Spring Cleaning: Rural Water Impacts, Valuation, and Property Rights Institutions

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Intervention Category	Sanitation
Sector	Water
Abstract	Using a randomized evaluation in Kenya, we measure health impacts of spring protection, an investment that improves source water quality. We also estimate households' valuation of spring protection and simulate the welfare impacts of alternatives to the current system of common property rights in water, which limits incentives for private investment. Spring infrastructure investments reduce fecal contamination by 66%, but household water quality improves less, due to recontamination. Child diarrhea falls by one quarter. Travel-cost based revealed preference estimates of households' valuations are much smaller than both stated preference valuations and health planners' valuations, and are consistent with models in which the demand for health is highly income elastic. We estimate that private property norms would generate little additional investment while imposing large static costs due to above-marginal-cost pricing, private property would function better at higher income levels or underwater scarcity, and alternative institutions could yield Pareto improvements
Gender Connection	Gender Informed Analysis
Gender Outcomes	Health of girls
IE Design	Randomized Control Trial
Intervention	The NGO International Child Support (ICS) implemented a spring protection project that included infrastructure construction, installing fencing and drainage, and organization a user maintenance committee. The spring protection cost about $956, and communities contributed 10% to project costs.
Intervention Period	The first two rounds of spring protection occurred in January-April 2005 and August-November 2005
Sample population	184 springs were randomly selected to receive protection. 47 springs were treated in year 1, 46 springs were treated in year 2 and 91 springs were treated in year 3 and 4. In total, there are 1384 households affected by these springs. The target respondent in each household was the mother or female head of household.
Comparison conditions	The springs were phased in over 4 years. Early treated springs are compared to late treated springs.
Unit of analysis	Household Level

Evaluation Period	August 2004 - March 2007
Results	Spring protection greatly improves water quality at the source and is moderately effective at improving household water quality; there is a 66% reduction in E.coli in the source water. Home water cleanliness is improved by only 24%. Diarrhea among young children in treatment households falls by about a quarter. This result is mainly driven by a reduction in diarrhea amongst girls. There is no evidence of differential treatment effects as a function of household sanitation, diarrhea prevention knowledge, or mother's education. The authors investigate how behavior changes in response to different quality water and find that a "revealed preference" estimation of statistical value of life would produce very low values on the life of a child (about $769).
Primary study limitations	Some springs were dropped from the study because they were found unsuitable for protection.
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Reference(s)	Kremer, M., Leino, J., Miguel, E., & Zwane, A. P. (2011). Spring Cleaning: Rural Water Impacts, Valuation, and Property Rights Institutions*. The Quarterly Journal of Economics, 126(1), 145-205.
Link to Studies	http://qje.oxfordjournals.org/content/126/1/145.full.pdf
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