Local self-governance, ethnic division in slums and preference for water supply institutions in Kolkata, India

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Abstract

This paper investigates the preferences for institutional mechanisms for improved water supply services across different ethnic communities in slums of Kolkata. The Muslim community prefers privatization of water supply as against paid public supply. The backward caste community prefers both paid public delivery and privatization. Residents of non-notified (NN) slums prefer paid public delivery as against privatization. Access to accountability mechanisms for water supply is lower for residents of Muslim dominated regions and NN areas. This is reflected by household perception about awareness of councilors regarding water supply conditions in the slums. The choice of alternative institution depends on the degree of risk of exclusion due to lack of access to accountability mechanisms. Notification of NN slums, higher revenue autonomy and capacity of local bodies, and innovations in scale neutral technologies may improve access to water supply by marginalized communities in slums.

Keywords: Discrimination; India; Institution; Privatization; Self-governance; Slum; Urban; Water Supply

1. Introduction

Slums are informal settlements lacking basic services including housing, water supply, and sanitation. A United Nations’ Conference on Human Settlements has set a target (echoed in the Millennium Declaration) for improving the living conditions of at least 100 million slum dwellers by 2020. The importance of safe water in the life of slum dwellers cannot be overemphasized. Unsafe water and sanitation causes 4% of the global burden of disease and 1.6 million deaths per year according to a study in 2003 (WHO, 2003). Local governments are responsible for delivery of water supply in the slums in India\textsuperscript{1}. This paper investigates the accountability of municipal councilors of Kolkata regarding delivery

\textsuperscript{1} Local self-governance in India, induced by the 74th Constitutional Amendment, aims at delivery of basic services according to preferences of people.

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of water supply in the slums and the preference of slum dwellers with respect to alternative institutional arrangements for improved water supply. The alternative institutional arrangements considered are privatization vis-à-vis paid public service. The paper also attempts to find out the correspondence between preferences for alternative institutional mechanisms and access to accountability mechanisms of slum dwellers that are heterogeneous with respect to ethnic identity and legal status of residence. The findings of this paper would be useful for building institutions to provide improved water supply to the marginalized sections in developing countries.

The effectiveness of institutions to reflect on local preferences is impacted by parochial politics. Munshi & Rosenzweig (2008) found that dependence of local government on higher levels of government might reduce delivery of public services to sub-castes. Moreover, the choices of the leader will be aligned with the preferences of the median voter in the dominant caste rather than median voter of the constituency. Bardhan & Mookherjee (2002) argued that local democracy is more likely to be captured by local elites depending on context and location. Ascendency of dominant class and capture manipulates government policies which are designed ostensibly for the poor but serve the preference of the rich and powerful. Control over natural resources by the dominant class creates scarcity and under-provision of basic services for the poor. The persistent water crisis in the Kutch region of Gujarat (India) is due to flawed government policy to proliferate tubewells and piped water supply ignoring traditional practices of water recharging and harvesting (Mehta, 2000). The piped water schemes could not serve the tail-enders well and were biased towards politically powerful villages and towns. Mehta (2001, 2005) argued that mismanagement of water resources ‘manufactured’ water scarcity which legitimized construction of big dams that neglected the needs of the poor but promoted private industries. Institutions are meant to tackle scarcity and reduce uncertainty but they may end up increasing both if the dynamics of social relations is not taken into account. Hence, institutions need to evolve through a flexible and inclusionary process to deal with institutional complexity and uncertainty (Leach et al., 1997; Mehta et al., 1999). Agrawal & Gibson (1999) suggest that to develop better institutions it is important to take into account multiple interests and influences of the community, and different internal and external factors that influence decision making. In the context of institution building, our work attempts to look into preferences of urban marginalized communities with respect to institutions that would reduce their risk of exclusion from improved water supply. The external factors considered are the structure and strength of local governments and overall level of development of ethnic communities.

India is a socially and ethnically diverse country. There is evidence of discrimination meted out against minorities and backward castes. The distribution of population by religion demonstrates that Hindus are a majority and Muslims are a minority community in the country, West Bengal state and Kolkata city (see Census of India 2001 and 2011). Schedule Caste (SC) and Scheduled Tribe (ST) are socio-economically backward castes in India. Backward caste individuals are discriminated against with regard to participation in economic activity and are excluded from labor markets leading to market failure (Thorat & Newman, 2007). However, Muslims are also backward in India, although not officially recognized as backward. SC and ST get reservation in government jobs and educational institutions (i.e. a certain percentage of jobs are reserved for SC and ST) but not the Muslims. Both backward caste and Muslims are discriminated against and Hindu upper caste are favored in job applications in the private sector enterprises in India (Thorat & Attewell, 2007). Discrimination in the distribution of government benefits is also evident. Betancourt & Gleason (2000) found discrimination against backward castes and Muslims in allocation processes of medical and educational services in rural areas of India.
Provision of public water supply is also marred by discrimination. There are several quantity and quality issues of urban water supply in India (Misra & Goldar, 2008; McKenzie & Ray, 2009; Ajaz, 2010; IDFC, 2011). In addition, problems of distribution are evident. SC and ST households were more deprived of basic services (including water supply) than other ethnic communities during 1992–93 and 1998–99 (Srinivasan & Mohanty, 2004). Contractor (2012) found that water supply is underprovided to the poor and the socio-politically neglected Muslim population in Mumbai (India). Political manipulation and deliberate ignorance were found to be reasons for the crisis. A study on water supply conditions in Kolkata suggests that poorer communities and slum-dominated wards are discriminated against and disregarded (Das, 2009). In public private partnership based water supply projects in Bangalore and Nagpur, water supply projects are biased in favor of economically well-off households and neglect economically weaker sections (Ranganathan et al., 2009; IDFC, 2011).

