



No toilet no bride? Intrahousehold bargaining in male-skewed marriage markets in India

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ABSTRACT

Haryana state in India is characterized by widespread discrimination against women, including a severe population-level sex imbalance. In this context an innovative social marketing campaign, which targeted pro-sanitation messages to households active in local marriage markets, was implemented with the goal of increasing toilet ownership. This paper estimates the impact of this program, known colloquially as “No Toilet No Bride”, on household-level latrine ownership. Private sanitation coverage in Haryana increased by 21% specifically among households with boys active on the marriage market. This effect is larger and concentrated in marriage markets where women are relatively scarce and absent when women are relatively abundant, which together suggest the program operated by successfully linking sanitation outcomes with marriage market competition induced by local scarcities of women due to male-biased sex ratios.

1. Introduction

Women in rural Haryana suffer from discrimination, both in terms of prenatal and postnatal outcomes, that is pervasive enough to generate the most skewed state-level sex ratio in all of India.² Haryana, like most of northern India, is characterized by cultural norms that favor sons, which results in a number of common forms of household behavior that combine to cause biased sex ratios (Sen, 1992). For example, in much of northern India parents provide differential post-natal care to boys and girls (Gupta, 1987), invest preferentially in male fetuses (Bharadwaj and Leah, 2013), and/or selectively abort female fetuses (Arnold et al., 2002; Qian, 2008). Further, if women survive to adulthood, they face numerous gender-specific constraints on their ability to travel, seek health care, and work outside of the household (Eswaran et al., 2013; Anderson and Ray, 2010).

In this social context of discrimination, an unusual sanitation campaign commonly known as “No Toilet, No Bride” was initiated by Haryana state authorities in 2005. The social marketing campaign encouraged families of marriage-age girls to demand that potential suitors’ families construct a latrine prior to marriage. Mass media messaging via billboards, posters, and radio advertisements empha-

sized phrases such as “no toilet, no bride” and “no loo, no I do”.³ These messages were framed by women’s concerns about privacy and dignity when they defecate in the open, a behavior that is routine among roughly 70% of rural households in Haryana in 2004, according to data from the District-Level Household and Facility Survey. Women arguably value toilets to a greater extent than males because they suffer disproportionately from male harassment when they defecate, urinate, or attend to menstrual hygiene in public places (see, e.g., Jadhav et al., 2016; Aid et al., 2013). For this reason, private latrines generate benefits that are disproportionately enjoyed by females. Although the rationale for public investment in sanitation programs is the reduction of fecal pollution and the morbidity associated with widespread open defecation, the emphasis of *No Toilet No Bride*, combined with the fact that private benefits accrue largely to women, provides a unique opportunity to study female bargaining power under widespread discrimination.

Given its narrow messaging on the link between sanitation and marriage, the *No Toilet No Bride* program generates a plausible shock to status quo norms that structure inter-household interactions at the time of marriage. I study the impact of this program on latrine adoption using two rounds of the *District-Level Household and Facility Survey* (2004, 2008/9), a nationally representative, household

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² Source: Indian Census, 2011. Note that two non-state union territories, Chandigarh and Delhi, both adjacent to Haryana, have slightly worse sex ratios.

³ “It’s No Toilet No Bride in Haryana”, *The Times of India*, March 22, 2009.

data set, and three rounds of the [Demographic and Health Survey / National Family Health Survey \(1992, 1998, 2005\)](#). I employ an empirical strategy based on the intuition that the *No Toilet No Bride* campaign exerts disproportionate pressure to adopt a latrine on those households with boys active on the marriage market. If the program was successful in linking sanitation with the marriage market, then households with boys of marriageable age face exogenous pressure to build a latrine, and they should therefore have higher rates of latrine ownership after exposure to the program. Because such households could differ from households without marriageable age boys in a variety of unobserved ways, my econometric specification controls explicitly for these unobserved characteristics. My preferred identification strategy is a difference-in-difference-in-difference model that compares latrine ownership in households with and without boys of marriageable age, in Haryana and comparison states from northern India, before the program started and three to four years after the program began.

I find an increase of 6.1 percentage points (a 21% increase from a base of 29%) in the latrine ownership differential between households with and without marriage-age boys in Haryana over the period 2004 to 2008 relative to the difference between latrine ownership of households with and without marriageable boys in comparison states. In addition, I provide strong, complementary evidence that latrine adoption is driven by whether households have marriageable boys active in a particularly competitive marriage market, i.e. one with an undersupply of women due to highly skewed sex ratios. Specifically, the estimated program effect is 23% over baseline in marriage markets where women are scarce. In marriage markets without this scarcity, however, the *No Toilet No Bride* treatment effect is statistically indistinguishable from zero.

