

Can Property Rights Improve Access to Toilets for the Urban Poor? Evidence from India

Shaonlee Patranabis and Sahil Gandhi

Independence | Integrity | Impact

Copyright @ Shaonlee Patranabis and Sahil Gandhi

Centre for Social and Economic Progress (CSEP)
CSEP Research Foundation
6, Dr Jose P. Rizal Marg, Chanakyapuri,
New Delhi - 110021, India

Recommended citation:

Patranabis, S. & Gandhi, S. (2021). *Can Property Rights Improve Access to Toilets for the Urban Poor? Evidence from India* (CSEP Working Paper 12). New Delhi: Centre for Social and Economic Progress.

The Centre for Social and Economic Progress (CSEP) conducts in-depth, policy-relevant research and provides evidence-based recommendations to the challenges facing India and the world. It draws on the expertise of its researchers, extensive interactions with policymakers as well as convening power to enhance the impact of research. CSEP is based in New Delhi and registered as a company limited by shares and not for profit, under Section 8 of the Companies Act, 1956.

All content reflects the individual views of the authors. The Centre for Social and Economic Progress (CSEP) does not hold an institutional view on any subject.

CSEP working papers are circulated for discussion and comment purposes. The views expressed herein are those of the author (s). All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including copyright notice, is given to the source.

Designed by Mukesh Rawat

Can Property Rights Improve Access to Toilets for the Urban Poor? Evidence from India*

Shaonlee Patranabis[†]

Research Associate
Centre for Social and Economic Progress**
New Delhi, India

Sahil Gandhi[‡]

Fellow
Centre for Social and Economic Progress
New Delhi, India

*We thank Shreya Deb, Shishir Gupta, Rakesh Mohan, Vaidehi Tandel and participants at the CSEP Brown bag series for comments on an earlier draft. The authors also thank Amita Bhide, Arunav Chowdhury, Natalia Chakma, Om Prakash Mathur, and Bharath Palavalli for their inputs. We thank Zehra Kazmi and Rohan Laik for their editorial inputs. Support for this research was generously provided by the Omidyar Network India. CSEP recognises that the value it provides is in its absolute commitment to quality, independence, and impact. Activities supported by its donors reflect this commitment and the analysis and recommendations found in this report are solely those of the scholar(s).

**Formerly Brookings India.

[†]Shaonlee Patranabis was a research associate with CSEP and is currently a PhD student at the Department of Environment and Geography, London School of Economics and Political Science. [‡]Sahil Gandhi was a Fellow at CSEP and is now a Lecturer at the University of Manchester.

spspatranabis@gmail.com, sahil.gandhi1@gmail.com

Table of Contents

Abstract.....	5
Introduction.....	6
Literature Review.....	6
Methodology and Data.....	7
Notification Policy in India: A review	7
Notification and access to amenities.....	8
Policy notes	13
Conclusions.....	18
References.....	19
Appendix.....	20

List of Tables

Table 1: Slum pockets in Mumbai and their notification status. (Census 2011).....	8
Table 2: Differences in amenities between notified and non-notified slums in Mumbai	9
Table 3: Differences in amenities between notified and non-notified slums in cities where population living in slums > 300,000	10
Table 4: Amenities and features of notified and non-notified slums.....	11
Table 5: Marginal effect of coefficients in probit models.....	11
Table 6: Spectrum of access to toilets and notification in slums in urban India.....	12
Table 7: Access to toilets and notification in slums.....	13

Abstract

The literature on property rights has underscored their importance for improving access to amenities for vulnerable populations. Existing literature highlights how health outcomes of slum dwellers suffer due to the lack of basic amenities. This paper provides new evidence that links slum notification with access to private amenities. We find that households in slums with property rights are 4.6% more likely to have access to toilets relative to others. They were also more likely to have more exclusive access to a toilet. We analyse slum laws from three states, studying two approaches to improvement of slums—redevelopment and provision of property rights. We ground our evaluation of these policies with interviews and administrative documentation. We conclude by making relevant policy recommendations.

Introduction

Approximately one in six urban residents in India lives in a slum, according to the Census of India (2011). The residents of slums are not only economically deprived, they fare worse on both mortality and morbidity indicators as compared to their non-slum neighbours as well as their rural counterparts (Mberu et al, 2016). They are therefore highly vulnerable to both communicable and non-communicable diseases. This vulnerability comes from both poverty as well as the lack of infrastructure like drainage, sanitation, and access to potable water (Sclar et al, 2005).

However, in India, not all slums are equally deprived. The statutory recognition of a slum happens through a process called ‘slum notification’, through which a state or local body formally acknowledges its existence. There exist many variations in how states notify slums and the impact of their notification policy. Generally, notification is a source of security for slum dwellers, since eviction from a notified slum must follow procedures laid down in the law. Notified slums are also the only slums eligible to be beneficiaries of public schemes and amenities (Subbaraman et al, 2012).

Therefore, non-notified slums are doubly deprived. In this paper we provide evidence of these deprivations and suggest how policy changes can lead to more equitable access to amenities.

Initially, the slum policy in India focused on clearance of slums, dating back to 1956 when the Slum Areas (Improvement and Clearance) Act was passed. However, over the past 20 years, it has evolved to focus on upgradation and then in-situ redevelopment (Hindman et al, 2015). This change has been for the better — policies that focused on clearance often displaced slum dwellers entirely without compensation or relief. However, even as slum policy in India has evolved, why do some slums have better access to water, kitchens and toilets than others?

A frequently cited reason why slum households have fewer private amenities is the lack of property rights over their dwelling unit. Turner (1976) argues that housing in squatter settlements is an incremental process. The risk of eviction and demolition (due to ‘illegality’) discourages slum dwellers from investing in their properties. De Soto (2000) noted that insufficient property rights stifle property owners’ incentives to invest in their holdings and reduce formal credit access. There is growing empirical evidence of the link between the improvement of dwellings and secure property rights (see Field, 2005; Galiani and Scharfrodsky, 2010; Nakamura 2014, 2017). Thus, property rights form a significant pathway to access better amenities.

