ways.

We test this proposition with finely grained data from the Vietnam Provincial Governance and Public Administration Performance Index between 2011-2017, comparing commune-level changes in transparency with commune-level changes in the quality of education, health and infrastructure. Our results show that while transparency is associated with improved service provision where street-level discretion is high (health care and education), it has no bearing on the quality of infrastructure such as access to improved water and roads, where street-level discretion is typically lower.

The paper makes several interrelated contributions. First, we develop a framework for understanding which public services are most likely to benefit from transparency reforms, thereby contributing towards reconciling the mixed empirical findings on the benefits of

transparency noted above. In general, research has thus far paid little attention to how, and in particular why, policy interventions may have different effects across different types of public services, and consequently why the quality of public service delivery sometimes varies considerably within the same country depending on the service in question (Kramon and Posner, 2013). We suggest that the transparency may improve public service delivery in some sectors while having limited or no effects in others. We build on recent attempts to classify different types of public services in terms of the opportunities and challenges they present for policy responsiveness (Batley and Mcloughlin, 2015), to propose that street level discretion is particularly consequential for the effects of transparency reforms. Furthermore, the paper considers the implications of transparency in a non-democratic setting, Vietnam, where the fundamental nature of accountability is thought to follow a different logic than in more democratic contexts (Malesky, Schuler and Tran, 2012). This provides insight into how transparency matters in the absence of democracy, which is of increasing concern to scholars and policymakers.

Transparency and Public Service Provision

Transparency is frequently advocated as a necessary condition for improving government quality, promoting accountability, and reducing the scope for corruption and impunity (UNODC, 2004; Stiglitz, 2002; Islam, 2006; Kosack and Fung, 2014; Bauhr and Grimes, 2014; Bauhr and Nasiritousi, 2012). In recent years the transparency movement has gained momentum, building a sizeable and diverse community, including advocates of deregulation and marketization, anticorruption activists, and community-based organizations.[1] However, empirical evidence for the beneficial effects of transparency reforms remain mixed.

On the one hand, there is considerable empirical support for the beneficial effects of

[1]This broad interest in transparency has resulted in two prominent multilateral initiatives – the Extractive Industries Transparency Initiative, a global standard aimed at promoting the open and accountable management of oil, gas and mineral resources, and the Open Government Partnership, which aims to secure concrete commitments from governments to promote transparency.

increased transparency on public demand for accountability and better government performance (Alt, Lassen and Skilling, 2002; Besley and Burgess, 2002; Brunetti and Weder, 2003; Reinikka and Svensson, 2005; Winters and Weitz-Shapiro, 2013). On the other hand, evidence suggests that the effect of transparency varies across contexts (Malesky, Schuler and Tran, 2012; Joshi, 2013), and that increased transparency can even lead to adverse effects in some cases (Bauhr and Grimes, 2014; Chong et al., 2014; Bac, 2001).

While most of this literature has sought to understand the effects of transparency on voting behavior or civic engagement (Bauhr and Grimes, 2014; Winters and Weitz-Shapiro, 2013; Banerjee et al., 2011; Chong et al., 2014; Humphreys and Weinstein, 2012), some studies also focus more directly on the effects of information and transparency or public service delivery in particular sectors, such as education and health (Bjorkman and Svensson, 2009; Lieberman, Posner and Tsai, 2014; Keefer and Khemani, 2011; Fox, 2015).

However, research thus far has paid limited attention to variation across different types of public services, and implications of such variation for the effects of transparency reforms (see i.e. de Fine Licht (2014)). Failure to distinguish between different public services, i.e. treating one outcome as a stand-in for all others, can lead to misguided conclusions (Kramon and Posner, 2013). For instance, while there is substantial evidence for a link between democracy and education provision across countries, the relationship between democracy and public health is much less apparent. In addition, there is some evidence that democracy is associated with better access to clean water (Lake and Baum, 2001) but not necessarily with access to sanitation services (McGuire, 2010). This demonstrates the potential danger of studying only one public service outcome and then drawing conclusions about public services in general. Thus far, there has been surprisingly little theorizing into why the effects of policy interventions vary across different public services. A notable exception is Batley and Mcloughlin (2015), who draw on extensive work in welfare economics, organizational theory, and public management to develop a comprehensive "service characteristics" framework for understanding and comparing the politics of different services. However, the number of

dimensions along which services are allowed to vary in their framework makes it difficult to identify which service characteristics are necessary and sufficient to take into account in order to understand the effects of a given reform, such as increasing transparency. Our study therefore represents an attempt to make this type of framework more tractable, by theorizing and testing which service characteristics in particular are important to take into account to understand the effects of transparency.

In addition, this study sheds light on the effects of transparency in non-democratic settings. It is frequently assumed that authoritarian regimes fear media independence and transparency, and will therefore do their best to "stifle independent criticism and analysis" (Geddes and Zaller, 1989: 319). Transparency risks undermining opportunities for rent seeking and constraining leaders' freedom to maneuver and can thus inflict costs on authoritarian regimes. In particular, transparency may facilitate collective action by citizens and thereby expose such regimes to the risk of public discontent translating into coordinated uprising and disruptive protests (Hollyer, Rosendorff and Vreeland, 2015). Such activities can pose serious threats to authoritarian survival (Svolik, 2012).

That said, an emerging literature suggests authoritarian regimes may want to allow certain types of transparency. For instance, permitting activities such as investigative reporting can help central government officials keep local officials in check and reduce local corruption (Lorentzen, 2014). While the media may not be allowed to report on malfeasances at higher levels of government (Liebman, 2011; Shirk, 2011), reporting on lower levels of government can generate verifiable information on bureaucrats' performance that will induce higher effort (Egorov, Guriev and Sonin, 2009). This is important given that effective public service provision is often critical to regime survival and legitimacy (Bueno de Mesquita and Smith, 2009) and control of corruption in public service delivery can deter mass mobilization (Bauhr, 2017). Thus, as with institutions typically associated with democracy, such as elections and political parties (Gandhi and Lust-Okar, 2009; Magaloni, 2006), transparency may help co-opt outgroups and thereby prevent potential threats to regime survival. However, save a few

notable exceptions, scholarly interest in the link between transparency and public service delivery has focused primarily on the role of transparency in democracies (Grimmelikhuijsen, 2010, 2012; de Fine Licht, 2014).