The magnitude of *No Toilet No Bride's* estimated effect is large and economically meaningful, especially given the relatively inexpensive nature of the social marketing campaign. These effect sizes are comparable to estimates from randomized controlled trials of the impact of India's Total Sanitation Campaign on latrine adoption ([Patil et al., 2014](#)), yet the latter program includes expensive hardware subsidies. This difference in cost suggests that *No Toilet No Bride* has been a relatively cost-effective way of increasing sanitation coverage. Back-of-the-envelope calculations suggest that the program caused 670,000 toilets to be built among Haryana's 4.3 million households between 2004 and 2008.

The paper then provides additional, complementary evidence on the mechanism by which the program affects household behavior. I show results from two robustness checks that the estimated program effect operated through a marriage market channel as opposed to competing mechanisms outside the marriage market. In particular, I show there is no identifiable effect on households with boys in a cohort above typical marriageable age, who were thus too old to be affected by the program when they were active on the marriage market, and I show that unmarried girls of marriageable age do not obtain toilets independently of marriageable boys.

These findings suggest that (i) the *No Toilet No Bride* campaign has significantly increased latrine ownership by linking marriage matching to the acquisition of a good that females particularly value, and (ii) biased sex ratios have increased the relative bargaining power of women (or of their families negotiating on their behalf) on the marriage market, thereby improving their ability to demand goods. Thus, in a region with one of the most severely skewed sex ratios on earth, a local scarcity of women appears to have increased women's bargaining power, allowing them to obtain additional goods that they value.

This paper contributes to the limited literature on how marriage markets affect premarital behavior, which has focused previously on the US ([Angrist, 2002](#); [Lafortune, 2013](#)), France ([Abramitzky et al., 2011](#)) and China ([Edlund et al., 2013](#); [Wei and Zhang, 2011](#)), but it highlights a new role for coordinated behavior in one side of the market in shaping marriage outcomes. It also contributes to our understanding of sanitation policy at large scales. Recent evaluations of sanitation

campaigns have found modest impacts on latrine adoption and no impacts on health (e.g. [Guiteras et al., 2015](#) and [Patil et al., 2014](#), respectively). Instead of health this paper focuses on women's status and advances toilets (in some social contexts) as an assignable “female food”, which generates sex-specific benefits that improve on the earlier literature on collective households (e.g. [Browning et al., 1994](#)). This focus suggests that sanitation improvements can generate important benefits to certain subgroups even in the absence of improvements to child health, which may prove valuable to future sanitation and health promotion campaigns. Finally, the means by which this program was successful is unique and of potential policy relevance, in particular, by carefully and explicitly linking a desirable public policy goal (sanitation) to existing, deeply rooted social norms (marriage).

This paper is organized as follows. [Section 2](#) discusses sanitation in rural India and important features of the *No Toilet No Bride* program. [Section 3](#) provides a social and economic background to marriage markets in northern India and Haryana, where the *No Toilet No Bride* program operates. [Section 4](#) explains the empirical strategy, identification issues, and data used. [Section 5](#) contains the key empirical results. Robustness to competing hypotheses is examined in [Section 6](#) and a discussion of social and economic mechanisms that explain these results is discussed in [Section 7](#). [Section 8](#) concludes.

2. Context

2.1. Overview of the empirical argument

To examine the effect of *No Toilet No Bride* in Haryana, I develop an empirical strategy that takes advantage of a natural policy experiment. In 2005, Haryana state authorities implemented a state-level messaging campaign, which was inspired by the work of a local NGO, that explicitly linked potential brides' bargaining power (or, given local custom, that of their families) over marriage with the state's low levels of sanitation.⁴ Women and their families were encouraged to demand from potential suitors a latrine prior to marriage. In this way the campaign created a new link between long-standing customs related to arranged marital negotiations and one particular good that women value.

The empirical argument proceeds in the following steps. I first explain why latrines are much more valuable to women than men, i.e. why they can be considered a type of female good. The second step discusses the sanitation campaign known as *No Toilet No Bride*. By focusing on women's ability to demand latrines, the program provides a means of studying their bargaining power on the marriage market. Subsequently, I show evidence that the policy has indeed caused an increase in latrine ownership, that this effect is mediated by the marriage market, and that sex ratios appear to be driving the program effect. Finally, I present complementary evidence that the program was effective via marriage market pressures by showing no discernible effect on households not likely to be active on the marriage market.

2.2. Sanitation, gender, and the *No Toilet No Bride* program

2.2.1. Sanitation as a female good

In rural India, a large majority of people lack access to sanitation and must defecate in the open ([World Bank, 2015](#)). In a recent household survey conducted in Madhya Pradesh, for example, 80% of respondents reported that their primary places of defecation were fields, bushes, rivers/streams, and other public spaces rather than an improved latrine ([Patil, 2010](#)). Access to sanitation, and the lack thereof, affects all people but is of particular significance to women. It is, first of all, a matter of convenience to have a private toilet at home, to be used at one's whim with little effort; this value exists for all

⁴ “It's No Toilet No Bride in Haryana”, *The Times of India*, March 22, 2009.

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