This paper elicits fresh evidence of ignorance, lack of accountability and discrimination towards slum dwellers of Kolkata. In response, the preference of different ethnic communities for alternative institutional arrangements is documented and analyzed by comparing two hypothetical institutional arrangements: privatization vis-à-vis paid public service. The results illustrate that accountability, observed through awareness of municipal councilors regarding water supply conditions in slums, is lower in Muslim dominated and non-notified (NN) slums. Institutional ignorance coupled with under-provision of services led marginalized ethnic communities to prefer privatization of services. On the other hand, insecurity of tenure deters NN slum dwellers from preferring privatization.

The subsequent sections provide a brief overview of Municipal governance and the institutional structure of water supply in Kolkata (section 2), an account of economic condition of different ethnic communities in India (section 3) and relevance of local governance as institutions (section 4). The empirical analysis begins with the sampling plan (section 5), followed by ethnic and economic profile of households (section 6), existing water supply condition in slums (section 7), accountability of local government for water supply across different ethnic communities (section 8), discussion with insights from the field (section 9) and conclusion (section 10).

2. Municipal governance and water supply in Kolkata

The paper is based on slums under the jurisdiction of the Kolkata Municipal Corporation (KMC). KMC has a Mayor-in-Council form of government comprising a Mayor, Deputy Mayor, and a maximum of ten elected members. The Mayor-in-Council interacts with the Borough Committees, which consist of several wards (Chandra, 2004). Borough Committees are directly responsible for the maintenance of local services including water supply and drainage. At the ward level, Ward Committees are responsible for supervision and overseeing ward-level activities. They also have the authority to raise ward-level problems and assign priorities. Ward Committees are supposed to function with active popular participation.

In spite of having institutions at the local level, decentralized planning and budgeting at the local level has remained a distant dream due to capacity constraints. In the budget statement of 2011–12, the Mayor expressed that (KMC, 2011, p. 43):

‘a decentralized Borough-wise budget is, to some extent, impractical unless re-structuring and strengthening of Borough Committees actually take place. It has been experienced that our Borough
Committees lack structured human resources and other apparatus to implement a decentralized budget in an effective manner.

The decentralized planning and development is also hindered due to lack of own funds. Own revenue constituted 54% of total revenue for KMC during 2009–12. Around 8% of the revenue was attributable to receipts from water supply during 2011–12. The other source of revenue was devolution from upper levels of governments. In addition, to meet the deficit KMC also had to borrow hefty amount\(^2\).

Kolkata Metropolitan Water and Sanitation Authority (KMW&SA) is the apex body of water supply in the KMC. It is assigned the task of operation and maintenance (O&M) and development and improvement of water and sanitation facilities for Greater Kolkata. KMW&SA imposes service charges to realize O&M costs on the basis of classified consumers. Consumers in the slum areas are not charged for supply of water. The slums of Kolkata are covered by the Bustee\(^3\) Services Cell/Department which includes physical improvement and augmentation of municipal services, O&M of services, and beneficiary selection and implementation of government programs. The Bustee Services Department is one of the 40 departments of KMC. It is headed by one Mayor-in-Council member with the Bustee Director-General as administrative head. This department is ill-equipped and also separated from the Water Supply Department with little coordination (Ruet & Lama-Rewal, 2012). The KMC budget statement for 2015–16 demonstrates that the budgeted expenditure for Bustee and Water Supply Departments are meagrely 5% and 11% of total expenses respectively. The complaints regarding water supply are supposed to be lodged with officials of the Bustee Services Cell including the Local Ward Officer, Borough Executive Engineer or Bustee Director-General. Complaints regarding ‘not getting water’ can also be registered with the Assistant Engineer of the Water Department at the local level. Any other complaint including problems of water contamination can be addressed to the Executive Engineers at the zonal offices of the Water Department. Our study finds that local residents register complaints primarily with the local municipal councilor and local Ward Officer. However, they also take up their problems with their Member of Legislative Assembly (MLA) or Member of Parliament (MP). The existence of multiple authorities leads to lack of accountability in service delivery. Slum dwellers often run from pillar to post to resolve simple and genuine problems regarding service delivery.

3. Economic condition and access to physical infrastructure by religious groups

The Indian economy grew at around 8% per annum during 2009–11\(^4\). As income data of the households are difficult to get in India, monthly per capita expenditure (MPCE) is used to analyze the economic condition of the households. This information is provided by 66th round survey of the National Sample Survey Organization (NSSO) conducted during 2009–10 over more than 1 million households in urban and rural India. The average MPCE across communities demonstrates considerable divergence from average at all the levels: all India, West Bengal and Kolkata. Muslims fall short by 13% at country level, 22% at state level and 31% at city level. Figure 1 depicts that average MPCE of Muslims is much less than Hindu, Christian and other religious communities in India at all levels. It also

\(^2\) In 2011, KMC decided to borrow US$852 million from the market (The Hindu, 2011).
\(^3\) Slums are called Bustee in local language.
\(^4\) Source: Central Statistics Office (CSO), Government of India.
reveals that the dip in average MPCE of Muslims is greater in urban areas as compared to rural areas. It indicates the fallacy of economic institutions to include Muslims in the growth process, especially in urban India. The backwardness of and discrimination against the Muslim community was highlighted by government constituted Sachar Committee which submitted its report to the Indian Parliament in 2006. The report, which is the first of its kind, was based on large-scale empirical data from NSSO. It elucidates on low enrolment, high dropout and limited access to good quality schools for Muslims (Basant, 2007). Discrimination has resulted in low participation in government and private jobs. The report also highlights that the majority of Muslims are self-employed in petty economic activities. Moreover, conditions at work are also more precarious for the Muslims. Overall, the majority of Muslims are employed in the informal sector. Access to credit for Muslims is low due to poor economic conditions and discrimination by banks. Banks often declare Muslim concentration areas as ‘red zones’ or ‘negative geographical zones’.