Some other factors found to impact access to amenities in Indian slums are the slum-dwellers’ political contacts (Edelman and Mitra, 2006) and better human capital levels (Rains et al, 2019).

This paper begins with a survey of literature on property rights, amenities in slums and their effects on health outcomes. We detail our methodology and take note of the legal context of notification. The next section notes the impact of notification on access to amenities. Finally, we present case studies of slum policy from three states in India and conclude with actionable policy recommendations.

Literature Review

Many studies underscore that slums have poor access to amenities (Gulyani et al, 2009; Gulyani and Talukdar, 2010; Auerbach, 2020). Sverdlik (2011), reviewing the literature on health in informal urban settlements, notes that inequalities in health are widespread, with persons living in slums suffering worse health outcomes over their lifetimes. Lilford et al. (2017) provide evidence that along with poverty, the health outcomes of slum dwellers were impacted by their shared environment, which is often lacking in basic amenities. The study also notes that beneficial effects of investments are shared across many people in the slums, creating healthier environments. Thus, the inequality between slum and non-slum areas and the importance of amenities in slums is well established in the literature.

On the pathways to gain such amenities, Turner (1976) found that people were ordinarily willing and able to make incremental improvements to their dwelling, and tenure insecurity impedes this process. Nakamura (2017) reviewed studies on formalising land holdings, noting that the most important pathways by which property rights encouraged investment in housing were “(1) tenure security, (2) housing markets, (3) access to credit, and (4) subsequent public investment.”

Subbaraman et al. (2012) find that the residents of *Kuala Bander*, a non-notified slum in Mumbai, suffer poorer health outcomes as compared to notified slums. A broader study by Nolan et al. (2018), analysing deprivation of basic amenities and slum notification, found that non-notified slums were deprived of facilities such as piped water, toilets and electricity. They also found that a slum that had been notified for longer had better access to these amenities.

This study provides further empirical evidence for the differences between notified and non-notified slums. We focus on access to water, toilets as well as the exclusiveness of the toilets accessed by slum households.

Methodology and Data

The literature reviewed suggests that getting access to amenities in slums is a complex process. However, notification of slums is noted to be an important catalyst for investment in private amenities as well as access to public amenities via government schemes.

The relationship between notification and improved property rights is implicit in the law. In this study, we analyse the relationship between notification and better amenities using data from the census of India (2011) and the 69th Round of the National Sample Survey (2012). We use the following empirical tools to draw conclusions about access to amenities in notified and non-notified slums:

1. Measuring differences in access to amenities using t-tests and f-tests as required.
2. Using a maximum likelihood probit model to estimate the relationship between notification and access to an amenity while controlling for other demographic, economic and social factors.
3. Using OLS regression to narrow down the impact of notification on the exclusivity of access to a specific amenity – toilets.

In addition to these reviews and statistical tests, we conducted a grounding exercise, wherein we spoke with various activists, experts and staffers in slum improvement projects.

We begin with a review of the legal basis for notification in the next section to better contextualise the study and present evidence for variation in notification policies across Indian states.

Notification Policy in India: A Review

Notification is a process by which statutory bodies — state governments, city governments, slum ‘boards’ or ‘authorities’— create a mandate of exception¹ to improve slums. This mandate has evolved over the years in some states (for example, in Maharashtra’s slum rehabilitation scheme) to exclusively facilitate slum rehabilitation. However, rehabilitation has not proved to be effective in many cases, as noted by Barnhardt et al. (2017). They found that government housing schemes impaired social networks within slum communities and had high vacancy rates.

¹ When the state provides for amenities upon encroached land, it serves an ‘illegal’ settlement. However, this is an exception made upon humanitarian grounds (as well as fulfilling the Right to Life under Article 21 of the Constitution of India). We refer to this as a ‘mandate of exception’.

The factors that qualify a settlement as a slum vary from state to state; while some states pass dedicated laws for the governance of slums, others use municipal acts for the same. However, the physical characteristics described in these acts are similar across the country.

The process of notification described in respective laws leaves much to the discretion of the notifying agencies. Further, the political prowess of slum leaders, the intervention of international agencies for infrastructure projects, potential vote bank formations and other factors beyond those defined in the laws may lead to the notification of a slum. In such cases, access to amenities may come before a slum is notified. This is a possible source of confounding statistical results in a study of the impact of notification on slums – therefore, we restrict ourselves to noting various correlations between access to amenities and notification.

In addition to the evolution of the mandate of exception, the process of notification and the agencies involved vary from state to state. In some states, notification falls under the purview of a state slum board; in other states, the notifying body is the Urban Local Body (ULB) of the city. The extent of property rights to slum dwellers also varies, from limited protections against evictions in some states to complete rehabilitation. Both the Census and the NSSO identify notified slums via the state or city governments' respective acts/processes. However, Rains and Krishna (2020) found that the slum dwellers' perception of their property rights is often more critical to their behaviours rather than the formal notification status. They also note that the notification status itself is often complex and discordant among multiple agencies. In this paper, we use notification in its most reductive sense – it ensures legal recognition of the slum and leads to more substantial property rights than a non-notified slum.

Notification and access to amenities

The case of Mumbai

The differences among notified and non-notified slums are clearly seen in Mumbai, which is home to one of the largest populations of slum dwellers in the country. According to the Census of 2011, almost 75% of the city's slum population resided in notified slums (Table 2).

Table 1: Slum pockets in Mumbai and their notification status. (Census 2011)

Notified status	# Slum pockets	Households	Population	HH. Size
No	181	285,823	1,303,522	4.56
Yes	408	825,518	3,806,200	4.61
Grand Total	589	1,111,341	5,109,722	4.59

Source: Census of India 2011, Office of the Registrar General of India (ORGI)

These notified slums have better access to sanitation and water facilities, in addition to being eligible for slum 'improvement' and rehabilitation under the present slum law. Table 3 summarises the difference in access to water and sanitation, and the unequal distribution of access to amenities is stark. Notified slums have almost double the number of water access points as compared to non-notified slums. Non-notified slums also have significantly fewer private amenities.

