

IGC Policy Brief

RA-2011-08-018, “Services Delivery and Centralization in Urban Slums”

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I. Policy Motivation for Research

India is currently under-urbanized relative to her income level, leading to widespread expectations of large-scale rural-to-urban migration in coming years. Both future economic growth and the well-being of India’s citizens are likely to depend critically on how her cities function; however, urban areas already face serious overcrowding and under-provision of basic services. This study has two broad aims. First, we document how public service delivery impacts the lives and decisions of urban slum dwellers. Second, we undertake preparatory work to examine the channels through which information on public service quality affects their provision. Our previous research (funded by IGC Research Award RA-2009-11-012) revealed that Delhi slum dwellers found waste disposal and sanitation facilities to be the two areas in which service delivery was most lacking, which motivated closer study of these services in particular. Our current results are additionally based on two rounds of public service audit data collected from the same slums in Delhi between 2011 and early 2012. With funding from USAID, a third and final round of audits will be conducted following the 2012 Delhi municipal elections. Each audit forms a comprehensive dataset on the quality of public toilets and garbage disposal facilities.

To answer the first question of interest, we compare service provision as measured in the audits to the quality of life measures collected in previous surveys. To answer the second question, both rounds of audits were aggregated into constituency-level report cards and sent to a randomly selected group of politicians from the two levels of government that influence service provision in Delhi: state-level Members of Legislative Assembly (MLAs) and Municipal Corporation of Delhi Councilors (MCDs). By comparing the changes in the quality of toilet and garbage facilities over time between constituencies that receive report cards and those that do not, we examine politicians’ response to information provision about the nature of public services. Our final analysis, to be submitted in December 2012, will include data from the third round of audits, which will reflect politicians’ behavior in the lead up to elections, when any effects may be magnified.

II. Policy Impact

Roughly a quarter of Delhi’s inhabitants are slum-dwellers. Failure to solve problems in urban slums, now and in the future, is both an issue of human deprivation and also an impediment for the country’s continuing growth. An understanding of the impact of public services on the well-being and development potential of the urban poor, as well as the influences on public service provision within the political system, is essential for effective policy change. The first part of the study will shed light on the relationship between the quality of public services and measures of the health and well-being of slum-dwellers (complementing the results from surveys in the earlier part of the research that obtained comprehensive information from the slum-dwellers themselves). The second part of the study will provide a better understanding of how changes in public service delivery can occur within the local political and state system, via the potentially important channel of influence from provision of information on service quality to the behavior of both citizens and politicians. The service delivery audits are part of a rigorous randomized controlled evaluation determining the effectiveness of report cards in improving provision of public goods in urban slums.

III. Audience

The key decision-makers targeted by this brief are government officials and NGOs engaged in serving the needs of the urban poor through access to public services. (Politicians are an important target of the information

generated within the project itself, of course, but are not expected to read this brief.)

IV. Policy Implications

Note: the final round of audits has yet to be conducted. Results are based on baseline and midline audits. There could be substantial changes in the results between now and the end of the intervention. The appendix provides a summary of initial quantitative results

1. *Politicians respond to information about the quality of the public services, albeit sometimes in unexpected ways.*

The initial results of the randomized control trial indicate that provision of an MLA or MCD report card is associated with an increase in toilets closing. However, we also find a significant increase in the number of toilet facilities (taps, lights, etc) and the total number of toilet seats in areas where MLAs received a report card, suggesting that the report cards may have prompted MLAs to shut down some toilets while increasing the usability of others. MLA and MCD report cards are also associated with increasing problems of severe garbage overflow in dumpsters, with a stronger effect for MLAs—further work will be required to interpret this apparently perverse result. The effects of report card distribution on MLAs and MCDs vary substantially, suggesting that each arm of government may have different methods of exerting influence on service delivery.

2. *High quality of garbage and sanitation facilities is associated with better childhood nutrition.*

Analysis of the descriptive patterns in the cross-section finds that, after holding wealth constant, families living near a clean public toilet, with hand-washing facilities and without human waste, have on average better-nourished infant children. When nearby public toilets are dirty, however, these health benefits disappear. Children with access to a private toilet fare best. Similarly, families who have someone pick up garbage directly from their home tend to have better-nourished children. The presence of informal trash piles has adverse effects on child nutrition, whereas formal dumpsters have no detectable effect. While these are not experimental results (and so patterns may be affected by un-measured influences) the results suggest that childhood health can be improved by investing in the quality and cleanliness of toilet and garbage facilities, while the mere presence of sanitation facilities of low quality has no impact. This can have important long-term influences on the future human capabilities of children. (These effects are in addition to gains in the quality of life of better facilities for households in slums.)