Transparency and street-level discretion

This study sets out to investigate the extent to which transparency influences the quality of public service provision, and also examines whether such an association is contingent on the type of public service. We argue that the effects of transparency reforms are in part a function of the information asymmetries characterizing different aspects of service delivery. For instance, Batley and Mcloughlin (2015) suggest that information asymmetries are higher in sectors such as education and health care as compared to waste collection. The authors attribute this mostly to the later services being highly "professionalized" services, where citizens cannot easily make choices by evaluating the quality and efficiency of services offered. While a high professionalization of service providers is far from unique to the education and health sectors, these types of services also entail a comparatively high street-level discretion.

In his seminal contribution, Lipsky (1980) defines street-level bureaucrats as "public service workers who interact directly with citizens in the course of their jobs, and who have substantial discretion in the execution of their work." They include teachers, police officers, public lawyers and social workers. These frontline bureaucrats play a key role as mediator between the demands of citizens and those of the state, as they are ultimately the actors who transform policy decisions into outcomes that affect citizens. The constraints and conditions under which street-level bureaucrats operate influence the divergence of policy outcomes from policy intent.[2] Following the work of Lipsky, the concept of discretion has received wide attention in the policy implementation literature (Tummers and Bekkers, 2014; Hupe and Hill, 2007). While several studies have pointed to the beneficial effects of street-level

[2]Lipsky also discusses the tension between worker discretion and procedural consistency demanded by considerations of equity and the conflict between worker autonomy and organizational requirements of supervisory control.

discretion, discretion also clearly limits opportunities for central government officials to monitor the performance of frontline staff. Teachers and health workers have a particularly high level of discretion, since both classroom teaching and clinical practices are difficult to specify beforehand (Batley and Mcloughlin, 2015; Gauri, 2013). While discretion is unavoidable and can lead to beneficial effects, it also makes monitoring more difficult and allows teachers and doctors to more subtly target particular citizens by offering higher quality services to some.

Moreover, in many contexts, citizens seek to gain access to scarce public services by attempting to bribe frontline service providers or use their networks to gain preferential treatment. While the nature of these bribes can differ radically in kind (Bauhr, 2017), they clearly upset the incentives of impartial policy implementation. From the service providers' side, discretion can be used to facilitate the implementation of policies as well as better respond to the demands of citizens, but also to target services based on kinship or clientelist ties. There is empirical evidence to support this proposition from a number of contexts. For instance, Gatua (2018) shows that social connections strongly influence the provision of health care in rural Kenya. She finds that being a relative or close friend to a community health worker doubles the probability that a household will receive a mandatory healthcare visit. Markussen and Tarp (2014) use household panel data from rural Vietnam to show that having a relative in a position of political or bureaucratic power influences households to increase their investment in land improvements due to such ties. Their study suggests that connections to office holders strengthen de facto land property rights and access to both credit and transfers. Their results also indicate that officials prefer to use informal rather than formal channels of redistribution to relatives. Connections to local politicians have also been found to skew the distribution of targeted transfer programs in Ethiopia (Caeyers and Dercon, 2012) and South India (Besley, Pande and Rao, 2011). Finally, Do, Nguyen and Tran (2017) present evidence of hometown favoritism across a spectrum of office holders in Vietnam, highlighting the relationship between their new promotions and new public infrastructures in their ancestral hometowns.

Transparency can help to prevent such undue targeting of government resources. Studies find that budget transparency can lead to both beneficial economic outcomes and fiscal performance (Alt and Lassen, 2006; Copelovitch, Gandrud and Hallerberg, 2018) and lower levels of corruption in public service delivery (Reinikka and Svensson, 2005). Transparency and public access to information can prevent the capture of funds at the local level and help both citizens and central government officials assess the quality of the services delivered. Without access to information about the budgetary resources allocated to a school or hospital or who is eligible for a certain type of service it is difficult to assess whether services are distributed according to the intention of policymakers or if certain individuals are neglected for other reasons.

In sum, we suggest that street-level discretion influences the degree to which low-level officials can target services to particular individuals within communities, enhancing the incentives for both service users and central government authorities to monitor street-level service providers. Increasing access to information can thereby facilitate monitoring and improve the quality of service provision. This informs the hypothesis we aim to test in this paper: *Transparency has a stronger effect on the quality of service provision in sectors where street-level discretion is high than in sectors where street level discretion is lower.*

We test this hypothesis using subnational, time-series data from Vietnam. Analyzing the relationship between transparency and public goods provision in a non-democratic setting represents an important contribution to the literature, and allows us to gain insights into some of the factors that explain variation in the quality of public service delivery.

Empirical Strategy and Data

In order to investigate the influence of transparency on different aspects of service provision we investigate subnational variation in Vietnam. Vietnam is a good test case for our theory since it is an authoritarian regime with considerable subnational differences in the quality

of public service delivery. In 1986, the Communist Party of Vietnam (CPV) abandoned the central planning model of socialism and decided to adopt a "market-oriented socialist economy under state guidance," also known as *Doi Moi* or "Renovation" (Beresford, 2008). However, in contrast to its opening up of economy, the CPV continued to tighten political control (Nguyen, 2016). Over the past decade, expert coders from the Varieties of Democracy (V-Dem) have alternatively classified the regime as an "electoral autocracy" or a "closed autocracy," reflecting the country's lack of free and fair, de facto multiparty elections and other minimal institutional prerequisites of democracy.[3] Furthermore, Vietnam is currently experiencing an annual growth rate of 7 percent and living standards have increased (Nguyen et al. 2013), leading to raised expectations about well-functioning public service delivery (Giang et al al 2017; CECODES 2010).

We are not the first to consider the effects of transparency in Vietnam, though existing empirical results are mixed. Malesky, Schuler and Tran (2012) present compelling evidence of the "adverse effects of sunshine" in their study of the impact of a randomized transparency experiment on legislator behavior in query sessions in Vietnam. In contrast, Giang, Nguyen and Tran (2017) show that the quality of local governance improved in provinces and districts that were subjected to increased scrutiny.[4] The authors argue that even in an authoritarian setting, transparency can facilitate a "fire alarm" style of public monitoring (McCubbins and Schwartz, 1984), and that in such contexts, public shaming or upward accountability can incentivize local officials to better respond to citizens' needs. While these mixed findings may at first be difficult to reconcile, it is important to note that the two studies are examining the effects of different forms of transparency. As we note above, regimes such as Vietnam may be hesitant to allow transparency at the highest levels, which could undermine their authority; however, transparency at lower levels of government can provide incentives for

[3]For more information about V-Dem's classification of regime types, see Luhrmann, Lindberg and Tannenberg (2017).

