



Presentation from
**2016 World Water
Week in Stockholm**

www.worldwaterweek.org

© The authors, all rights reserved

Using Games to Improve Sanitation and Hygiene Behavior:

Experimental Evidence from Tamil Nadu

Yaniv Stopnitzky

University of San Francisco

The research conducted in this paper was funded by the CGIAR Research Program on Water, Land and Ecosystems (WLE) through the WLE project “Experimental Games for Strengthening Collective Action” led by the International Food Policy Research Institute (IFPRI). Any errors and opinions in this document are my own.

Sanitation and Behavior Change

- ▶ Massive sanitation policy today is focused on “software”, i.e. how to change preferences and behavior around sanitation/hygiene
 - ▶ Rather than just building toilets (i.e. hardware).
- ▶ Evidence is mixed (e.g. Patil et al, 2014).
- ▶ Much policy interest on how to improve activities that change preferences/demand for sanitation.

The Approach

- ▶ Use carefully crafted experimental games to highlight the importance of group coordination in achieving better sanitation and related outcomes.
- ▶ We evaluate this approach by randomly assigning two versions of the game to 600 rural villagers in Tamil Nadu, India (so 200 people in each arm).
- ▶ We give the same survey on sanitation and HW determinants to each group *after* they play the game.
- ▶ We combine 12 preference-oriented responses into a standardized index and then compare the value of this index across arms.

Minimum Effort Coordination Game

- ▶ Motivated by the idea that many coordination problems depend most on the effort of the person who contributes least.
- ▶ Reflects nicely the sanitation problem: even if everyone uses toilets, one person defecating in the water supply can affect everybody.
- ▶ We craft five choices to reflect different levels of effort ranging from “do nothing” to “reduce open defecation sometimes” to “end open defecation completely” .
- ▶ After three trial runs, participants play the game five times for real money so that they can practice and learn with experience.

Playing the Game in the Field



Effects of Sanitation Games on Preferences

	(1)	(2)	(3)
Treatment Dummy	0.086*** (0.033)		
Game w/o communication		0.070* (0.039)	
Game w/ communication			0.096** (0.038)
Constant	-0.114 (0.174)	-0.186 (0.213)	-0.011 (0.221)
Controls	Yes	Yes	Yes
Village FE	Yes	Yes	Yes
Adj. R^2	0.005	-0.007	0.011
N	596	397	396

Note: Controls include household size, number of children, house roof type, electricity, water source, household income, average number of meals per day, gender, and marital status. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Gender-Mediated Treatment Effects

	Males	Females	Males	Females	Males	Females
Treatment Dummy	0.226** (0.094)	0.066* (0.035)				
Game w/ communication			0.338*** (0.126)	0.071* (0.039)		
Game w/o communication					0.192 (0.119)	0.059 (0.041)
Constant	-0.486 (0.485)	-0.128 (0.186)	-0.305 (0.616)	0.032 (0.241)	-0.728 (0.569)	-0.139 (0.230)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Village FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2	0.070	-0.008	0.071	-0.004	0.027	-0.011
N	77	519	59	337	62	335

Note: Columns 1, 3, and 5 are run for males only. Columns 2, 4, and 6 are run for females only. Controls include household size, number of children, house roof type, electricity, water source, household income, average number of meals per day, and marital status. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Discussion

- ▶ Playing the game caused an increase in the summary index of 0.09 SDs as compared to control.
- ▶ Evidence suggests effects stronger in men than women, and stronger in the version of the game that allowed communication while playing.
- ▶ Given this “light” treatment (a 20 minute experimental game), these results are promising.
- ▶ Later this autumn, we plan to return to these villages to examine sanitation and hygiene behavior rather than just preferences.
- ▶ We also intend to study further these particularly promising results on males.