Table 2: Differences in amenities between notified and non-notified slums in Mumbai

Services	Notified	Not Notified	Diff.	Pr (T < t)
Per HH taps or water hydrants ²	0.40	0.25	0.16	0
Per capita private toilets	0.04	0.04	0.003	0.03
Per HHs private toilets	0.19	0.17	0.02	0.02
Number of slum pockets	408	181		
Note: Testing for the null hypothesis that there is no difference in provision of amenities between not notified and notified slum pockets. The p values are reported for the alternative hypothesis that the means for non-notified slums is significantly different and lesser than the notified slums. The number of private toilets is calculated as the sum of private toilets with pit, flush, service and other systems as reported in the District Census Handbook, Census of India 2011, Office of the Registrar General of India (ORGI).				

Note: Testing for the null hypothesis that there is no difference in provision of amenities between not notified and notified slum pockets. The p values are reported for the alternative hypothesis that the means for non-notified slums is significantly different and lesser than the notified slums. The number of private toilets is calculated as the sum of private toilets with pit, flush, service and other systems as reported in the District Census Handbook, Census of India 2011, Office of the Registrar General of India (ORGI).

City level variations

Due to differences in notification policy across states, it is important to look at data from cities across India to truly gauge the link between notification and access to amenities. Table 4 shows the differences in access to amenities in slums in Indian cities with a slum population larger than 300,000, as per the Census 2011. We use per household indicators for the number of tap points or water hydrants (to measure access to water) and the number of private toilets.

The difference in the provision of amenities in notified and non-notified slums is not uniform, as shown in Table 4. Notified slums in Vishakhapatnam, Greater Mumbai, Chennai and Gwalior, have significantly more water access per household than non-notified slums. Mumbai and Chennai also have significantly more private toilets per household in notified slums than in non-notified slums. It may indicate that people living in notified slums in these cities have incentives to invest in the sanitation facilities in their homes. However, compared to other cities in the country, slums in these two cities have lower levels of access to sanitation overall. For instance, in Greater Mumbai, notified slums had only 0.19 private toilets per household compared to 0.17 in non-notified slums. Vishakhapatnam had 0.92 and 0.96 private toilets per household in notified slums and non-notified slums respectively, showing no statistically significant difference between notified and non-notified slums and a high level of access to sanitation overall.

While information from the census is a good indicator of the challenges faced by non-notified slums, it lacks further controls that may be used to refine our analysis. The census provides data at the slum level, and only count variables are available for toilets and water hydrants. Therefore, we use the 69th National Sample Survey conducted in 2012 as a data source for further analysis to understand the relationship between notification and access to amenities.

² A tap-point or water hydrant is a public source of water provided via a water distribution source. This water may be used for household purposes like washing utensils or clothes, cooking, bathing etc. but may also be used for drinking. Due to cultural practices, water taps located inside toilets are usually not used for household purposes.

Table 3: Differences³ in amenities between notified and non-notified slums in cities where population living in slums > 300,000⁴

City	Total	Slums		Per HH taps or water hydrants				Per HHs private toilets			
		Non-Notified	Notified	Notified	Non-Notified	Diff.	Pr (T < t)	Notified	Non-Notified	Diff.	Pr (T < t)
GVMC ⁵	686	418	268	0.47	0.35	0.12	0.00	0.93	0.96	-0.03	1.00
Greater Mumbai	589	181	408	0.40	0.25	0.16	0.00	0.19	0.17	0.02	0.02
BBMP ⁶	476	219	257	0.04	0.04	0.00	0.95	0.89	0.89	0.01	0.01
Chennai	456	78	378	0.07	0.07	0.00	0.01	0.64	0.45	0.19	0.00
GHMC ⁷	455	58	397	0.74	0.83	-0.08	1.00	0.89	0.92	-0.03	1.00
Nagpur	421	136	285	0.30	0.31	0.00	1.00	0.18	0.19	-0.01	1.00
Pune	357	85	272	0.45	0.46	-0.01	1.00	0.12	0.14	-0.02	1.00
Raipur	280	279	1	0.05	0.08	-0.03	—	0.23	0.45	-0.23	—
Thane	211	196	15	0.30	0.31	0.00	0.75	0.18	0.19	-0.01	0.72
Bhiwandi Nizampur	77	58	19	0.13	0.18	-0.04	0.87	0.15	0.16	-0.01	0.73
Amritsar	45	15	30	0.00	0.00	0.00	0.15	0.03	0.00	0.03	0.18
Gwalior	86	33	53	0.80	0.42	0.38	0.00	—	—	—	—

Source: Census of India 2011, Office of the Registrar General of India (ORGI). Note: Testing for the null hypothesis that there is no difference between not notified and notified slum pockets. The *p* values are reported for the alternative hypothesis that the means for non-notified slums is significantly different and lesser than the notified slums. The number of private toilets is calculated as the sum of private toilets with pit, flush, service and other systems as reported in the District Census Handbook, Census 2011. The number of slums and slum level data was unavailable for Agra, Delhi, Jaipur, Kolkata, Lucknow, Srinagar, and Ghaziabad. All reported slums in Indore, Jabalpur and Vijayawada were notified. No notified slums were reported in Meerut, Surat, Kota and Varanasi. Information on toilets was unavailable for slums in Gwalior. ‘—’ denotes a figure that could not be calculated due to lack of data.

Analysis from the National Sample Survey data

The NSS 2012 provides data on housing conditions in slums at a household level. Using this information, we can discern whether notification coincides with better amenities. Table 5 shows the differences between notified and non-notified slums, vis-à-vis amenities like improved water, toilets, electricity, documentation (like voter ID cards, ration cards etc., which can function as proof of residence), and separate kitchens. We find a significant difference in the provision of toilets, electricity and separate kitchens between notified and non-notified slums, significant at a 0.01% level of significance.