[4]The authors use the 2010 pilot PAPI survey as a randomized intervention, allowing for the comparison of provinces surveyed in 2012 that did and did not receive the PAPI monitoring "treatment". The authors find that governance quality reported in later years by citizens in surveyed districts/provinces is significantly higher.

local bureaucrats to perform well and thus contribute to the popularity and stability of the regime.

Our analysis compares commune-level[5] changes in transparency with commune-level changes in the provision of services that involve varying degrees of discretion by street-level bureaucrats. As at higher levels, communes are divided into three branches of government: an executive (People's Committee), legislature (People's Council), and judiciary (People's Court/Procuracracy) (Malesky, Nguyen and Tran, 2014).

The sections that follow explain how we operationalize our focal dependent and independent variables, as well as relevant controls.

Data on Service Delivery and Transparency

Both our data on service delivery and transparency come from the Vietnam Provincial Governance and Public Administration Performance Index (PAPI).[6] The survey covers all of Vietnam's 63 provinces, and includes 207 districts, 414 communes, and 828 villages.[7] Overall, PAPI surveys around 14,000 randomly selected Vietnamese citizens each year.

PAPI questions are organized around six main dimensions: participation at the local level, transparency in local decision-making, vertical accountability towards citizens, control of corruption, public administration procedures and public service delivery We focus on questions related to different aspects of service delivery (our dependent variables) and transparency (our main independent variable). PAPI does not sample the same citizens each year, precluding panel analysis at the household level. However, the fact that the same communes are included in the sample each year allows us to investigate change over time at that level of government. We therefore construct a "pseudo-panel" with the commune-year

[5]The commune is the level-3 administrative unit in Vietnam, below the province (level 1) and district (level 2). We use the term "commune" to refer to all three kinds of third-level administrative subdivisions, including the rural commune (*xa*), the commune-level town (*thi tran*) and the ward (*phuong*).

[6]PAPI is jointly conducted by the Center for Community Support and Development Studies (CECODES) and the United Nations Development Programme (UNDP).

[7]For more information on PAPI's sampling strategy and methodology, see `http://papi.org.vn/eng/faq` and PAPI (2011*a*).

as the unit of analysis.[8]

Service Delivery

We consider how transparency relates to three main dimensions of service delivery: education, health, and infrastructure (roads and water). Vietnam's local authorities are responsible for over half of total government spending, thanks to fiscal decentralization policies implemented over the past two decades. In particular, district authorities have been responsible for most of the recurrent spending in both education and health in most provinces. In contrast, the majority of capital spending is carried out by higher-level (provincial) authorities (World Bank, 2015: 11).

The relatively higher degree of local control over health and education likely contributes to greater discretion in the delivery of these services, as compared to services that require more capital spending. Moreover, street-level bureaucrats play a much more significant role in the delivery of education and health services. Within a given community, teachers and health workers may favor some citizens over others as a function of social ties that make them feel obligated to do so. On the other hand, local bureaucrats likely have fewer opportunities to influence the quality of a local road or water source within their community.

In order to construct commune-level measures of education, health, and infrastructure quality, we first identify relevant individual-level variables and then collapse them to generate commune-level averages.[9]

Education. We consider respondents' average answers to a series of yes/no questions about education quality, which included items related to overcrowding in the classroom, teacher qualifications and behavior. In addition, we include a question that asks parents about their satisfaction with local education services.

Health. Next, we consider three aspects of health service delivery. Similar to the edu-

[8]UNDP periodically reviews commune lists following administrative border changes. As a result, some of the communes in earlier rounds of the survey are not included in later rounds, and vice-versa.

[9]Table A1 in the Appendix provides additional details about variable construction.

cation quality indicator, we construct an indicator of health quality, averaging respondents' answers to questions on the performance of doctors and health care workers, as well as waiting periods and expenses for treatment. We also consider respondents' reported satisfaction with the treatment they received as well as their reported satisfaction with free medical care for children under six, had they or a household member used such services.

Infrastructure. With respect to infrastructure we consider both the quality of local roads as well as access to an improved water source. In order to assess the quality of local roads, we examine respondents' answers to a question asking them about the road closest to their house. We measure access to an improved water source by examining a question about the respondent's main source of drinking water. We recode the responses to generate a binary measure indicating whether respondents are using "improved" sources, using the WHO/UNICEF Joint Monitoring Program's definition.[10]

Note that all questions are based on respondents' reported access and quality. While this makes them somewhat subjective, the questions are worded to relate to actual experiences rather than perceptions or hypothetical situations.

Transparency

We construct two transparency indicators. The first averages binary indicators of whether the commune budget and the list of poor households in the respondent's village/residential group has been publicized within the last 12 months. The second measure augments the first by including information on whether the poverty list contained any errors (poor households that are missing from the list, or households that are not poor but are nevertheless on the list). As above, in order to construct commune-level measures of these indicators, we first measure all variables at the household level and then collapse them to generate commune-level averages.

Since the passage of the State Budget Law of 1996 (subsequently amended in 2002 and

[10]Improved sources include: piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water.

2015), Vietnam has made significant progress on public disclosure of budget information. Additional regulations require sub-national government (province, district and commune) budget plans and final accounts to be disclosed. At the commune level, the president of the commune people's committee is supposed to present the plan and final account of communal budget, including revenue and expenditure by sector and by special public fund. A notice of the communal budget plan and final account is supposed to be available at the communal office within 90 days, with printed documents distributed to Communal Committee of Communist Party, local CSOs, and village heads (World Bank, 2013).

In reality, budget transparency in Vietnam remains rather low. Vietnam scored just 15 out of a possible 100 points on the latest (2017) Open Budget Survey, indicating that Vietnam provides the public with only "scant" budget information. (Only Myanmar is less transparent in terms of other Southeast Asian countries assessed by the survey.) That said, the PAPI data shows that there is considerable variation among Vietnamese local governments when it comes to opening their budgets. While taking the initiative to open commune budgets to public scrutiny is in part due to top-down pressures, it is frequently a function of the actions of individual proactive public officials to comply with established regulations.[11]

The importance of budget transparency for public goods provision has been alluded to above. Disaggregated information on allocations and entitlements for schools, health clinics, and other local institutions has been shown to be a key ingredient when it comes to facilitating demands for accountability (van Zyl, 2014). In the Vietnamese context, transparency of poverty lists is highly relevant as well. These lists are an important welfare policy tool, especially in Vietnam's poorer regions, where households that are recognized as poor are entitled to receive a number of social benefits, such as access to micro-credit programs or free medical insurance. If citizens are not aware of these lists, this could allow officials to place undeserving people on the list while excluding those who should be included. Improving

[11]Personal communication with Do Thanh Huyen of UNDP Vietnam.

poverty list transparency can thus serve to reduce corruption and facilitate efficient service delivery to needy citizens (PAPI, 2011*b*).

