Caste and Open Defecation in Rural India

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Abstract
Despite being a middle-income country, India has an exceedingly high level of open defecation, particularly in rural areas, compared to countries much less developed. Explanations such as poverty, illiteracy, and lack of access to clean water and toilet facilities have failed to explain why the high rate of open defecation persists. We explore the role of caste and inter-caste conflicts in the village as a reason for open defecation, as caste discrimination could affect latrine construction and usage. We use census data from 400 rural villages in Tamil Nadu, India, containing information on toilet facilities for each household matched with survey data containing information on inter-caste disputes. Preliminary results reveal a positive relationship between various types of inter-caste disputes and open defecation among household members.

Background

Decision makers, health practitioners, environmentalist and international development agencies such as WHO and UNICEF have been increasingly trying to promote the end of practice of open defecation (OD) globally for several reasons. Open defecation involves mainly disposing human waste in public spaces like water bodies, forests, farmlands, or other open and green spaces. Because it pollutes food, drinking water, and air, OD has been associated with higher incidence of excreta-related diseases like hepatitis, trachoma, typhoid, child stunting and mortality (Abubakar, 2018). Additionally, it is a direct threat to safety, privacy, dignity, and one of the strongest markers of extreme poverty as it is linked to loss of income and productive time including missed school days by children (Jewitt, 2011).

Although many scholars state that GDP per capita, poverty levels, access to improved water, literacy rates, not having a latrine in the household, and governability are factors that may influence the decision to defecate in the open (O'Reilly, Dhanju, & Goel, 2017), none of these seem to explain this phenomenon in rural India. Coffey and Spears (2017) show that while all these variables may explain the high prevalence of OD in other developing countries, the same may not open in rural India. For example, in many cases, people in rural India do not use the latrines that they use. Additionally, many people decide not to own a latrine, even when it would be inexpensive to buy one or make the sort of latrines that people use in other developing countries. Some researchers call this phenomenon “the Indian sanitation puzzle”.

Coffey and Spears (2017) argue that the missing piece of the Indian open defecation puzzle is the practice of casteism and the social forces that are related to it. Casteism is the discrimination of people based on the beliefs that certain so-called castes are supposed to do certain jobs and they have restrictions in public life (like Dalits or lower-caste groups not allowed to enter temples or Brahmins, an upper-caste group, refraining from eating meat) (Alam, 1999). Coffey and Spears argue that open defecation is related to the oppression of lower-caste people in Indian villages.

Using latrines in many rural areas would involve cleaning the pit, therefore people would have to remove human waste every certain periods of time. Handling human waste (even if there is no direct exposure to skin) would mean doing a job that the high-ranked castes would not seem as acceptable because it is not part of their function. The middle ranked-classes aspire to have the life standards of the upper castes (just as it works with social classes), so they are not willing to do what is meant to be the job of the lowest-ranked castes. Therefore, believing in a caste system (more than belonging to a specific caste) is an important predictor of using open defecation, net of other factors (George, 2008).

While Coffey and Spears (2017) demonstrate that casteism explains a big part of the puzzle using ethnographic methods, this relationship has not been explored using representative survey samples (to our knowledge). Although it is still very prevalent, casteism is illegal in India. Respondents may be reluctant to directly answer a question where they admit discriminating (or they may underreport their true attitudes).

We have available alternative measures that may serve as proxies to casteism at the individual and village levels. We ask every primary earner in the household if there are any inter-caste disputes or conflict inside the village. Inter-caste conflicts may be generated by friction between the interaction of different level castes living close together. That friction may only be generated in an environment of caste-inequality. Our main hypothesis is that, net of other confounders, households that belong to villages with inter-caste conflicts have an increased probability of having members defecating in the open.

The contribution of this study is twofold. First, we are making a theoretical contribution helping to close the gap of knowledge in this area as many variables do not predict open defecation as well in India as in other developing countries. As a second point, understanding at a representative level the complexity of open defecation in India is important due to the high current prevalence of child malnutrition and mortality there. Knowing better the mechanisms behind this phenomenon could help policy-makers take better decisions about how to reduce open defecation at a faster pace.

Data and Methods

Setting and sample

The South India Community Health Study (SICHS) covers 400 villages in rural Vellore district. Tamil Nadu. The SICHS project began with a census of all households in the study area conducted 2012-14. The study team visited each of the 300,000 households and collected basic demographic and socioeconomic information and GPS coordinates. The total population enumerated was over 1 million people. Comparison on demographic indicators show that the study area is similar to rural Tamil Nadu and rural South India (Tamil Nadu, Kerala, Karnataka, Maharashtra, and Andra Pradesh) more generally (Borker et al. 2018).