Access to physical infrastructure is also biased against the Muslims. Access to tap water is very poor for the Muslims. The Sachar Committee Report found that the areas inhabited by fewer Muslims had better roads, local bus-stops, pucca (concrete) houses, sewerage and drainage and water supply facilities as compared to Muslim majority areas. The political participation and coverage by government programs is also limited for the Muslims.

4. Local governance as an institution

Institutions are developed to reduce uncertainty in human exchange (North, 1995). However, institutions are largely endogenous. Institutions are developed over an interaction of collective intentionality of the community and assignment of function (Searle, 2005). Intentionality is a state of mind which, when collectively realized, forms collective intentionality which covers collective intentions, beliefs and desires. An object that does not have function intrinsically can be assigned functions. Collective intentionality and assignment of function together determine collective assignment
of function which assigns status to an object. An institution performs its functions only in virtue of collective acceptance of requisite status by the community. In the case where preferences are multi-dimensional (different public goods or different type of agents to provide public goods) then it is not possible to translate multiple individual preferences into a coherent and overall accepted group preference. Under a majority rule, individual preference or preference of a minority group may not be reflected by public action (Mueller, 1976). This may limit collective intentionality to assign function and status to local governments as institutions of self-governance.

Local government as an institution of self-governance can function only after collective acceptance of requisite status by the community to deliver basic service. The collective acceptance may become throttled due to dependence of the local government on sub-national governments for funds and skills. Decentralized planning at the Borough level in Kolkata has taken a backseat for the same reason. On the other hand, discrimination against communities at various levels may result in failure of collective intentionality to recognize local government as an institution of self-governance. Figure 2 shows that due to the influence of sub-national political institutions and non-inclusive socio-economic progress, certain groups may not be served by local governments; hence, the failure to assign requisite function and status to local government institutions. The darker lines represent stronger influence than lighter and dotted lines. Failure to assign status to local government would render local government to be irrelevant and the idea of self-governing institutions at local level would be defeated. Discriminated communities would attempt to find solutions to problems of daily life outside the system of local governance.

5. Sampling plan

The economic and living conditions of slum dwellers have been illustrated on the basis of a sample survey of households in the slums of Kolkata. A mixture of cluster sampling and systematic sampling techniques was adopted for the study. At first, the slums of Kolkata were segregated into three regions as Central, North and East, and West and South by overlaying population and average monthly income. The final selection of slums was made randomly from these strata or regions. In total, 23 slums, each

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5 Information provided by Kolkata Municipal Corporation (KMC) through unpublished documents.
from different wards, were selected from three regions according to proportion of slum population in these regions. Slums were selected both from notified and NN areas (Table 1). NN slums are developed mainly by encroaching on government or railway land.

A sample of 541 households was chosen from selected slums through a systematic sampling method. The distribution of households across slums was done according to proportion of population. Table 1 represents region-wise distribution of the slum population. The survey was conducted at the household level. Questions were asked to the head of the household. If the head of the household was not available then the person nearest in relation to the head was asked the questions.

6. Ethnic and economic profile of households

6.1. Religion and social status

Muslims constitute more than half the sample households. The dominance of Muslim households in the sample has been observed mainly in the Central Kolkata slums. More than half of the households in Central Kolkata are Muslims. The Scheduled Caste (SC) and Scheduled Tribe (ST) households are more concentrated in North and East Kolkata slums (Table 2).

6.2. Income of slum dwellers

The average monthly per capita income (AMPCI) of slum dwellers is around US$36\(^6\). The survey results reveal a considerable difference of income levels between the slum dwellers residing in notified and NN areas of the city. The AMPCI of dwellers in notified slums is 47% higher as compared to NN slums. Low income compels households to reside in NN slums where access to basic services is woefully poor or non-existent. Income inequities across social and religious groups are also palpably evident. Hindu general caste households have 25% higher AMPCI compared to Muslims and backward

<table>
<thead>
<tr>
<th>Slums</th>
<th>Central</th>
<th>North and East</th>
<th>West and South</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notified/Private land</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>NN</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Government land</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Railways land</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>9</td>
<td>7</td>
<td>23</td>
</tr>
<tr>
<td>Households</td>
<td>157</td>
<td>104</td>
<td>280</td>
<td>541</td>
</tr>
<tr>
<td>No. of households</td>
<td>29</td>
<td>19</td>
<td>52</td>
<td>100</td>
</tr>
<tr>
<td>Percentage of households</td>
<td>18</td>
<td>18</td>
<td>1</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Own survey.

\(^6\) Average exchange rate of 2012–13 at Rs. 54.4091/dollar was applied in calculation.
caste households (Table 3). Hence, the income inequality across different ethnic groups observed at national, state and city (Kolkata) is also observable in the sample. The error bar of AMPCI by different ethnic groups is presented in Figure 3.