³ Difference = mean (non-notified slum) – mean (notified slum)

⁴ The census defines slums as follows: “The definitions of different types of slums and codes to be assigned are as follows: - (i) All notified areas in a town or city notified as ‘Slum’ by State, UT Administration or Local Government under any Act including a ‘Slum Act’ may be considered as Notified slums and assigned code 1; (ii) All areas recognised as ‘Slum’ by State, UT Administration or Local Government, Housing and Slum Boards, which may have not been formally notified as slum under any act may be considered as Recognized slums and assigned code 2; (iii) A compact area of at least 300 population or about 60-70 households of poorly built congested tenements, in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities. Such areas should be identified personally by the Charge Officer and also inspected by an officer nominated by DCO. This fact must be duly recorded in the charge register. Such areas may be considered as Identified slums and assigned code 3”

⁵ Greater Vishakhapatnam Municipal Corporation

⁶ Bruhat Bengaluru Mahanagara Palike (Greater Bengaluru Municipal Corporation)

⁷ Greater Hyderabad Municipal Corporation

Table 4: Amenities and features of notified and non-notified slums

Amenity	% HH in notified slums	% HH in non-notified slums	p-value
Improved water	93.58	93.90	0.780
Toilet	86.85	74.46	0.000
Electricity	98.76	93.39	0.000
Documentation	88.24	85.27	0.119
HH has a separate kitchen	44.04	30.72	0.000

Source: Author's calculations based on 69th National Sample Survey, conducted in 2012.

Note: $n = 5,318$, but some observations are missing for the variables. We test the hypothesis that the proportion of houses with the amenity in notified slums is the same as in non-notified slums; this p-value is reported.

Next, we measure the relationship between notification and access to water, toilets, and separate kitchens within slums, using a maximum likelihood probit model. We do not use access to electricity since the subgroup of slums without electricity is extremely small. These results are reported in Table 6.⁸ We control for household-level features as well, as noted in the table. The model estimates the marginal effect of notification when the notification dummy changes from 0 to 1, and the controls are held constant at their means. This marginal effect is the change in the probability that the dependent dummy variable equals 1 (a success within the model) when the notification dummy changes from 0 to 1.

Table 5: Marginal effect of coefficients in probit models

	(1)	(2)	(3)	(4)	(5)	(6)
	Margins dy/dx					
Variables	Dep. variable = access to improved water dummy		Dep. variable = access to toilet dummy		Dep. variable = access to sep. kitchen dummy	
Notification dummy (1= notified)	0.00988	0.00818	0.0330**	0.0460***	0.0725**	0.0298
	(0.0104)	(0.00914)	(0.0166)	(0.0170)	(0.0356)	(0.0416)
Controls	Y	Y	Y	Y	Y	Y
State Dummy	N	Y	N	Y	N	Y
Observations	4,377	3,997	4,336	4,176	4,377	4,349

Source: Author's calculations based on 69th National Sample Survey, conducted in 2012.

Note: This table shows the marginal effect of a unit change in the independent variable on the probability of success (coded as 1). Dependent variables are coded as dummies (1 = with access, 0 = without access). Controls include the age of the head of household, self-employment dummy, number of people per room, household expenditure in the past 30 days, the occurrence of flooding in the last 5 years, the highest level of education among the male and female members of the household, duration of stay in present dwelling, drainage system, level of ventilation in the dwelling, efforts against mosquitoes by the local body and the household. The NSSO 69th round provided information from 5,318 households in slums which could be identified as "notified" and "non-notified". Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

We find that notification has a statistically significant impact on access to toilets. Households living in notified slums are 3.3% more likely to have access to a toilet. When variation between states is controlled for, households in notified households are 4.6% more likely to have a toilet. We find no significant relationship between the notification status of the slum and access to water. The likelihood of having a separate kitchen increases by 7.2% if the household is in a notified slum. However, this effect is not significant with state dummies (Column 6 in Table 6).

⁸ Table 6 reports the marginal effects as calculated on the basis of a maximum likelihood probit model. The coefficients for this model are provided in Appendix-1. The coefficients in appendix – 1 show the change in the z-score of the dependent dummy variable equals 1 (a success) if notification dummy changes from 0 to 1.

Table 6: Spectrum of access to toilets and notification in slums in urban India

Access to toilets	Code	% HH in notified slums	% HH in non-notified slums	% HH in all slums
No toilet	0	13.15	25.54	17.37
Public/community toilet with payment	1	17.61	21.52	18.95
Public/community toilet w/o payment	2	8.77	10.69	9.43
Common use of HHs in the bldg.	3	15.95	15.11	15.66
Exclusive use of HH	4	43.45	26.6	37.7
Other	—	1.07	0.54	0.89
Total	—	100	100	100
Observations	—	3,176	2,142	5,318

Source: Author's calculations based on 69th National Sample Survey, conducted in 2012.

Exclusivity of toilets

Given the strong relationship between access to toilets and notification, we analyse access to toilets in detail based on the 69th NSSO data from 2012. However, this analysis is dated – there have been various programs aimed towards improving sanitation in the country since 2012, including the *Swachh Bharat Mission* ('clean India mission' or SBM) which was launched in 2014. This mission has added more than 600,000 community toilets in urban India since then. However, in the absence of these targeted missions in 2012, the NSSO 69th round has important insights. It provides information regarding the relationship between notification and accessing toilets, when there is no special intervention to provide amenities.

