Credit Constraints, Present Bias and Investment in Health: Evidence from Micropayments for Clean Water in Dhaka

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Abstract

Low rates of adoption of and low willingness to pay for preventative health technologies pose an ongoing puzzle (Abdul Latif Jameel Poverty Action Lab, 2011; Dupas, 2011). In the case of water-borne disease, the burden is high both in terms of poor health and cost of treatment, and inexpensive preventative technologies are available, but willingness to pay (WTP) for products such as chlorine treatment or ceramic filters has been observed to be low in a number of contexts (Ahuja, Kremer, & Zwane, 2010; Ashraf, Berry, & Shapiro, 2010; Berry, Fischer, & Guiteras, 2012; Luoto et al., 2011).

In this paper, we investigate whether time payments (micro-loans or dedicated micro-savings) can increase WTP for a high-quality ceramic water filter among 400 households in slums of Dhaka, Bangladesh, where water quality is poor and the burden of water-borne disease high. We use a modified Becker-Degroot-Marschak mechanism to elicit WTP for the filter under a variety of payment plans. Crucially, we obtain valuations from each household across all payment plans, which (a) vastly increases power and (b) allows us to investigate the mechanisms behind differences in WTP across plans.

We find that time payments significantly increase WTP: median WTP under a lump-sum, up-front payment is US$9, versus US$16.7 with a simple 6-month loan and $20 for an up to 12-month loan. Similarly, coverage can be greatly increased: at an unsubsidized price of US$28 (50% subsidy price of $14), coverage is 10% (22%) under a lump-sum but as high as 45% (70%) given time payments.

Many explanations are consistent with these reduced-form results. In ongoing work, we use our rich within-household WTP data, the design of the payment plans, and a simple structural model of time preference to investigate the mechanisms at work behind these large differences in WTP. In particular, we measure the relative importance of credit constraints, present bias and the risk associated with learning to use a new technology.

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