The SICHS census data were used as a sampling frame for a household survey undertaken in 2015-16. The sample targeted 5000 ever-married men between the ages of 25 and 60, and the study team undertook interviews and assessments with selected men, their wives, and their children ages 0-17. The household response rate was over 85%. The sample was selected using a multistage stratified (by villages) cluster survey design, in this way, many villages have enough representation in our sample.

Main dependent variable

The main dependent variable will be if there is any member of the household who defecates in the open. For this, we will combine three questions: 1) “What type of toilet do you have in your house or compound?”, for which the respondents could answer “No toilet”, “Flush/pour toilet to septic tank”, “Flush/pour toilet to sewage pipes”. 2) If there was a toilet in the house, respondent was asked then “From your household, who uses the toilet?”, the answers were “No one”, “Women only”, “Men only”, “Everyone”, and “Other”. 3) After that, they were asked “What type of toilet facilities do members of your household usually use?”, for which the answers were “Household toilet”, “Communal/public latrine”, “Open space”, and “Other”. From these questions, we defined the households where there is at least one member who

defecates in the open, for which the dummy variable "Open Defecation" was created (1 = If at least one person in the household defecates the open, 0 = No one inside the household defecates in the open).

Modeling and predictor variables

For each type of dispute, we will estimate a multilevel random intercept of households (level 1) nested within villages (level 2).

The main predictor will be the individual perception of the presence of inter-caste conflict inside the village. This is operationalized through this question: "We sometimes hear in the newspapers that there are disputes between castes over different things. Where there ever disputes between castes in your village about any of the following?" Then, the respondents could answer "Yes" or "No" to the following types of inter-caste dispute: "1. Funeral procession", "2. Marriage between castes", "3. Eve teasing", "4. Temple dispute", "5. Water dispute", "6. Labor dispute", "7. Political favoritism", "8. Election results or failure to keep to electoral promises", "9. Provision or maintenance of public goods". Each type of dispute will be used as a different predictor variable in our models

The SICHS survey data include a rich set of potential confounders. We control for confounders that may relate to village-level and household-level characteristics, including household building materials, socioeconomic factors (household income and assets, parental education), and other child, parent, belonging to a colony or main village, and family characteristics.

Preliminary Results

We find that 75% of households have members who defecate in the open; the figures are 90% for colony children and 72% for main village children. Then, we ran preliminary variate bivariate linear probability models' regressions with the nine types of inter-caste at the village conflict as main predictors and the open defecation at the household level as the main dependent variable. Table 1 shows that caste-related conflicts inside the village may increase (without any controls) for from 2% to 21% the probability of having at least one member of the household defecating in the open. So far, this is consistent with our main hypothesis, inter-caste conflict may trigger open defecation as it is a marker of caste discrimination, which curtails the use of toilets.

Table 1. Linear Probability Models (OLS) Coefficients of Presence of Dispute at the Village Level on Open Defecation Use the household level

Types of Dispute Predictor variable)	Coefficient	Standard Error
Funeral procession	0.1541***	0.0024809
Marriage between castes	.1849736***	0.0033867
Eve teasing	.1238469***	0.0026653
Temple dispute	0.2177304***	0.003434
Water dispute	0.0889292***	0.0021356
Labor dispute	.0245765***	0.0012554
Political favoritism	.0779667***	0.001623
Election results or failure to keep the electoral promises	.0565573***	0.0016109

Notes: *** p<0.001. N= 4229.

Future steps

So far, this abstract only describe the household level approach. But we have the data to try to almost-perfect construct variables that may tell which individuals defecate in the open and which not. We are aware that this is a contextual measure of caste inequality and it may not be capturing individual influences. The survey only planned an experiment that measures the level of solidarity within and between caste of each respondent. We plan to use the result of that experiment as a proxy of casteism practice. Additionally, as we have geocoded information of every household, we would like to explore if there is any spatial lag in the relationship between dispute level and open defecation practice. Finally, we are concerned about the causation issue in our analyses. Probably, it would be better to create different classes using latent category analysis or related techniques to reduce the variability of dispute and have more consistent measures of it, in this way we may be able to subtract some of the heterogeneity on our models.

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