Control Variables

In order to avoid omitted variable bias, we include a set of control variables that may also plausibly relate to improvements in service delivery. From the PAPI we include variables that ask respondents to rate the current economic conditions of their families (on a 5-point scale ranging from "very bad" to "very good."). We also control for the average education level of surveyed respondents in each commune. These variables allow us to control for improvements in the local economy and awareness among citizens that might be positively correlated with public goods provision.

We also incorporate data from two external sources in order to control for population growth, which increases competition for public services within communes, and economic growth, which affects the financial capacity of communes to provide such services. To capture population growth within communes, we incorporate population data from WorldPop.[12] We use QGIS to overlay commune shape files atop the population grids, in order to produce commune-level population estimates for 2010 and 2015. Constant population growth is assumed within each commune, allowing us to interpolate the intervening years. A similar procedure is used to incorporate night-light data from the United States Air Force Defense Meteorological Satellite Program (DMSP) Nighttime Lights Time Series,[13] which we use to proxy for economic growth, in line with a range of recent studies in political science and economics (Doll, Muller and Morley, 2006; Henderson, Storeygard and Weil, 2012; Michalopoulos and Papaioannou, 2013). These data are available every year from 1992-2013.

[12]WorldPop combines census, survey, satellite, social media, cellphone and other spatial datasets to produce gridded population maps, whereby population numbers per 100x100m grid square are estimated. Gridded population data is available for Vietnam for 2010 and 2015. For more, see `http://www.worldpop.org.uk/`

[13]`https://ngdc.noaa.gov/eog/dmsp/downloadV4composites.html`

We incorporate commune-level data on average night brightness for 2011-2013.[14] We calculate the average growth rate in each commune over this period in order to fill in estimates for 2014-2016. Note that in less developed settings, night lights data have been used to proxy for access to electricity (Baskaran, Min and Uppal, 2015). This makes less sense in contexts such as Vietnam, however, where the most recent estimates put access at over 99 percent (CECODES, VFF-CRT & UNDP, 2016).[15]

Finally, given that our analysis relies on a pseudo-panel constructed from repeated cross-sections, we need to account for the passage of time. Even though the households in each commune are randomly selected in each round of the survey, making each commune-level average theoretically comparable with the previous and the next one, something might change over time that makes them incomparable. We therefore include year fixed effects as an additional control.

Descriptive statistics for all variables are presented in the Appendix.

Transparency and service provision: mixed findings

We begin by comparing commune-level changes in transparency and the education outcomes described above. Table 1 depicts a positive association between both measures of transparency and all three education indicators. The control variables are not consistently significant, though largely exhibit the expected signs.

Next, Table 2 shows how commune-level changes in transparency relate to changes in health outcomes. Again we see a positive association between transparency and all three health indicators. In addition, we see that commune-level increases in respondents' average economic situation are associated with improvements in health quality and satisfaction. The

[14]Commune-level night lights data are downloaded from the AidData geo Framework (Goodman, S. and BenYishay, A. and Runfola, D., 2016), a repository for a large number of geo-coded data sources.

[15]Note that it was not possible to match all PAPI communes to the geographic control variables, given inconsistencies in the spelling of administrative units between the survey and the shape files, as well as changes in administrative unit boundaries. We use a fuzzy match procedure (the `matchit` command in Stata) that allows us to match all but 17 communes in the PAPI dataset.

Table 1: Transparency and Education (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1) Quality	(2) Quality	(3) Quality	(4) Satisf.	(5) Satisf.	(6) Satisf.
Transparency Composite 1	0.06***			0.18***		
	(0.02)			(0.06)		
Transparency Composite 2		0.10***	0.09***		0.23***	0.25***
		(0.02)	(0.02)		(0.07)	(0.08)
Household economic situation	0.02*	0.02*	0.02	0.23***	0.22***	0.18***
	(0.01)	(0.01)	(0.01)	(0.04)	(0.04)	(0.05)
Education Level	0.00	0.00	0.00	0.00	0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Population (thousands)			-0.01			-0.01
			(0.00)			(0.01)
Night Lights			-0.00			0.00
			(0.00)			(0.00)
Year Fixed Effects	No	No	Yes	No	No	Yes
Observations	2894	2894	2796	2894	2894	2796
R^2	0.009	0.012	0.024	0.017	0.017	0.027

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

positive coefficient on night lights also suggests a positive correlation between economic development and health outcomes. Such a relationship has been well-documented both across and within countries (Deaton, 2003).

Table 2: Transparency and Health (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Quality	Quality	Quality	Satisf.	Satisf.	Satisf.	Child	Child	Child
Transparency Composite 1	0.08***			0.11***			0.17**		
	(0.01)			(0.02)			(0.08)		
Transparency Composite 2		0.11***	0.11***		0.14***	0.13***		0.18*	0.27***
		(0.02)	(0.02)		(0.03)	(0.03)		(0.10)	(0.10)
Household economic situation	0.04***	0.03***	0.01	0.06***	0.05***	0.03	0.33***	0.33***	0.23***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.06)	(0.06)	(0.06)
Education Level	-0.01**	-0.01**	-0.01***	-0.01**	-0.01**	-0.02***	-0.02	-0.02	-0.04**
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Population (thousands)			-0.00			-0.00			0.02
			(0.00)			(0.00)			(0.02)
Night Lights			0.00			0.00			0.00
			(0.00)			(0.00)			(0.00)
Year Fixed Effects	No	No	Yes	No	No	Yes	No	No	Yes
Observations	2897	2897	2798	2897	2897	2798	2890	2890	2791
R^2	0.019	0.023	0.086	0.015	0.017	0.049	0.016	0.016	0.056

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Finally, Table 3 shows how changes in transparency relate to changes in the quality of roads and access to clean water. Unlike in the previous two tables, we find no relationship between transparency and these outcomes. We interpret this as providing support for our hypothesis, given our contention that in the Vietnam context, water and roads are less affected by the discretion of commune officials. A number of the control variables are significant, however. Again, local economic improvements are associated with improved infrastructure. This is unsurprising given that higher levels of economic development lead to higher tax revenues, which can be channeled back in improved infrastructure. At the same time, infrastructure can affect local development through many channels, including improved agricultural productivity, increased rural non-farm employment, rural migration into urban sectors (Shenggen and Zhang, 2004), as well as improved transportation and telecommunication services (Démurger, 2001).