3. *Governance changes have implications for the interpretation of our results.*

In July 2010, the Delhi Legislative Assembly shifted the responsibility for many critical services from the municipal to the Delhi state government. This was effectively a partial centralisation of service delivery. From interviews with government officials, we have learned that the majority of public toilets were moved to the control of State government, while garbage collection remained with the municipal government. This may help to explain some of the apparently negative impacts of information provision. Further qualitative research can help shed light on this question.

V. Implementation

The research has implications most relevant for Delhi and urban India, but it can also provide lessons for urban areas in other developing countries. Our anthropometric data evidence strongly suggests that providing high quality public services can be as important as ensuring that there is some basic sanitation infrastructure. Our results on the efficacy of report cards suggest that without voter accountability, access to information can have a wide variety of effects. It may be important to use information on politician performance to empower constituents rather than to simply enlightening politicians.

VI: Dissemination

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VII. Further readings

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Appendix: Brief Summary of Initial Results

The following tables provide initial quantitative results from the randomized provision of information on the quality of toilets and garbage collection to politicians, and on the cross-sectional relationship between these services and anthropometric data on the nutritional status of infants in surveyed households. This is based on the household survey and two rounds of audits that were conducted in slums in Delhi, India. These cover a random sample of 102 of Delhi's 272 municipal wards. The household surveys covered a wide range of issues of household wealth and service access, in addition to the anthropometric measures; the audits included questions on topics such as frequency of garbage collections and nature of informal and formal garbage disposal sites; and numbers of broken toilets, levels of waste present, and facilities available in toilet complexes.

Report Card Treatment Effects

	Changes in Toilet Status ¹		Change in Number of Toilet Seats		Change in Dalao Overflow Status ²	
Any Report Card	0.00951 (0.0564)		1.954 (1.069)		-0.353* (0.143)	
MCD Report Card		0.0968* (0.0482)		-0.287 (0.750)		-0.271 (0.192)
MLA Report Card		-0.152 (0.0921)		4.847* (1.954)		-0.545** (0.182)
MCD and MLA Report Card		0.153 (0.0920)		-5.064* (2.070)		0.542* (0.245)
Open in Round 1	0.0869 (0.0443)	0.0910 (0.0470)	-0.0293 (0.0295)	-0.0307 (0.0309)	-0.223 (0.144)	-0.190 (0.161)
Any Rep Card * Round 1 Levels	-0.0707 (0.0572)		-0.233* (0.0923)		0.383* (0.181)	
MCD Rep Card * Round 1 Levels		-0.127* (0.0514)		-0.0658 (0.0810)		0.0658 (0.288)
MLA Rep Card * Round 1 Levels		0.0902 (0.0914)		-0.384** (0.138)		0.667** (0.233)
MCD & MLA Rep Card * Round 1 Levels		-0.159 (0.0995)		0.392* (0.168)		-0.376 (0.379)
Male Toilet	0.0122 (0.0112)	0.00959 (0.0116)	-0.0417 (0.337)	0.0650 (0.328)		
Constant	0.899*** (0.0489)	0.895*** (0.0517)	0.656 (0.527)	0.666 (0.586)	0.875*** (0.123)	0.857*** (0.143)
<u>Linear Combinations of Estimators</u>						
Any Report Card if Open in Round 1		-0.0612*** 0.0173			0.0296 0.101	
MCD Report Card if Level in Round 1 = 1		-0.0305 0.0230				-0.205 0.178
MLA Report Card if Level in Round 1 = 1		-0.0621* 0.0288				0.123 0.116
MCD & MLA Report Card if Level in Round 1 = 1		-0.348* 0.0858				-0.188 0.198
N	624	607	539	523	144	141
R-squared	0.014	0.050	0.121	0.172	0.040	0.092

Standard errors clustered by ward in parentheses

* p<0.05, ** p<0.01, *** p<0.001

¹Change in status is defined as 1 for no change and 0 for closed to open or open to closed; level in Round 1 is defined as 1 if toilet is open

²Change in status is defined as 1 for no change, and 0 for not severe to severe or severe to not severe; level in Round 1 is defined as 1 if dalao is severely overflowing