The occupation pattern of the head of the households demonstrates that participation of Muslims in government or private sector services is much lower than Hindu general and backward caste (Table 3). The reservation policy of the government has benefitted the backward caste individuals. The percentage of Muslims in skilled or semi-skilled work and non-agricultural labor is much higher than that of Hindu general and backward caste. Hence, workforce participation of Muslims in the organized sector is lower than Hindu and backward caste.

7. Water supply in slums

7.1. Availability of water

Water supply is sufficient for 42% of households. Insufficiency is higher in NN slums: insufficiency is reported by 59% of households in NN slums as against 51% in notified slums. The percentage of households receiving sufficient water supply is much higher for Hindu general caste and backward caste as compared to Muslim households (Table 4).

Table 3. Economic condition and occupation pattern of survey households.

<table>
<thead>
<tr>
<th>Occupation of head of the household</th>
<th>Hindu general</th>
<th>Backward caste</th>
<th>Muslim</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMPCI ($)</td>
<td>42</td>
<td>34</td>
<td>34</td>
<td>36</td>
</tr>
<tr>
<td>Government service</td>
<td>6</td>
<td>9</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Private organization</td>
<td>17</td>
<td>15</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Skilled/semi-skilled work</td>
<td>15</td>
<td>13</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Other non-agricultural laborer</td>
<td>13</td>
<td>11</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>Tailor</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Others</td>
<td>48</td>
<td>52</td>
<td>46</td>
<td>48</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Own survey.

7 This finding is similar to the findings of the Sachar Committee Report.
7.1.1. Distance. Distance to water supply sources is lower for Muslims. Water supply sources are close to premises for 47% of Muslim households, 33% of backward caste households, and 27% of Hindu households. Overall, water supply sources are very close to premises for around 39% of slum dwellers. Sources close to premises are available only in notified slums. The distance to the source is greater than 50 meters for a majority of the slum dwellers in notified slums.

7.1.2. Quality. The study reveals that 72% of households perceive water supply quality as being good: good taste, smell and color. Quality of water appears to be much better in notified slums compared to the NN ones. While quality of water is perceived as good by 76% of households in notified slums, it is seen as good by only 33% of households in the NN ones. The percentage of households perceiving water supply quality to be good is highest for Muslim households followed by Hindu and backward caste households. Quality of water appears to be the worst for backward caste households.

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8 The informal interviews reveal that Muslim women prefer not to go out of premises to fetch water due to cultural inhibition.
bias with regard to quality of service in the case of socio-economically backward communities could be the reason for a very high percentage of Muslim households perceiving quality to be good.

Access to a household toilet is lower for Muslims but access to a public toilet is higher (Table 4). In NN slums, 71% of households use public toilets while the rest defecate in open spaces. Physical access to drainage is the lowest at 81% for backward caste households (Table 4). Although access to drainage is high for Muslim households, drainage services are better in Hindu-dominated slums and worse in the Muslim-dominated ones. Overall, the survey results demonstrate that access to basic services in general is lower for households residing in NN slums and Muslim and backward caste households. Seabrook & Siddiqui (2011) have also observed a substantially lower level of public service provisioning in Muslim slums as compared to Hindu slums of Kolkata. Therefore, deprivation of minorities is not only observed with respect to income and occupation but also with respect to access to basic services. Muslims get lesser access to basic services primarily due to institutional discrimination rather than geomorphologic features. Our earlier work identifies political clientelism and discrimination to be prime reasons for lack of access to basic services for minorities in Kolkata slums (De & Nag, 2014).

8. Accountability of local government for water supply

Community participation in local governance is likely to increase accountability. Participation at meetings organized by urban local bodies (ULBs) including Ward Committee meetings is abysmally low, although participation in various other activities is much higher. Taking participation of at least one member of household as an indicator of household participation, we find that 96% participated in community activities, 11% in political activities, and only 2% in ULB meetings over the last year. Political participation is much higher for residents of notified slums as compared to NN slums. Political participation is the highest, at 35%, for backward caste households and lowest, at 6%, for Hindu general caste households, while it is at 10% for Muslim households. The participation rates demonstrated by different ethnic communities indicate their access to a mechanism of accountability and trust in local governance. Accordingly, Muslims and resident of NN slums get least access.

The first step for the local government to establish a mechanism of accountability is through soliciting feedback from the community about basic services. This also establishes credible commitment by local government and trust between government and citizens. We asked the respondents whether they feel that councilors are aware of water supply conditions, especially the scarcity of water in the slum. The answers indicate household perception of accountability of local councilors regarding the condition of water supply in the slum. Overall, only 39% gave an affirmative answer that local councilors are aware of water supply conditions in the slums. This implies that more than 60% of households perceive that councilors do not have concern for local water supply conditions. Of all the 23 survey wards, in 10 wards less than 10% of respondents, in four wards 50–80% of respondents and in the remaining nine wards more than 80% of respondents gave an affirmative answer. Hence, the percentage of respondents reporting that councilors are aware of water supply conditions is low and divergent across wards. The same variation is also observable across ethnic groups: 32% of Hindu general caste, 42% of Muslims and 41% of SC and ST households gave affirmative answers. Apparently, Muslims and SC and ST households find councilors to be more aware than Hindu general caste do. The association of different ethnic, political and regional factors with perception of awareness of councilors can be established through regression analysis.
8.1. Regression analysis