Table 3: Transparency and Infrastructure (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)	(4)	(5)	(6)
	Roads	Roads	Roads	Water	Water	Water
Transparency Composite 1	-0.01			0.01		
	(0.02)			(0.02)		
Transparency Composite 2		-0.02	-0.01		-0.00	0.01
		(0.02)	(0.02)		(0.02)	(0.02)
Household economic situation	0.09***	0.09***	0.06***	0.07***	0.07***	0.04**
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)
Education Level	0.04***	0.04***	0.03***	0.02***	0.02***	0.01*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Population (thousands)			-0.01***			-0.01**
			(0.00)			(0.00)
Night Lights			-0.00***			-0.00***
			(0.00)			(0.00)
Year Fixed Effects	No	No	Yes	No	No	Yes
Observations	2899	2899	2800	2899	2899	2800
R^2	0.063	0.064	0.134	0.018	0.018	0.101

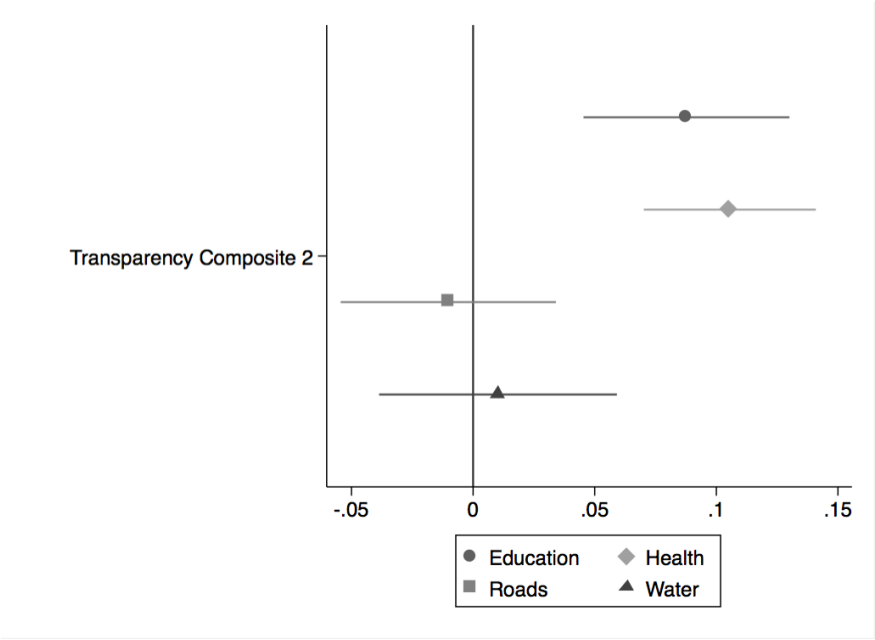
Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 1 presents the coefficients of transparency on quality of service delivery from Tables 1, 2, and 3, showing transparency's significant and positive association with the quality of education and health within communes, and lack of association with roads and water.

These results are in line with observable implications of our theory – namely, that services characterized by greater street-level discretion should be more likely to respond to

Figure 1: Coefficients of Transparency on Different Services



Coefficients from regressions that control for population and nightlights, and include year fixed effects.

transparency reforms than those where frontline staff are less influential in determining access to and quality of services.

Robustness Checks

The different results for transparency across sectors could be an artifact of survey construction given that the underlying questions used to create commune-level indicators of education, health, and infrastructure were not asked of exactly the same populations within each commune. Questions about health quality were only asked of households that had used a public hospital in their province.[16] On average, about 63 percent of households had used a public hospital in each commune. Similarly, the education quality questions were only asked of households with children in public primary school. Such households accounted for around 25 percent of all surveyed households in each commune. We therefore may wish to know if our results for water and roads hold when we restrict the sample to the households that

[16]While the questionnaire also asked about the year in which the household used the provincial hospital, all respondents who had ever used a provincial hospital were taken into account.

answered the questions for health and education. Tables A4 and A5 in the Appendix show that indeed, transparency remains an insignificant predictor of water and road quality even when we restrict the sample in this way.

In addition to the concern that the commune level averages for health and education variables might rely on different respondents, some of the hospitals are controlled by the district level. We therefore check to see if and how the results change,when we aggregate to the district level (one level higher than the commune). Tables A6, A7, and A8 show that our main results hold: Improvements in district-level transparency are positively and significantly associated with improvements in the quality of district-level health and education quality, but not with average road and water quality at district level. The only exception is that satisfaction with the quality of children's health services is no longer significantly associated with increased transparency. This likely reflects the additional noise created by aggregating up to the district level.

Understanding the Mechanisms

The relationship between increased transparency and improved service provision that we outline in our theory presumes that increased transparency can reveal the extent of targeting within communities that is either at odds with policy or appears to be unfair. In light of such revelations, we anticipate that community members and/or higher level government officials will take actions to sanction the offending street-level bureaucrats and enforce more equitable provision of goods, thus improving service delivery. We understand the extent to which community members are taking action in response to increased transparency as the enforcement of downward accountability whereas the extent to which higher-level officials are taking action would reflect the enforcement of upward accountability.

It is difficult to test these mechanisms directly with the PAPI survey data, but we can get at some of their observable implications. First, increased transparency should be associated

with increased knowledge about service provision. We can examine this in the PAPI data by considering responses to a question asking whether respondents think primary education is supposed to be free. Vietnam's constitution pledges in Article 59: "Primary education is compulsory and tuition-free." However, students have to pay various "voluntary" contributions, including construction contributions, health insurance for students, and water charges (London, 2010). In addition, poor communication from state agencies in charge and manipulation by school administrators in some cases mean that a substantial proportion of Vietnamese citizens are not aware of the policy (47 percent of all who answered this question in the 2017 PAPI). Indeed, action research conducted by UNDP Vietnam and the Ho Chi Minh Political Academy finds that poor communication and manipulation by school administrators is an issue in some provinces.[17]

Table 4 shows that as communes become more transparent, a greater proportion of their respondents become aware of the government's free education policy. Such knowledge is important for making demands for improved education quality in areas where local public education providers may be misinforming citizens.