Toilet Sanitation and Malnutrition Z-Scores

	Weight-for-Age Z-Score			Length-for-Age Z-Score			Arm Circumference Z-Score		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wealth Index	0.109** (0.0365)	0.149** (0.0472)	0.111** (0.0373)	0.0820 (0.0491)	0.0932 (0.0669)	0.0829 (0.0479)	0.0775* (0.0303)	0.0867* (0.0406)	0.0775* (0.0306)
In-home trash pickup	-0.0521 (0.0959)	-0.0501 (0.101)	-0.0466 (0.0957)	0.259* (0.120)	0.233 (0.132)	0.269* (0.119)	-0.0444 (0.0737)	-0.0582 (0.0748)	-0.0406 (0.0742)
Private toilet	0.133 (0.0794)	0.137 (0.0791)	0.129 (0.0795)	0.202* (0.0948)	0.205* (0.0962)	0.211* (0.0953)	0.106 (0.0610)	0.113 (0.0617)	0.0990 (0.0614)
Open toilet w/in 25m	-0.0122 (0.150)	-0.101 (0.162)	-1.145*** (0.0562)	-0.153 (0.199)	-0.229 (0.223)	-3.402*** (0.0757)	-0.137 (0.0821)	-0.121 (0.101)	-0.316*** (0.0538)
Trash pickup * wealth index		-0.0238 (0.0938)			0.106 (0.139)			0.0766 (0.0713)	
Private toilet * wealth index		-0.0698 (0.0671)			-0.0454 (0.0960)			-0.0587 (0.0653)	
Toilet w/in 25m * wealth index		-0.223 (0.123)			-0.211 (0.155)			0.0293 (0.0980)	
Hand washing facilities			1.127*** (0.194)			3.180*** (0.223)			0.119 (0.0975)
Cleanliness index			0.340 (0.332)			0.340 (0.520)			0.466*** (0.0833)
Constant	-1.717*** (0.0500)	-1.704*** (0.0510)	-1.716*** (0.0500)	-2.217*** (0.0611)	-2.211*** (0.0638)	-2.221*** (0.0622)	-1.024*** (0.0368)	-1.019*** (0.0383)	-1.023*** (0.0368)
N	1975	1975	1961	1976	1976	1962	2023	2023	2009
R-squared	0.012	0.014	0.014	0.016	0.017	0.021	0.015	0.016	0.015

Standard errors clustered by ward in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Garbage Collection and Malnutrition Z-Scores

	Weight-for-Age Z-Score			Length-for-Age Z-Score			Arm Circumference Z-Score		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Wealth Index	0.107 (0.0661)	0.128** (0.0486)	0.108** (0.0367)	0.0888 (0.0753)	0.0995 (0.0649)	0.0804 (0.0487)	0.0732 (0.0470)	0.0893* (0.0415)	0.0801** (0.0303)
In-home trash pickup	-0.0529 (0.0985)	-0.0461 (0.101)	-0.0570 (0.0941)	0.230 (0.129)	0.249 (0.132)	0.261* (0.118)	-0.0531 (0.0749)	-0.0588 (0.0751)	-0.0409 (0.0736)
Private toilet	0.141 (0.0803)	0.140 (0.0805)	0.132 (0.0804)	0.214* (0.0952)	0.223* (0.0976)	0.214* (0.0941)	0.121 (0.0622)	0.116 (0.0621)	0.109 (0.0621)
Informal trash pile w/in 50m	-0.0786 (0.0673)		-0.0875 (0.0686)	-0.196** (0.0729)		-0.202** (0.0749)	0.0652 (0.0508)		0.0442 (0.0541)
Dalao w/in 50m		0.0247 (0.119)	-0.0588 (0.168)		0.148 (0.157)	0.0133 (0.174)		-0.0641 (0.0957)	-0.163 (0.131)
Trash pickup * wealth index	-0.0113 (0.0922)	-0.0144 (0.0941)		0.119 (0.139)	0.102 (0.140)		0.0761 (0.0717)	0.0769 (0.0716)	
Private toilet * wealth index	-0.0646 (0.0670)	-0.0574 (0.0679)		-0.0493 (0.0964)	-0.0526 (0.0946)		-0.0585 (0.0648)	-0.0609 (0.0654)	
Toilet w/in 25m * wealth index	0.0374 (0.0679)			-0.0127 (0.0808)			0.0235 (0.0500)		
Informal trash pile * wealth index		0.0511 (0.103)			-0.154 (0.161)			-0.00082 (0.0849)	
Dalao * wealth index			0.0870 (0.216)			0.268 (0.350)			0.232 (0.165)
Constant	-1.653*** (0.0700)	-1.711*** (0.0507)	-1.655*** (0.0694)	-2.086*** (0.0777)	-2.238*** (0.0653)	-2.098*** (0.0751)	-1.074*** (0.0503)	-1.022*** (0.0395)	-1.060*** (0.0509)
N	1975	1975	1975	1976	1976	1976	2023	2023	2023
R-squared	0.014	0.013	0.013	0.019	0.018	0.020	0.016	0.015	0.016

Standard errors clustered by ward in parentheses

* p<0.05, ** p<0.01, *** p<0.001