We have investigated the determinants of household response on the awareness of councilors regarding condition of water supply in their slums. The regression analysis considers the following as the dependent variable.

\[
AWARE = \begin{cases} 
1 & \text{if respondents perceive that local councilor is aware of the water supply condition of slums (affirmative answer)} \\
0 & \text{otherwise}
\end{cases}
\]

We have constructed a logit model as the dependent variable is binary. The independent variables in this model are type of land title including NN areas (NN), ethnic identities such as SC & ST (SCST) and Muslim (MUSLIM), migrated within the last 20 years (MIGRATE), head of the family literate (LITERATE), councilor affiliated to the All India Trinomul Congress (AICTE) which is the majority party in state government and regions dominated by Muslim religion such as central and west Kolkata slums (MUSLIM_REGION). All these independent variables are dummy variables. We have considered also the interaction dummy variable of non-Muslim councilor in Muslim dominated region (NMMDR).

The regression model is as follows:

\[
AWARE = f (NN, MIGRATE, LITERATE, MUSLIM, SCST, AICTE, MUSLIM_REGION, NMMDR)
\]

For estimation, the logit model can be expressed as below \( p_i \)

\[
L_i = \ln \left( \frac{p_i}{1 - p_i} \right) = \beta_1 + \beta_2 X_1 + \ldots + \beta_n X_n + u_i
\]

where \( p \) is the probability of the event, \( \beta_j \) is the parameter, \( X_i \) is the explanatory variable and \( u_i \) is the stochastic error.

The Muslims and backward caste households are more deprived of sufficient and good quality water respectively. Therefore, it is more likely that they would be making attempts to inform the councilor about the water supply condition for the sake of redressal. Hence, there is a higher chance that Muslim and backward caste households would respond that councilors are aware of water supply conditions. Nevertheless, affirmative answers are likely to be fewer in NN slums and Muslim dominated regions. The chances of the councilors being aware of water supply conditions would be lower for non-Muslim councilors of Muslim dominated regions. This is attributable to general disinterest about NN slums and living conditions of Muslim communities. The chances of affirmative answers are also likely to be lower if the councilor is affiliated to the majority party of the state. This is because these councilors would be more complacent due to general popular support of the party in the state. We also expect the chances of an affirmative answer to be higher for respondents in the case where the head of the household is literate, and the chances of an affirmative answer to be lower for respondents who have migrated during the last 20 years. This is because establishing a relationship with the councilor and informing them about the water supply condition is easier if the head of the household is literate but difficult if migrant.
8.2. Regression results

The maximum likelihood estimates of the determinants of AWARE show that the coefficients of \( NN \), \( MIGRATE \), \( AICTE \), \( MUSLIM\_REGION \) and \( NMMDR \) are negative (Table 5). The coefficients of \( MUSLIM \), \( SCST \) and \( LITERATE \) are positive. All these variables are statistically significant. The model is able to make 76% correct predictions.

The perception of slum dwellers regarding awareness of councilors is dependent on ethnic identity of respondents, dominant religion of the region and also political and religious affiliation of the councilor. The results indicate that there is a general lack of awareness of local councilors regarding water supply conditions in NN slums and Muslim dominated regions. If the councilor is affiliated to the dominant party of the state (AICTE) or the councilor is Hindu but represents a Muslim dominated region then there is higher chance that they would not be aware of water supply conditions. Literacy and longer residency are two important factors which provide higher bargaining strength and enable the households to communicate water supply conditions to councilors. The conditions of water supply are more likely to be communicated by Muslim and SC and STs due to water scarcity and quality issues.

The results imply that access to mechanisms of accountability is lower for residents of regions dominated by minority Muslims and NN slums. This is reflected in their perceptions about awareness (or concern) of councilors regarding water supply problems. The higher the bargaining power (literacy and longer residence) of the residents the better the access to accountability mechanisms. Furthermore, the lower the access to accountability mechanisms the higher the chance of deprivation. Hence, insufficiency of water supply for Muslims and NN households are primarily due to lack of access to mechanisms for exercising accountability.

9. Demand for improved water supply

The surveyed households were questioned about their demand for better water supply services. We asked whether they want any improvement in services. If they indicated they do want improvement in services, they were then asked whether they want to pay charges for the existing public water

<table>
<thead>
<tr>
<th>Dependent variable: local councilor is aware of the water supply condition of slums (AWARE)</th>
<th>Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>( NN )</td>
<td>(-2.14*** (-4.63))</td>
</tr>
<tr>
<td>( MIGRATE )</td>
<td>(-0.85*** (-3.36))</td>
</tr>
<tr>
<td>( LITERATE )</td>
<td>(1.003*** (3.55))</td>
</tr>
<tr>
<td>( MUSLIM )</td>
<td>(1.05*** (3.72))</td>
</tr>
<tr>
<td>( SCST )</td>
<td>(0.68* (1.73))</td>
</tr>
<tr>
<td>( AICTE )</td>
<td>(-1.61*** (-3.97))</td>
</tr>
<tr>
<td>( MUSLIM_REGION )</td>
<td>(-0.73** (-1.99))</td>
</tr>
<tr>
<td>( NMMDR )</td>
<td>(-1.42*** (-4.98))</td>
</tr>
<tr>
<td>Constant</td>
<td>(1.08*** (2.79))</td>
</tr>
</tbody>
</table>

Values in parentheses are z values.