[17]Personal communication with Do Thanh Huyen of UNDP Vietnam. The reports detailing the action research are only available in Vietnamese.

Table 4: Transparency and Knowledge of Free Education Policy (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)
	Model	Model	Model
Transparency Composite 1	0.08**		
	(0.03)		
Transparency Composite 2		0.10***	0.11***
		(0.04)	(0.04)
Household economic situation	0.07***	0.07***	0.06***
	(0.02)	(0.02)	(0.02)
Education Level	0.02***	0.02***	0.02**
	(0.01)	(0.01)	(0.01)
Population (thousands)			0.00
			(0.01)
Night Lights			0.00***
			(0.00)
Year Fixed Effects	No	No	Yes
Observations	2899	2899	2800
R^2	0.013	0.013	0.040

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Additionally, we can examine another downward accountability mechanism by comparing improvements in transparency with local participation. Specifically, the PAPI includes a question asking respondents if they made a proposal or suggestion to the local authorities in the past year. We calculate the average of respondents' yes/no answers to this question to construct a commune-level measure of participation. Table 5 depicts a positive association between transparency and local participation.

Table 5: Transparency and Participation (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)
	Model	Model	Model
Transparency Composite 1	0.16***		
	(0.02)		
Transparency Composite 2		0.18***	0.18***
		(0.03)	(0.03)
Household economic situation	0.05***	0.05***	0.09***
	(0.02)	(0.02)	(0.02)
Education Level	0.01	0.01	0.01**
	(0.00)	(0.00)	(0.00)
Population (thousands)			-0.00
			(0.00)
Night Lights			-0.00
			(0.00)
Year Fixed Effects	No	No	Yes
Observations	2899	2899	2800
R^2	0.033	0.028	0.073

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix Table A9 shows that this relationship also at the individual level, controlling for important individual-level correlates of participation such as gender and group membership.

As an alternative measure of participation, we also take commune-level averages of household participation in the most recent election for the Chairperson of commune/ward People's Committee. Table A10 in the Appendix shows that communes that experienced increases in transparency also experienced higher levels of participation in these elections.

Given the Vietnam context, we anticipate that upward accountability may be an equally if not more relevant mechanism than downward accountability when it comes to linking commune-level transparency to improved service delivery at the local level. The PAPI captures this to an extent with questions on the coverage and effectiveness of People's Inspection Boards (PIBs). Vietnam's legal framework includes a mandate for a number of local issues to be "supervised and inspected by the people" (Nguyen, 2016: 35). These include the commune budget, land management, results of investigations against corrupt officials, and social services. Implementation of such supervision is envisaged through PIBs or through mass organizations (Ibid). The decision to establish PIBs lies in the hands of the Fatherland Front Committee at the commune level (World Bank Group, 2010). In theory, the PIBs are established by citizens after going through a formal process of Fatherland Front Committees convening elections for citizens to discuss and vote candidates. In practice, however, the Party cells, the Vietnam Fatherland and local mass organisations meet and nominate PIBs members and ask citizens to vote based on their lists.[18] As shown in Table 6, communes that become more transparent over the 7-year period that we study are also more likely to establish such boards.

[18]Personal communication with Do Thanh Huyen of UNDP Vietnam.

Table 6: Transparency and People's Inspection Boards (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)
	Model	Model	Model
Transparency Composite 1	0.48***		
	(0.03)		
Transparency Composite 2		0.56***	0.54***
		(0.04)	(0.04)
Household economic situation	0.06***	0.06***	0.10***
	(0.02)	(0.02)	(0.02)
Education Level	0.03***	0.03***	0.04***
	(0.01)	(0.01)	(0.01)
Population (thousands)			-0.00
			(0.01)
Night Lights			0.00
			(0.00)
Year Fixed Effects	No	No	Yes
Observations	2899	2899	2800
R^2	0.127	0.114	0.153

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In sum, our results show that transparency is more strongly associated with better quality service delivery in sectors where the discretion of frontline staff is higher. As for what might explain this association, our results suggest that transparency can facilitate greater knowledge and participation among citizens (downward accountability) as well as monitoring by central government officials (upward accountability).

Conclusion

This paper contributes to understanding the sources of variation in the quality of public service delivery, which is seen as a key development challenge by international organizations, policy makers, and scholars. We advance a theory suggesting that the benefits of increased transparency for the provision of basic public service delivery may be contingent on the nature of the public service, and in particular the level of discretion by frontline staff. When these street-level bureaucrats enjoy comparatively high levels of discretion, transparency can prevent suboptimal targeting of public services. When discretion is lower, information asymmetries will also be lower, limiting the effectiveness of transparency reforms. In other words, in the absence of transparency, frontline staff with high levels of discretion, such as teachers and doctors, may use their leeway to target family and friends as opposed to promoting general welfare.

Using commune-level data in Vietnam between 2011 and 2017, we provide support for these claims. Our results show that commune-level changes in transparency are strongly associated with improved public service provision in education and health, where street-level discretion is high. However, increased transparency has no bearing on the quality of infrastructure (improved water and roads), services over which local discretion is typically lower. We also show that improvements in transparency are associated with both greater public knowledge and participation as well as increased monitoring efforts by the central government.

These results have a number of important implications. First, we provide evidence for the importance of distinguishing between different types of public services when it comes to understanding the effects of governance reforms. Specifically, our findings contribute towards explaining variation in the effectiveness of transparency reforms across contexts, highlighting how information asymmetries can limit the possibility for outside actors to monitor performance. While the targeting of certain services to particular communities or individuals can be very visible to outside actors, such as in the case of a road being

built, other services allow officials to target services to individuals within a community by influencing the quality of services delivered interpersonally, e.g. caring for a sick child. The discretion inherent in these latter services makes it more difficult for outside actors to monitor performance in the absence of transparency.

By situating our study in an authoritarian context, the findings indicate that transparency can have a beneficial influence on service provision even in the absence of democracy. In such a context, transparency can still facilitate downward accountability as well as provide the opportunity for higher level officials to more effectively monitor the activities of local bureaucrats to whom they have delegated responsibility. As such, if local officials are distributing resources in a way that is at odds with government policy (e.g., favoring friends and relatives), higher-level officials can sanction them in order to ensure that policies are implemented in a way that benefit many as opposed to a few. In 2016, Vietnam passed a new Access to Information Law, which has the potential to improve the transparency of public services at all levels of government. Although the law is seen as relatively weak (Centre for Law and Democracy, 2015), it may still give public officials and citizens greater means to monitor frontline staff, and ensure that services are targeted in a way that prevents widespread discontent. As such, increasing transparency in a place like Vietnam can serve not only to improve the quality of public service delivery but also shore up the stability of the regime.