To study the correlation between notification and exclusivity of toilets, we define a variable, "access to the toilet", coded as 0 – 4, in order of increasing accessibility to a toilet. It is coded as 0 if the household has no access to a toilet; 1 if the toilet used is a public/community toilet, accessed with payment; 2 if the toilet used, is a public/community toilet, accessed without charge; 3 if the toilet used is for the common use of households in the building; and 4 if the toilet used is for the exclusive use of the household. If the household reports any other form of access, this variable is undefined.⁹ The access to toilet dummy (used in Table 6 and 7) is related to this variable as follows:

$$\begin{aligned}
 \text{access to toilet dummy} &= 0 \quad \text{if } \text{access to toilet} = 0 \\
 \text{access to toilet dummy} &= 1 \quad \text{if } \begin{cases} \text{access to toilet} = 1 \\ \text{access to toilet} = 2 \\ \text{access to toilet} = 3 \\ \text{access to toilet} = 4 \end{cases}
 \end{aligned}$$

Therefore, if a given household can access a toilet with more ease, it is assigned a higher value for the variable "access to toilet". The distribution of access to toilets across notified and non-notified slums is in Table 7. We find that 13% of households in notified slums and 25.5% of non-notified slums do not have toilets. We clearly see that a greater share of households have exclusive use of toilets in notified slums — 43% of the households in notified slums as compared to 26.6% of the households in non-notified slums have such a facility. Households in non-notified slums rely on less accessible toilets, with many more households paying to use the facility.

There is a strong positive relationship between notification and access to toilets, robust to state variations and years since the household's dwelling was built. We can, therefore, infer that notification is positively correlated with improved access to toilets in slums.

⁹ Any other form of access is dropped from our calculations.

Table 7: Access to toilets and notification in slums

	(1)	(2)	(3)	(4)	(5)
Variables	Dep. variable = access to toilet				
Notification dummy (1=notified)	0.639***	0.292***	0.237***	0.320***	0.311***
	(0.0884)	(0.0840)	(0.0891)	(0.103)	(0.106)
Years since built				-0.0271	0.000361
				(0.0456)	(0.0425)
Constant	1.957***	3.939***	3.505***	3.874***	2.732***
	(0.0699)	(1.061)	(0.824)	(0.929)	(0.776)
Controls	N	Y	Y	Y	Y
State dummies	N	N	Y	N	Y
Observations	5,265	4,336	4,336	2,682	2,682
R-squared	0.038	0.342	0.427	0.350	0.434

Source: Author's calculations based on 69th National Sample Survey, conducted in 2012.

Note: Dependent variable is the degree of exclusivity to the accessed toilet. Controls include the age of the head of household, self-employment dummy, number of people per living room, household expenditure in the past 30 days, the occurrence of flooding in the last 5 years, the highest level of education among the male and female members of the household, duration of stay in present dwelling, drainage system, level of ventilation in the dwelling, efforts against mosquitoes by the local body and the household. The NSSO 69th round provided information from 5,318 households in slums which could be identified as "notified" and "non-notified". Details of access to toilets were unavailable for 53 households. 16 respondents reported "not known" for the number of years built, and the answer was missing for 2,177 households in slums. Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Limitations of the study

The study has three limitations. First, the data sets used were collected in 2010 (the house-listing survey for Census 2011 took place in 2010) and 2012 (NSS). Therefore, our results do not consider post-2011 policies and schemes at the central and state levels to improve slum conditions. Second, the meaning of notification varies across states, and implementation of the policy, which is often left to urban local bodies or other statutory bodies, is also likely to vary. We use state dummies to control for the variations across states to mitigate this effect. Finally, there could be potential factors—such as the influence of slum leaders, collective action of slum dwellers, better education about the pathways to be notified—that affect both the likelihood of a slum being notified and the availability of amenities in the slum. Since it is difficult to measure and identify such factors reliably at the country level, there could be omitted variable biases in our analysis.

Policy Notes

Our findings show that there is a critical disparity at play within slums in India. Instead of creating improved living conditions, notification policy is correlated with poorer access to necessary amenities, especially sanitation. Due to the nature of slum policies, notified slums have improved tenure security. Households within such slums are likely to invest in their dwellings. However, the lack of notification often means that pockets of urban poverty develop with deplorable living conditions, vulnerable to health and other crises.

To ground-truth our analysis, we interviewed a number of stakeholders, conducted a review of the laws governing notification in three states, and reviewed state-led and non-governmental studies of the implementation of the laws. In this section, we present an analysis of slum laws from Maharashtra, Karnataka and Odisha. We note clauses that define slums, assign authority over notification (or similar processes), and provide amenities in slums.

Maharashtra

The Maharashtra Slum Areas (Improvement, Clearance and Redevelopment) Act (the MSA Act) came into being in 1971, claiming to have a “humanitarian approach” instead of clearing slums. It provided for necessary facilities in slums, a census, and issuance of identity cards. Areas deemed “unfit for human habitation”, and a “source of danger to the health, safety or convenience of the public” or suffering from overcrowding or dilapidation were to be notified as slum areas. It lay the mandate of the provision of amenities on the urban local body.

However, slums on lands over which the state government did not have control (for example, lands owned by the central government or private entities) require a no-objection certificate (NOC) from these entities to be notified. Such NOCs are generally refused due to the fear of permanent encroachment, given the partial tenure security of notified slums.^{10,11}

After 1995, the Act also became the basis of the Slum Rehabilitation Scheme (SRS). This amendment is often cited as the gold standard for Indian slum rehabilitation schemes.¹² With this amendment, the nature of notification shifted from primarily providing essential services to managing rehabilitation schemes. Additionally, this notification regime is dependent on ‘cut-off’ dates. If the dweller began living in the slum after January 1, 2000, but before January 1, 2011, they are eligible to receive a house paid for as part of an interest subvention scheme under the Pradhan Mantri Awaas Yojana-Urban (PMAY-U).¹³ If they began living in the slum before January 1, 2000, they could receive a house under the SRS.

Rehabilitation projects are usually undertaken by private developers. In addition to housing for the slum dwellers, the developers also build units for the open market. They are offered incentives such as higher Floor Space Index (FSI) and Transferable Development Rights (TDR).

