

The high value of water

Study: People willing to pay more for running water report much higher levels of happiness when they have it.

Peter Dizikes, MIT News Office
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If you're reading this, odds are you've already used running water in your home today. But you're in a minority: Globally, at least a billion people have no nearby source of water, while of the remaining six billion or so, only 42 percent have running water in their homes or a tap in the yard, according to the World Health Organization.



Now a new field experiment, co-authored by MIT economist Esther Duflo, shows just how much access to clean water matters to people. Residents of Morocco, the experiment demonstrates, are willing to take out loans and pay twice as much for water per month in order to have it piped into their homes. And despite the dent in their bottom-line finances, people in households that gain running water report significant improvements in well-being and happiness.

By linking more homes to existing water networks, "It seems we could improve people's lives fairly easily," says Duflo, the Abdul Latif Jameel Professor of Poverty Alleviation and Development Economics at MIT.

In many developing regions, however, newly built connections to clean water supplies are often communal: It is cheaper to install a single tap serving a village or urban neighborhood. This study specifically analyzes what happens when people in those circumstances suddenly acquire their own water supplies — and suggests that the greater cost of connecting all homes directly would provide major social benefits.

Happiness is a working faucet

The findings appear [in a paper](#), "Happiness on Tap: Piped Water Adoption in Urban Morocco," published in the most recent issue of the *American Economic Journal: Economic Policy*.

To conduct the experiment, the researchers examined 845 households in Tangier, Morocco, whose occupants could not afford the fee to connect to the city's water supply. In 2008, the researchers randomly selected 434 of these households and conducted an awareness campaign, informing the people in the homes about the opportunity to purchase a connection on credit, and facilitating the paperwork needed to do so. People in the remaining homes formed the control group for the study.

Having a direct connection to water did not improve water quality in comparison to Tangier's public



faucets — meaning that the main incentive for having a connection was convenience, not health. This is no small thing: People in the average household without running water in urban Morocco spend seven hours per week collecting water from public taps. Around two-thirds of people in those households say access to water is a major source of concern, while 28 percent of people have experienced a water-related conflict with a family member or neighbor.

The results of the experiment were striking: When offered credit and assistance, 69 percent of households in the study paid for a connection to the water supply within six months, as opposed to just 10 percent of the households in the control group. And 44 percent of people in the households of the treatment group said their overall quality of life had improved in the last year, compared to 23 percent in the control group.

The water bill in the newly connected households roughly doubled, from \$11 per month to \$21 per month. As of mid-2010, 44 percent of the households had repaid all their loan installments, and another 28 percent owed less than 20 percent of the original amount. About 5 percent were late on more than 50 percent of the total due, but no households had completely defaulted.

Intriguingly, the people in those households reported they were not using their newly acquired spare time to compensate for the greater payments by finding additional employment; instead, they were often engaging in community and social activities. One woman told Duflo she was “thrilled” not to have to worry about collecting enough water for her husband, and had found the time to join a religious study group.

The study has impressed other scholars. “This is a superb and important paper,” says Cass Sunstein, the Felix Frankfurter Professor of Law at Harvard Law School, who has read it; the paper refers to the program as a “nudge” of the type Sunstein has advocated in his own work. “It shows that nudges can work,” Sunstein adds. “It also shows that if you make take-up easy for people, you can have surprisingly large impacts. The key findings can and should inform a lot of domains.”


‘Our own lives are extremely convenient’

Many efforts to evaluate quality of life globally, including conditions in the developing world, focus on tangible, bottom-line considerations, such as income and net wealth. But as the paper notes, quality-of-life questions are often more nuanced than a look at a household balance sheet can reveal; things like access to water “can significantly improve welfare, even if they do not result in income gain.”

As Duflo sees it, the results “suggest we should also go beyond the broader indicators of welfare that are often used, such as health: There were no health improvements, but people [in households with water] are very happy.”

Moreover, the findings illustrate the significance of factors such as convenience when analyzing the impact of policy, Duflo notes.

“This is incredibly important, to recognize the legitimacy of such desires in thinking about what are the important investments,” Duflo observes. “After all, our own lives are extremely convenient. From the comfort of our own heated homes we often forget what it would be to have to take care of all those ‘details.’”

In addition to Duflo, the researchers co-authoring the paper are Florencia Devoto of the Paris School of Economics; Pascaline Dupas of Stanford University; William Pariente of the Universite Catholique in Louvain, Belgium; and Vincent Pons, a PhD candidate in MIT’s Department of Economics. 

The researchers received funding for the study from Veolia Environment, a French firm that develops water-supply systems, among other activities.