Further research is needed to explore how these findings travel across contexts and regime types, and also leverage alternative and more stringent causal identification strategies as data becomes available. Explaining the sometimes dramatic variation in the quality of public service delivery is an important challenge to both research and policy communities, and understanding how services differ from one another may provide a viable avenue forward. In the case of transparency, street-level discretion may be the key determinant of information asymmetries, and thereby explain the uneven effects of reforms.

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Online Appendix

Variable construction and descriptive Statistics

Table A1 describes the construction of the main variables employed in our analysis. All variables are aggregated up to the commune level (taking the mean unless otherwise indicated).

Table A2 provides summary statistics for our dependent variables, measures of transparency (and their component parts) and our control variables. On average, communes report fairly high levels of satisfaction with education and health services, though fewer than half of households are aware that primary education is supposed to be free. There is somewhat more variation when it comes to road quality, and access to improved water sources. It is also notable that fewer than half of communes on average know that primary education is supposed to be free.

Table A1: Description of Key Variables: Data Sources and Construction

Variable	Source	Method of Construction
Education quality	PAPI	Average responses to following binary questions: Classrooms have fewer than 36 students; The school don't have three shifts; Teachers don't favor students who attend after-school study sessions in performance evaluations; Teachers are well-qualified; Parents receive regular feedback from teachers on the performance of their children
Education satisfaction	PAPI	Response to question asking parents to evaluate the quality of public primary education received by the children in their households. Responses are given on a 5-point scale ranging from "Very poor" to "Excellent."
Health quality	PAPI	Average responses to following binary questions: Health care workers paid regular visits; Patients were treated with respect; Expenses for the received treatment were reasonable; The waiting period between entering the clinic and the time you received the treatment was reasonable; I/my family don't have to pay bribes to obtain better treatment service from health care workers; The injury/disease was cured; The patient was not advised to purchase medicine at a designated private pharmaceutical outlet.
Education satisfaction	PAPI	Response to question asking parents to evaluate the quality of public primary education received by the children in their households. Responses are given on a 5-point scale ranging from "Very poor" to "Excellent."
Health satisfaction	PAPI	Response to question asking whether respondent was satisfied with treatment received. (Yes/No question.)
Child health satisfaction	PAPI	Response to question asking whether respondent was satisfied with free medical care for children under 6. (Yes/No question.)
Quality of local roads	PAPI	Response to question asking whether road closest to them is paved, concrete, gravel, or dirt. We rank these in descending order to develop a 4-unit measure of road quality, and then standardize it to range from 0-1.
Access to improved water source	PAPI	Response to question about respondent's main source of drinking water. We recode responses to generate binary measure indicating whether respondents are using "improved" sources, per WHO/UNICEF Joint Monitoring Programme definition.
Transparency Composite 1	PAPI	Average binary indicators of whether commune budget and list of poor household's in respondent's village/residential group has been publicized within last 12 months.
Transparency Composite 2	PAPI	Average of Transparency Composite 1 plus indicator of whether poverty list contained any errors (poor households missing from list or non-poor households on list).
Current Economic Conditions	PAPI	Respond to question asking respondent to rate current economic conditions of their family (on a 5-point scale ranging from "very bad" to "very good.")
Average Education Level	PAPI	Ordinal variable with 10 levels, ranging from "No formal education" (1) to "Post-graduate degree"
Population Growth	WorldPop	Overlay commune shape files atop gridded population data from 2010 and 2015; interpolate intervening years assuming constant population growth.
Economic Growth	DMSP-OLS	Proxy with average night brightness for 2011-2013 and then fill in for 2014-2016 assuming constant growth within communes.

Table A2: Summary Statistics: Communes, 2011-2017

	count	mean	sd	min	max
Primary school supposed to be free	2899	0.44	0.19	0.00	1.00
Quality of primary education	2894	0.87	0.08	0.38	1.00
Satisfaction with primary education	2894	3.98	0.30	2.50	5.00
Quality of public health services	2897	0.87	0.07	0.50	1.00
Satisfaction with public health services	2897	0.88	0.11	0.17	1.00
Satisfaction with child health services	2890	3.96	0.36	2.00	5.00
Quality of road nearest home	2899	0.72	0.19	0.00	1.00
Household uses improved water source	2899	0.78	0.30	0.00	1.00
Poverty list publicized in last 12 mo.	2899	0.81	0.14	0.12	1.00
Poverty list accuracy	2899	1.58	0.23	0.58	2.00
Budget publicized in last 12 mo.	2899	0.66	0.20	0.00	1.00
Transparency Composite 1	2899	0.75	0.14	0.12	1.00
Transparency Composite 2	2899	0.51	0.11	0.09	0.80
Education Level	2899	5.21	1.30	1.12	8.31
Household economic situation	2899	1.97	0.18	0.88	2.54
Population (thousands)	2800	10.42	9.27	0.61	108.43
Night Lights	2800	19.15	17.92	0.00	64.59

As for variation in the transparency measures, we see that budget transparency is on average lower than poverty list transparency. While poverty list accuracy is on average fairly high, the average is brought down by some communes where it is fairly low.

It is also interesting to examine correlations between our main dependent and independent variables. Table A3 shows that a number of the dependent variables are correlated with each other, though the degree of correlation is fairly low. The highest inter-sector correlation is between road quality and access to an improved water source – both of which are more likely in urban areas.

