Household demand for drinking water quality: Do perceptions really matter?
Evidence from peri-urban Cambodia

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Research Question

How do perceptions of water quality affect demand for water quality improvements?

Motivation

- 1.3 million child deaths attributable to diarrhea and other water-borne diseases (UNICEF 2012)

- 800 million people worldwide lack safe drinking water (WHO/UNICEF JMP 2012)

- Poor access to high quality water sources may partly be due to low demand (Whittington et al. 2009)
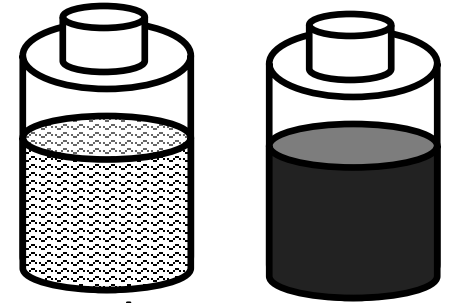
Information & Perceptions

- Perceptions of water quality influence demand for water quality improvements (Yoo & Yang 2001; Kwak et al. 2007; Whitehead 2006)

- Information as determinant of demand (Somanathan 2010; Hamoudi et al. 2012)

Cambodia RCT Framework

- 856 households
- Basic problem:
  - Perceptions likely related to unobservable factors that influence demand
- So, households randomized to two groups
  - Information group had water quality test + observed result (with and w/o water treatment)
  - Control group water was tested but did not observe result
- First round :
  - Perceptions of water safety
  - Water storage, handling, treatment techniques
  - Demand for chlorinated water treatment technique (Aquatabs)
- Information treatment: H2S test results

Information RCT

- Info group: Heard explanation for how contamination happens + how to interpret the 24-hr H_2S test + instructions on how to avoid drinking contaminated water

- Second round six weeks later, all households...
  - Repeated water quality perceptions game
  - Had chance to purchase chlorine tablet product

- Neighbors of main households interviewed in first and second round, but not given the information treatment

Information Effects on Perceptions

Dependent Variable: Perceived safety of water [0: least safe; 10: most safe—integer values only]		July 2012 (2 wks after testing)	August 2012 (6 wks after testing)
Δ: result revealed vs. unrevealed	Households with contaminated result	-0.54** [0.22]	-0.65*** [0.22]
	Households with uncontaminated result	1.11* [0.57]	1.52*** [0.44]
ΔΔ		-1.65** [0.68]	-1.94*** [0.52]
Observations		848	813

Mechanism: Altered perceptions of safety?

Variable	Purchase Aquatabs (ivprobit)		Perceptions (OLS) (0=least safe; 10=most safe; integer value only)	
	Coef.	St.Err.	Coef.	St.Err.
Perceptions	**-0.30***	0.07		
Info			**-0.37****	(0.17)
Constant	**1.05***	(0.08)	**3.50***	(0.15)
Water quality test result	All		All	
Enumerator FE	No		No	
n	848		848	
F-stat			3.67	

Notes: Marginal effect of 1-unit change in perceptions is 9% increase in purchase

Some potential implications / ongoing work

1. Widespread misperceptions of water quality
   a. Perceptions respond to information (in expected ways), implications for marketing…
   b. Effect on perceptions does not appear to decay
2. Impact of information is heterogeneous
   a. Large differences by test result
   b. Large differences by commune: what is driving these differences (perhaps SES, risk preferences)
3. Ongoing: Investigating spillovers

Thank you!

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▸ Field partners at WaterSHED-Cambodia

Mechanism: Altered perceptions of safety?

Variable	Purchase Aquatabs (ivprobit)		Perceptions (OLS)	
	Coef.	St.Err.	Coef.	St.Err.
Perceptions	**-0.30***	0.02		
Info*dirty			**-0.47***	(0.12)
Info*clean			0.64	(0.51)
Constant	**1.03***	(0.08)	**3.50***	(0.15)
Water quality test result	All		All	
Enumerator FE	No		No	
n	848		848	

Notes: Marginal effect of 1-unit change in perceptions is 9% increase in purchase