Given the present coupling of notification with essential services and rehabilitation, essential services have been withheld from non-notified slums. Activism in the city of Mumbai has focused on the decoupling of essential services from notification. Notably, a Public Interest Litigation filed by various organisations, *Pani Haq Samiti & Ors. vs Brihan Mumbai Municipal Corporation & Ors.*¹⁴, challenged the city government’s stance of not providing clean water in non-notified slums. The state and city governments argued that water supply to non-notified slums would “encourage encroachment”. The Bombay High Court finally ordered the city government to provide water to non-notified slums, recognising the Right to Water as a part of Right to Life under Article 21 of the Constitution. The Slum Rehabilitation Authority (SRA) in Maharashtra also keeps public, digitised records of implementation, de-notification and notification of slums – but only for Mumbai. Slum maps and other records are not easily accessible for other cities in the state.

¹⁰ “The submission of the learned AGP for the State Government is that the water supply is not being released to such an illegal slums (sic) as the State does not want to encourage the construction of such illegal slums and people occupying such illegal slums.” Ref. paragraph 7. *Pani Haq Samiti & Ors vs Brihan Mumbai Municipal Corporation & Ors*, judgement dt. December 14, 2020 in PIL no. 10 of 2012, Bombay High Court.

¹¹ This was noted by the activists we interviewed as well.

¹² Compendium of best practices in states, Ministry of Housing and Urban Poverty Alleviation, 2015. See: https://smartnet.niua.org/sites/default/files/resources/03_Compandium_Best_Practice_States.pdf, accessed January 4, 2021.

¹³ See Hindustan Times. 2017. Government SOP for Mumbai’s slum dwellers, Dec 21, See : <https://www.hindustantimes.com/mumbai-news/govt-sop-for-mumbai-s-slum-dwellers-those-that-built-shanties-till-jan-2011-can-be-rehabilitated/story-BlaCRzBik1hO8VjjVYwyXM.html>, accessed January 7, 2021.

¹⁴ “The submission of the learned AGP for the State Government is that the water supply is not being released to such an illegal slums (sic) as the State does not want to encourage the construction of such illegal slums and people occupying such illegal slums.” Ref. paragraph 7. *Pani Haq Samiti & Ors vs Brihan Mumbai Municipal Corporation & Ors*, judgement dt. December 14, 2020 in PIL no. 10 of 2012, Bombay High Court.

Karnataka

The law in Karnataka mandates creating a State Slum Redevelopment Authority (SSRA) that receives proposals for identification of slums,¹⁵ notifies them, and conducts improvement work. The Karnataka Slum Development Board (KSDB) has served as the SSRA since 1975.

Under the Karnataka Slum Areas (Development) Act, 1973 (KSA Act), such improvements can only take place in notified slums. However, the cost of the improvement is recovered from the owner of the slum land, billed as arrears of land revenue. This liability is limited by the financial capability of such an owner.¹⁶

A 2014 audit by the Comptroller and Auditor General of India (CAG) found that the identification of slums is generally discretionary, noting that, “There was no basis for selection of slums for improvement and no norms were prescribed for identification of the slums for improvement either by the Government or Board through different schemes.”¹⁷ (CAG, 2014, p 19).

The CAG audit also found that the database of slums in the state was not maintained and the surveys were not carried out between 1996 and 2014 (CAG, 2014, p.18). This caused gaps in the effective implementation of central schemes such as Basic Services to the Urban Poor scheme and Integrated Housing & Slum Development Program under the Jawaharlal Nehru National urban Renewal Mission. Almost three out of four slums inspected by the CAG were deprived of basic amenities, even after 40 years of notification, indicating how deeply entrenched the problem was. Rains et al. (2019) also refer to the difficulty of determining the notification status of a given slum in Bengaluru, saying that “each agency provided a different list of slums with notified status.”¹⁸

Thus, even after notification, improvement may be hampered due to poor record-keeping and leakages in implementation.

Odisha

The Orissa Municipal Act, 1950 entrusts the state’s urban local bodies with the responsibility of “slum improvement and upgradation”. Slum-dwellers are provided with essential services regardless of their notification status. The approach is to not create a mandate of exception. Instead, services are decoupled from the legality of the slum. The question of tenure of slums in Odisha is addressed via the Odisha Land Rights to Slum Dweller’s Act, 2017, and the Odisha Liveable Habitats Mission (*Jaaga* mission).

The Act sets up the Urban Area Slum Redevelopment & Rehabilitation Committee, which mandates the urban local body (ULB) to identify all the slums within its jurisdiction. The law defines slums as settlements with at least 20 tenements, and degraded living conditions. The ULB also maintains the record of these surveyed slums. However, there is a lack of baseline slum surveys for most jurisdictions, and the latest data available is from the Census of India (2011).¹⁹ This lack of information has created challenges in carrying out the technical surveys for the identification of slums.²⁰

The Act is unique because it allows for the settlement of property rights with slum dwellers if the identified slum area is on government land. If the slum dwellings are deemed ‘untenable’, then the slum dwellers are resettled in another location and provided property rights. Only dwellers who settled before the law was notified (August 10, 2017) are eligible for this scheme.

¹⁵ The community occupying the settlement can submit a proposal to the urban local body or a standing committee for notification if the slum is composed of at least 20 households.

¹⁶ “...his liability shall be limited to the total amount of the money which he has in his hands”, Section 7, Clause 2(b), The Karnataka Slum Areas (Improvement and Clearance) Act, 1973.

¹⁷ Ibid.

¹⁸ The agencies they refer to are the KSDB, the BBMP or the Greater Bengaluru Municipal Corporation, and the Bengaluru Development Authority (BDA).

¹⁹ From interviews with *Jaaga* fellows, who were tasked with implementing technical surveys.

²⁰ <http://www.jagamission.org/pdf/Compendium%20Land%20Rights.pdf>, accessed Jan 8, 2021.