*** Significant at 1% level.

** Significant at 5% level.

* Significant at 10% level.
supply system. Then we asked whether they would like to go for privatization of the water supply system. It was also conveyed that privatization would entail higher expenses as compared to water charges discussed earlier. Privatization is tantamount to opting for an altogether different type of system while the higher charge for public supply amounts to seeking improvement on the present system. Household responses reveal that 19% would prefer privatization (alternative system) for improved delivery while around 72% would prefer to pay water charges for better services from the public supply. Either of the two is preferred by 18% of households (Table 6). The preference for privatization is higher for Muslim and backward caste households as compared to Hindu households. This could be due to deliberate ignorance besides mistrust in the local governance.

9.1. Regression analysis

We investigated the determinants of opting for privatization (PRIVATE) and opting for payment of water charges (CHARGE). The dependent variables can be defined as follows:

\[
PRIVATE = 1, \text{ if household opt for privatization for improvement of water supply} = 0, \text{ otherwise}
\]

\[
CHARGE = 1, \text{ if household opt for payment of water charge for improved public water supply} = 0, \text{ otherwise}
\]

These variables being binary in nature, we constructed logistic models to obtain the determinants of PRIVATE and CHARGE. The independent variables in these models involve the condition of water

<table>
<thead>
<tr>
<th>Table 6. Household willingness to opt for better water supply delivery system (%)</th>
<th>Central</th>
<th>North and East</th>
<th>West and South</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hindu general</td>
<td>Privatization</td>
<td>13</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Pay charges</td>
<td>62</td>
<td>78</td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Either</td>
<td>13</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Muslim</td>
<td>Privatization</td>
<td>46</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Pay charges</td>
<td>66</td>
<td>11</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Either</td>
<td>46</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>SC &amp; ST</td>
<td>Privatization</td>
<td>0</td>
<td>50</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Pay charges</td>
<td>80</td>
<td>89</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>Either</td>
<td>0</td>
<td>50</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>Privatization</td>
<td>36</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Pay charges</td>
<td>66</td>
<td>57</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>Either</td>
<td>36</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: Own survey.

9 During the time of survey water charges were not collected.
10 Contractor (2012) illustrated deliberate ignorance and under-provisioning of water supply for the Muslim community in Mumbai slums.
supply including sufficient water supply (SUFFICIENT) and good quality water supply (GOOD_QUALITY); type of land title including NN areas (NN), railway land (RL), or government land (GL); regional dummy such as West Kolkata (WK), Central Kolkata (CK) or North Kolkata (NK); religion or caste such as Hindu general (HIND_GEN), backward caste such as SC & ST (SCST) or Muslim (MUSLIM); monthly per capita consumption expenditure (MPCE); and years of residency in the dwelling place (YEAR_RES).

The regression models are as follows:

\[
\text{PRIVATE} = f(\text{SUFFICIENT, GOOD_QUALITY, GL, RL, NN, YEAR_RES, MPCE, MUSLIM, SCST, NK, WK, CK, AWARE})
\]

\[
\text{CHARGE} = f(\text{SUFFICIENT, GOOD_QUALITY, GL, RL, NN, YEAR_RES, MPCE, MUSLIM, SCST, NK, WK, CK, AWARE})
\]

It is expected that the higher the SUFFICIENT and GOOD_QUALITY are, the lower the chances of PRIVATE and CHARGE. This is because households receiving sufficient and good quality water supply would neither be willing to invest in water supply through privatization nor be willing to pay water charges for improved delivery. Households residing in NN areas (NN) have a lower chance of contribution towards privatization. This is because dwellings in NN are unauthorized; hence, they have a higher chance of eviction. Nevertheless, these households are more likely to contribute to water charges for superior delivery. Hence, NN is expected to be negatively related to PRIVATE but positively related to CHARGE. Fear of eviction is higher on railway land (RL) but lower on government land (GL). Therefore, GL is likely to have a positive and RL a negative impact on PRIVATE. Longer residence in the same dwelling also brings about permanency. Hence, the longer the duration of residency in the dwelling place, the higher the chances of opting for privatization with a lowered chance of opting for water charge. So, YEAR_RES is likely to be positively related to PRIVATE and negatively to CHARGE. The higher the income of households, the higher the demand for better services and, hence, the higher the willingness to contribute towards better services. Hence, MPCE is likely to be positively related to PRIVATE and CHARGE. Being deprived of water supply services, the Muslim and backward caste communities are more likely to opt for privatization. The Muslim community may want to opt out of water charges due to fears of discrimination and ignorance. Hence, MUSLIM and SCST are likely to be positively related to PRIVATE. MUSLIM is expected to be negatively related to CHARGE but SCST is expected to be positively related to CHARGE.

9.2. Regression results

We constructed two models to demonstrate the determinants of PRIVATE and one model to demonstrate the determinants of CHARGE. We have dropped some of the variables in these models to get rid of problems associated with multi-collinearity. The regression results are presented in Table 7.

9.3. Privatization

The Maximum Likelihood estimates related to the determinants of willingness to opt for privatization (PRIVATE) as an alternative system have been presented via two models. Model I and Model II show both the coefficients of sufficient water supply (SUFFICIENT) and good quality water (GOOD_QUALITY) as negative, yet the first is significant while the latter is statistically insignificant. Two types
of NN land, i.e. government land (GL) and railway land (RL), have been considered separately for Model I, while the overall NN slums has been considered for Model II. In Model I the coefficient of the GL dummy is positive while for the RL dummy it is negative. In Model II the coefficient of NN is negative. In both models the coefficient of years of residence (YEAR_RES) is positive, monthly per capita consumption expenditure (MPCE) is positive, Muslim household (MUSLIM) is positive, and backward caste households (SCST) is positive. All these variables that are common to all these models are statistically significant. For Model I the coefficients of regional dummies of North and West Kolkata are negative, while for Model II the coefficient of the regional dummy of Central Kolkata is positive. These regional dummies are statistically significant. Models I and II make 87% correct predictions.