Table A3: Correlation Matrix: Transparency and Service Delivery (Communes, 2011-2016)

	transp_1	transp_2	educ_free	edu_qualit g	edu_satisf	health_qua g	health_sat f	child_heal f	infra_road	infra_i ater	ed_level	econ_situ
transp_1	1.000											
transp_2	0.936***	1.000										
educ_free	0.081***	0.051**	1.000									
edu_quality_avg	0.127***	0.142***	0.027	1.000								
edu_satisf	-0.015	0.030	-0.014	0.218***	1.000							
health_quality_avg	-0.082***	-0.057**	0.099***	0.219***	0.176***	1.000						
health_satisf	-0.094***	-0.081***	0.110***	0.146***	0.165***	0.692***	1.000					
child_health_satisf	-0.075***	-0.059**	0.097***	0.097***	0.210***	0.280***	0.254***	1.000				
infra_road	0.105***	0.156***	-0.213***	0.047*	0.206***	-0.049**	-0.064***	-0.059**	1.000			
infra_impr_water	-0.063***	0.003	-0.272***	-0.000	0.249***	-0.033	-0.035	-0.041*	0.478***	1.000		
ed_level	0.394***	0.435***	-0.184***	-0.016	0.081***	-0.242***	-0.231***	-0.199***	0.590***	0.395***	1.000	
econ_situ	0.195***	0.261***	-0.206***	0.050**	0.245***	-0.031	-0.032	0.034	0.409***	0.361***	0.497***	1.000

Infrastructure Regressions with Restricted Sample

Table A4: Transparency and Infrastructure - Only Households Who Attended Public Hospital (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)	(4)	(5)	(6)
	Roads	Roads	Roads	Water	Water	Water
Transparency Composite 1	-0.03			0.00		
	(0.02)			(0.02)		
Transparency Composite 2		-0.04*	-0.03		-0.00	0.02
		(0.03)	(0.03)		(0.03)	(0.03)
Household economic situation	0.11***	0.11***	0.08***	0.09***	0.09***	0.05***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Education Level	0.04***	0.04***	0.03***	0.01**	0.01**	0.01
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Population (thousands)			-0.01***			-0.01**
			(0.00)			(0.00)
Night Lights			-0.00***			-0.00***
			(0.00)			(0.00)
Year Fixed Effects	No	No	Yes	No	No	Yes
Observations	2897	2897	2798	2897	2897	2798
R^2	0.054	0.055	0.104	0.015	0.015	0.091

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A5: Transparency and Infrastructure - Only Households with Children in Public School (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)	(4)	(5)	(6)
	Roads	Roads	Roads	Water	Water	Water
Transparency Composite 1	-0.04			0.01		
	(0.03)			(0.03)		
Transparency Composite 2		-0.06	-0.04		-0.01	0.00
		(0.03)	(0.04)		(0.04)	(0.04)
Household economic situation	0.09***	0.09***	0.05**	0.06**	0.06***	0.04
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Education Level	0.03***	0.03***	0.03***	0.02**	0.02***	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Population (thousands)			-0.01**			-0.01*
			(0.01)			(0.01)
Night Lights			-0.00**			-0.00***
			(0.00)			(0.00)
Year Fixed Effects	No	No	Yes	No	No	Yes
Observations	2895	2895	2797	2895	2895	2797
R^2	0.024	0.024	0.064	0.007	0.007	0.047

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

District-Level Analysis

Table A6: Transparency and Education (Fixed Effects Regression at District-Level, 2011-2016)

	(1)	(2)	(3)	(4)
	Quality	Quality	Satisf.	Satisf.
Transparency Composite 1	0.05**		0.21***	
	(0.02)		(0.07)	
Transparency Composite 2		0.09***		0.33***
		(0.03)		(0.09)
Household economic situation	0.05***	0.04**	0.29***	0.28***
	(0.02)	(0.02)	(0.06)	(0.06)
Education Level	0.01	0.00	0.01	0.00
	(0.00)	(0.00)	(0.01)	(0.01)
Observations	1448	1448	1448	1448
R^2	0.016	0.020	0.035	0.039

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A7: Transparency and Health (Fixed Effects Regression at District-Level, 2011-2016)

	(1)	(2)	(3)	(4)	(5)	(6)
	Quality	Quality	Satisf.	Satisf.	Child	Child
Transparency Composite 1	0.07***		0.12***		0.14	
	(0.02)		(0.03)		(0.09)	
Transparency Composite 2		0.11***		0.17***		0.13
		(0.02)		(0.04)		(0.11)
Household economic situation	0.06***	0.06***	0.08***	0.08***	0.41***	0.41***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.07)	(0.07)
Education Level	-0.01**	-0.01**	-0.01*	-0.01*	-0.01	-0.01
	(0.00)	(0.00)	(0.01)	(0.01)	(0.02)	(0.02)
Observations	1448	1448	1448	1448	1448	1448
R^2	0.027	0.032	0.027	0.031	0.030	0.030

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A8: Transparency and Infrastructure (Fixed Effects Regression at District-Level, 2011-2016)

	(1)	(2)	(3)	(4)
	Roads	Roads	Water	Water
Transparency Composite 1	-0.02		-0.03	
	(0.03)		(0.03)	
Transparency Composite 2		-0.04		-0.04
		(0.03)		(0.04)
Household economic situation	0.14***	0.14***	0.10***	0.10***
	(0.02)	(0.02)	(0.02)	(0.02)
Education Level	0.05***	0.05***	0.05***	0.05***
	(0.01)	(0.01)	(0.01)	(0.01)
Observations	1448	1448	1448	1448
R^2	0.123	0.123	0.080	0.080

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Additional Participation Regressions

Table A9: Transparency and Participation (Individual-Level Regressions, 2011-2017)

	(1)	(2)	(3)
	Model	Model	Model
Transparency Composite 1	0.15***		
	(0.00)		
Transparency Composite 2		0.17***	0.15***
		(0.01)	(0.01)
Household economic situation	0.04***	0.04***	0.04***
	(0.00)	(0.00)	(0.00)
Education Level	0.01***	0.02***	0.02***
	(0.00)	(0.00)	(0.00)
Membership in political or civic group	0.17***	0.17***	0.15***
	(0.00)	(0.00)	(0.00)
Female	-0.17***	-0.17***	-0.17***
	(0.00)	(0.00)	(0.00)
Commune and Year Fixed Effects	No	No	Yes
Observations	77104	77104	77104
R^2	0.099	0.095	0.129

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A10: Transparency and Participation in Elections for Commune Chair (Fixed Effects Regression at Commune-Level, 2011-2017)

	(1)	(2)	(3)
	Model	Model	Model
Transparency Composite 1	0.05*		
	(0.03)		
Transparency Composite 2		0.07**	0.01
		(0.03)	(0.03)
Household economic situation	0.00	0.00	0.01
	(0.02)	(0.02)	(0.02)
Education Level	-0.01	-0.01	0.00
	(0.01)	(0.01)	(0.01)
Population (thousands)			0.00
			(0.00)
Night Lights			0.00
			(0.00)
Year Fixed Effects	No	No	Yes
Observations	2899	2899	2800
R^2	0.002	0.003	0.205

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$