One of the significant challenges is that slum settlements on private lands are not eligible for the scheme. We interviewed field professionals involved in the scheme to understand some of the challenges they faced. There have been cases where the fractured ownership of land has led to the exclusion of some tenements within a slum neighbourhood since the land occupied by the tenement is private. Slum-dwellers of surveyed slums who settled after August 10, 2017, are also provided land rights on a case by case basis. The identification of slums is based on drone mapping, and therefore, slums in more inaccessible areas were not included in the initial survey. Such errors are then rectified by field surveys. The identification of slums is incumbent on the discretion of the urban local body and the district magistrate.²¹

Comparisons

The examples presented take note of two typologies of slum laws in the country – those based on rehabilitation and those which provide land rights to slum dwellers, such as the Odisha model. Additionally, it is important to note that slums located on lands beyond the state and city government control are especially vulnerable. The primary cause of this vulnerability is the strong coupling of property rights with access to essential services – a policy that the Bombay High Court ruled as unconstitutional in the *Pani Haq Samiti* case. Odisha's slum policy stands out as an antithesis, since it provides public amenities regardless of notification status.

Slum policies across states have allocated particular authorities the responsibility of keeping records of slums in their cities. However, as the examples from Karnataka and Odisha show, the lapse in such record-keeping can lead to leakages of public monies and leave improvement schemes incomplete.

Thus, we draw two essential policy takeaways from the study:

1) Decoupling notification and amenities

The empirical results from this study show that access to private amenities is correlated with notification. As discussed, notification provides a degree of tenure security *vis-à-vis* eviction. However, it also provides access to public amenities via government schemes.

Considering the striking deprivations in non-notified slums, cities and states must remove policies restricting access to essential services in non-notified slums. A possible explanation for our results is that households in non-notified slums, lacking any modicum of tenure security, make limited investments towards improved amenities. In addition to the lack of private amenities, non-notified slums are often deprived of public amenities as a matter of policy, as claimed by the Municipal Corporation of Greater Mumbai (MCGM) in *Pani Haq Samiti & Ors. vs Brihan Mumbai Municipal Corporation & Ors.*²² These compounded deprivations may exacerbate challenges of public health, especially when faced with a pandemic.

In the *Pani Haq Samiti* case, the Bombay High Court noted that the Right to Life under Article 21 was inclusive of the Right to Water and the policy in question was in violation of the same. Central government schemes have also moved away from the paradigm of distinction between notified and non-notified slums. The Pradhan Mantri Awas Yojana (Urban) allows for the redevelopment of 'identified' and 'recognised'²³ slums under its in-situ slum rehabilitation scheme. The Jawaharlal Nehru Urban

²¹ See: <http://www.jagamission.org/pdf/Compendium%20Land%20Rights.pdf>, Accessed January 8th, 2020.

²² "The submission of the learned AGP for the State Government is that the water supply is not being released to such an illegal slums (sic) as the State does not want to encourage the construction of such illegal slums and people occupying such illegal slums." Ref. paragraph 7. *Pani Haq Samiti & Ors vs Brihan Mumbai Municipal Corporation & Ors*, judgement dt. December 14, 2020 in PIL no. 10 of 2012, Bombay High Court.

²³ Annexure 7A, p54. Pradhan Mantri Awas Yojana: Scheme Guidelines, See: <https://pmay-urban.gov.in/uploads/guidelines/60180813309f2-Updated%20guidelines%20of%20PMAY-U.pdf> accessed June 1, 2021.

Renewal Mission²⁴ also allowed for an area-based approach, with provisions for necessary infrastructure in both notified and non-notified slums. The central government also announced the *Jal Jeevan* (loosely translated as ‘water is life’ in Hindi) Mission, which aims to provide universal access to water via household taps in all ULBs in India. In principle, both the central government and the judiciary have rejected the policy of depriving non-notified slums.

State governments like Odisha have also taken an approach of decoupling notification and tenure security. Notification in Odisha is a mandate for providing basic amenities, and tenure security is provided under a separate scheme known as the *Jaaga* (meaning ‘place’ or ‘home’ in Odiya) mission supported by the Odisha Land Rights to Slum Dwellers Act, 2017.

The provision of basic amenities such as water, sanitation etc., is the duty of the state and city governments. These governments have often shown reluctance to provide amenities to slum dwellers, especially non-notified ones, citing that these slums are ‘illegal’ like in the *Pani Haq Samiti* case. The key to bridging the gap between notified and non-notified slums is changing the policy at the state and city level and returning to the mandate of exception to provide amenities.

2) Data limitations and recent policy changes

Our analysis of the impact of slum notification as well as other studies (Subbaraman et al, 2012) are limited by the available data, which is from the Census of India (2011) and NSS housing condition surveys, the last of which came out in 2012. Lack of recent data meant that we were unable to recognise the impact of recent improvements in policy. Our empirical exercise does not capture the impacts of policy changes after 2012. To improve policy insights from research, it is important to provide granular databases to the public, which are well maintained.

Not only does the lack of useful databases hamper research, but it also prevents the proper implementation of slum improvement policies. Karnataka was noted to have faced leakages in implementing centrally-sponsored slum improvement schemes due to poor record-keeping. The *Jaaga* mission in Odisha faced similar challenges while undertaking drone surveys for the identification of slums.

Therefore, it is recommended that publicly accessible data portals be created wherein granular, updated data is available. This would lead to accurate public monitoring and improved research of policies, and support the implementation of new schemes and projects.

²⁴ “Development of “Basic Services for Urban Poor Fund” in urban local bodies through internal earmarking”, Centre for Good Governance, Hyderabad. See: <http://cgg.gov.in/core/uploads//2017/07/BSUP-Publication.pdf>, accessed January 4, 2020.

Conclusions

Our results show that notification is positively related to access to some amenities in slums. Specifically, households in notified slums were found to have better access to toilets in 2012.

While slum rehabilitation and other housing policies focus on housing availability for the poor, the heterogeneity between notified and non-notified slums is often overlooked. It is crucial to modify notification policy to ensure that essential services are accessible for the urban poor. To this end, we suggest a strategy that decouples notification from the provision of property rights to slum dwellers, focusing on providing basic amenities instead. It is also important to conduct a nuanced analysis of notification policy over the years to understand the regulatory impact of slum policies and the inequalities they may give rise to.

A limitation of the study is that we have been restricted by the datasets available. An updated dataset of slums, categorised by notification, is not available at present.