9.3.1. Pay water charges. The maximum likelihood estimates of the determinants of willingness to opt for the payment of water charges (CHARGE) for better services show the coefficients of SUFFICIENT and GOOD_QUALITY as negative. The coefficient of NN is positive, MUSLIM negative, SCST positive, and YEARS_RES negative. The coefficients of regional dummies for West and Central Kolkata are positive. All these variables are significant. The model is able to make around 79% correct predictions.

### Table 7. Determinants of willingness to opt for privatization (PRIVATE) and pay water charges (CHARGE).

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>PRIVATE Model I coefficients</th>
<th>Model II coefficients</th>
<th>CHARGE Model I coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUFFICIENT</td>
<td>-1.86*** (-27.19)</td>
<td>-1.90*** (28.16)</td>
<td>-1.41*** (37.83)</td>
</tr>
<tr>
<td>GOOD_QUALITY</td>
<td>-0.54 (-2.38)</td>
<td>-0.11 (0.10)</td>
<td>-0.62* (4.92)</td>
</tr>
<tr>
<td>GL</td>
<td>2.54*** (-7.49)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RL</td>
<td>-4.06*** (-13.54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NN</td>
<td>-1.87*** (9.07)</td>
<td>0.97** (4.41)</td>
<td></td>
</tr>
<tr>
<td>MPCE</td>
<td>0.001*** (-7.11)</td>
<td>0.001*** (6.99)</td>
<td></td>
</tr>
<tr>
<td>MUSLIM</td>
<td>1.87*** (-19.99)</td>
<td>1.44*** (13.36)</td>
<td>-1.14*** (18.66)</td>
</tr>
<tr>
<td>SCST</td>
<td>1.72*** (10.51)</td>
<td>2.54*** (25.66)</td>
<td>0.85* (3.09)</td>
</tr>
<tr>
<td>YEAR_RES</td>
<td>0.23*** (-7.01)</td>
<td>0.28*** (11.40)</td>
<td>-0.21*** (9.07)</td>
</tr>
<tr>
<td>NK</td>
<td>-3.68*** (-26.48)</td>
<td>-1.57** (5.88)</td>
<td></td>
</tr>
<tr>
<td>WK</td>
<td>-1.99*** (-39.18)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CK</td>
<td>1.65*** (26.96)</td>
<td></td>
<td>1.59*** (27.75)</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.48*** (34.55)</td>
<td>-2.57*** (18.18)</td>
<td></td>
</tr>
<tr>
<td>Log likelihood</td>
<td>-161.55</td>
<td>-175.92</td>
<td>-264.49</td>
</tr>
<tr>
<td>Percentage correct</td>
<td>87.3</td>
<td>87.1</td>
<td>78.6</td>
</tr>
<tr>
<td>LR chi2</td>
<td>171.47</td>
<td>142.74</td>
<td>112.76</td>
</tr>
<tr>
<td>Prob &gt; chi2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>No of observations</td>
<td>513</td>
<td>513</td>
<td>513</td>
</tr>
</tbody>
</table>

LR: Likelihood ratio. Values in parentheses are z values.
*** Significant at 1% level.
** Significant at 5% level.
* Significant at 10% level.
charges for better public services\textsuperscript{11}. The backward caste community, on the other hand, prefers both these institutional approaches. The preference for an alternative system of water supply also varies across regions.

The results demonstrate that the ethnic identity of households has a significant impact on willingness to opt for privatization. Figure 4 presents a scatter of predicted probability of opting for privatization for different ethnic groups across different income levels. It reveals that even at a lower level of income households are willing to go for privatization of water supply services. The willingness is higher for Muslims as compared to Hindu general castes households at all levels of income. These findings also support the argument that low-income households in India can afford to pay more for water if better services are delivered (McKenzie & Ray, 2009).

10. Discussion

The paper attempts to focus on extremely complicated interrelations between ethnic identity of households, perception of accountability mechanism and actual delivery of basic services such as water supply. The perception of accountability mechanisms has been analyzed by asking households whether they believe that the local councilor is aware of the water supply condition of the slum. Answers not only reveal the household perception about concern of the councilor for local water supply conditions, but also actual access to accountability mechanisms. The better the access to accountability mechanisms the higher the trust between households and local government. Trust ushers vertical cooperation between the councilor and household\textsuperscript{12}. This is the core of collective assignment of functions to an institution like municipality. In this respect, our analysis shows that household perception of concern of councilors regarding water supply condition and communication between citizens and local government is lower in Muslim dominated regions and NN slums: two major pockets of deprivation. Disinterest is higher and communication becomes difficult to

![Fig. 4. Probability of opting for privatization.](https://iwaponline.com/wp/article-pdf/18/3/750/404095/018030750.pdf)

\textsuperscript{11} Zaki & Amin (2009) found that water supply service in informal settlements improved through privatization in Thailand. Neither the lack of tenure status nor prices have been a barrier for the poor to access the privatized service.