In sum, while there is literature on the impact of property rights on slums, there is still scope to understand how property rights are operationalised. While these studies are undertaken, it is essential to ensure that the text of the law does not create further inequity in the city.

References

- Auerbach, A. M. (2020). *Demanding Development: The Politics of Public Goods Provision in India's Urban Slums*. Cambridge University Press.
- Barnhardt, S., Field, E., & Pande, R. (2017). Moving to opportunity or isolation? Network effects of a randomised housing lottery in urban India. *American Economic Journal: Applied Economics*, 9(1), 1-32.
- Comptroller and Auditor General of India. (2014). *Report of the Comptroller and Auditor General of India on General and Social Sector* (Report No. 10 of the year 2014). Government of Karnataka. See: http://agkar.cag.gov.in/docs/AUDIT%20report/2014%20English_AR.pdf, accessed Jan 5, 2020.
- De Soto, H. (2000) *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. New York: Basic Books.
- Field, E. (2005). Property rights and investment in urban slums. *Journal of the European Economic Association*, 3(2-3), 279-290.
- Edelman, B., & Mitra, A. (2006, March). Slum-dwellers' access to basic amenities: the role of political contact, its determinants and adverse effects. In *Review of Urban & Regional Development Studies: Journal of the Applied Regional Science Conference* (Vol. 18, No. 1, pp. 25-40). Melbourne, Australia: Blackwell Publishing Asia.
- Gulyani, S., & Talukdar, D. (2009). Informal rental markets: the low-quality, high-price puzzle in Nairobi's slums. In *Urban Land Markets* (pp. 191-223). Springer, Dordrecht.
- Gulyani, S., & Talukdar, D. (2010). Inside informality: The links between poverty, microenterprises, and living conditions in Nairobi's slums. *World Development*, 38(12), 1710-1726.
- Galiani, S., & Scharfrodsky, E. (2010). Property rights for the poor: Effects of land titling. *Journal of Public Economics*, 94(9-10), 700-729.
- Hindman, M., Lu-Hill, O., Murphy, S., Rao, S., Shah, Y., & Zhu, Z. (2015). Addressing slum redevelopment issues in India. *Dow Sustainability Fellowship and International Institute of University of Michigan*.
- Lilford, R. J., Oyebode, O., Satterthwaite, D., Melendez-Torres, G. J., Chen, Y. F., Mberu, B., & Haregu, T. (2017). Improving the health and welfare of people who live in slums. *The Lancet*, 389(10068), 559-570.
- Mberu, B. U., Haregu, T. N., Kyobutungi, C., & Ezeh, A. C. (2016). Health and health-related indicators in slum, rural, and urban communities: a comparative analysis. *Global health action*, 9(1), 33163.
- Nakamura, S. (2014). Impact of slum formalisation on self-help housing construction: A case of slum notification in India. *Urban Studies*, 51(16), 3420-3444
- Nakamura, S. (2017). Does slum formalisation without title provision stimulate housing improvement? A case of slum declaration in Pune, India. *Urban Studies*, 54(7), 1715-1735.
- Nolan, L. B., Bloom, D. E., & Subbaraman, R. (2018). Legal Status and Deprivation in Urban Slums over Two Decades. *Economic and political weekly*, 53(15), 47
- Rains, E., & Krishna, A. (2020). Precarious gains: Social mobility and volatility in urban slums. *World Development*, 132, 105001.
- Rains, E., Krishna, A., & Wibbels, E. (2019). Combining satellite and survey data to study Indian slums: Evidence on the range of conditions and implications for urban policy. *Environment and Urbanisation*, 31(1), 267-292.
- Sclar, E. D., Garau, P., & Carolini, G. (2005). The 21st century health challenge of slums and cities. *The Lancet*, 365(9462), 901-903.
- Sverdlik, A. (2011). Ill-health and poverty: a literature review on health in informal settlements. *Environment and Urbanisation*, 23(1), 123-155.
- Subbaraman, R., O'Brien, J., Shitole, T., Shitole, S., Sawant, K., Bloom, D. E., & Patil-Deshmukh, A. (2012). Off the map: the health and social implications of being a non-notified slum in India. *Environment and Urbanisation*, 24(2), 643-663. <https://doi.org/10.1177/0956247812456356>
- Turner, J. F. (1976). *Housing by People* (London, Marion Boyars). Urban Foundation, (1980) Soweto (Johannesburg, Urban Foundation).

Appendix

Appendix 1 –Notification dummy probit model on amenities in slums (Z score)

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Dep. variable = access to improved water dummy		Dep. variable = access to toilet dummy		Dep. variable = access to sep. kitchen dummy	
Notification dummy (1= notified)	0.0972	0.121	0.213**	0.350***	0.186**	0.0764
	(0.104)	(0.137)	(0.106)	(0.127)	(0.0915)	(0.107)
Constant	2.382**	3.219***	3.515***	5.243***	-0.796	-1.578
	(0.943)	(1.069)	(0.989)	(1.371)	(0.961)	(1.101)
Controls	Y	Y	Y	Y	Y	Y
State dummy	N	Y	N	Y	N	Y
Observations	4,377	3,997	4,336	4,176	4,377	4,349

Source: Author's calculations based on 69th National Sample Survey, conducted in 2012.

Note: Dependent variables are coded as dummies (1 = with access, 0 = without access). Controls include the age of the head of household, self-employment dummy, number of people per living room, household expenditure in the past 30 days, the occurrence of flooding in the last 5 years, the highest level of education among the male and female members of the household, duration of stay in present dwelling, drainage system, level of ventilation in the dwelling, efforts against mosquitoes by the local body and the household. The 69th round provided information from 5,318 households in slums which could be identified as “notified” and “non-notified”. Standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Independence | Integrity | Impact

Centre for Social and Economic Progress

6, Dr Jose P. Rizal Marg, Chanakyapuri, New Delhi - 110021, India



@CSEP_Org



@csepresearch



www.csep.org