\textsuperscript{12} See Miller (1992) for vertical dilemmas in the context of political economy of hierarchy.
establish if the councilor is non-Muslim in a Muslim dominated region. The political affiliation of the councilor to the majority party of the state also increases ignorance and disinterest. The perceived disinterest of councilors and appalling public delivery impels households to opt for privatization.

The ward number 138 is one of the Muslim dominated wards in West Kolkata. There are around 26 slums in the same ward. In KMC (formed in 2010) the councilor was a Muslim woman affiliated to Indian National Congress. A female Muslim respondent from a notified slum of the ward expressed that:

‘Water supply is insufficient as compared to the requirement. Moreover, distance to the source from my house is quite long. We do not have any male members present at the house during the day time. Therefore, it becomes difficult for us to collect and bring the water. We have made several attempts to contact the local councilor as well as MLA (Member of Legislative Assembly) during the last two years. However, we did not succeed to get in touch. If anyone can prove a water connection close to our house then we are even willing to pay for it.’

The public standpost for this household is 100 meters away. This water source provides supply for only 1 hour per day. The distance of source and quantity of water required improvement. The local councilor is aware of the water supply condition but to no effect. The distance from her residence to the office of the Assistance Engineer is around 7 km. It is not always possible to report insufficiency of water supply to the Assistant Engineer as well. Moreover, the expectation of redressal is also very low. A brief conversation with the councilor of the ward gave an impression that lack of funds at disposal is one of the major reasons behind the poor state of the water supply in the slum. Hence, an alternative system of water supply is warranted; public service cannot fulfill basic requirements.

Unemployment has remained as a constant evil for the Muslim society in Kolkata. It is difficult to find any respectable employment outside the small Muslim-based economy. Therefore, a substantial proportion are either self-employed as skilled or semi-skilled workforce or work as agricultural labor. It is interesting to note that despite 30 years of Left Front rule which championed the cause of minority welfare, the conditions of minorities are relegated to a miserable state. The indifference to Muslims by the Left Front Government has also been observed by Seabrook & Siddiqui (2011). The Muslim slum dwellers are always under the threat of eviction. In 2012, Muslim households were evicted from central Kolkata slums with no assurance of rehabilitation. On the other hand, a few months back, when Hindu households were evicted from slums around the same area they were allotted houses and flats built under Basic Services to the Urban Poor (BSUP) and other government programs (TwoCircles.net, 2012). Given this backdrop of discrimination at various levels, it is difficult for the Muslims to keep faith in the public service.

11. Conclusion

Our work suggests that ethnic identity is as important as economic wellbeing with respect to choice of institutional mechanism for improved water supply. Communities would prefer an institution that establishes and ensures accountability and thus reduces their risk of exclusion. Ignorance (as perceived by citizens) of councilors regarding water supply conditions in Muslim dominated regions and NN slums is a clear indication of lack of access to accountability mechanisms and perceived risk of exclusion of

13 The same councilor was elected in 2015 but under the All India Trinomul Congress (AICTE).
the communities. These impel the communities to opt for an alternative institutional mechanism for an improved supply of water. However, the choice of alternative institution is different across communities.

This paper argues that choice of alternative institution depends on risk of exclusion; an institution which reduces the risk most would be preferred. Paid public water supply is less preferred by Muslims but more preferred by residents of NN slums. On the contrary, privatization is preferred by Muslims but less preferred by residents of NN slums. This is because the overall risk is higher in privatization for residents of NN slums due to insecurity of tenure. Hence, lower access to accountability mechanisms does not automatically lead to preference for a radically different institutional mechanism. Risk is lower in privatized water supply for Muslims as compared to public provision. Muslims are ignored in public accountability mechanisms and actual public provision.

The risk of exclusion in case of public supply is lower for the SC and ST community as compared to Muslims. Therefore, in spite of being deprived of services the SC and ST community demonstrated their preference for both paid government service and privatization. The paper argues that the difference of preference between Muslims and backward caste (SC and ST) could be due to the degree of institutional discrimination which is higher in the case of Muslims as compared to any other community in urban India. Other forms of institutional ignorance regarding development needs of Muslims are reflected in lower MPCE of Muslims vis-à-vis other ethnic communities, higher work participation in the informal sector and lower access to basic services.

Local governments would emerge as institutions of self-governance only when they are able to reduce perception of lack of accountability and risk of exclusion. In this direction, local governments should work to demonstrate more credible commitment towards the community through communication and redressal of local problems. Dependence on a higher level of government and lack of resource and skills at local levels are hindrances for exercising accountability though local planning and delivery of services according to local need. Hence, local governments should be empowered with more revenue autonomy and improved capacity to function as self-governing institutions.

In spite of preference for privatization in slums there is hardly any private or collective water supply. There could be two reasons for this. First, general insecurity of tenure and second, lack of economies of scale for safe water supply including piped water supply. Nauges & Van Den Berg (2008) found that water utilities have economies of scale in developing countries; returns to scale decrease with utility size. Hence, this paper also suggests that more scientific research is also required for scale neutral water supply technology. This would enable communities to resolve water supply problems more easily. The future policies on water supply should persuade for both institutional reforms and technological innovations: more autonomy to local bodies, increase security of tenure of slums of which notification of NN slums is an important step, and innovation in scale neutral technology.

References


TwoCircles.net (2012). Eviction of slum dwellers in Kolkata: are Muslims being discriminated? 14 November. http://twocircles.net/2012nov14/eviction_slum_dwellers_kolkata_are_muslims_being_discriminated.html#.V1pb9fI97IU.


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