Social networks and the adoption of a water conserving agricultural technology in India

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Technology-driven gains in agricultural productivity and profitability can dramatically improve quality of life for the rural poor in developing countries. Extension efforts to disseminate agricultural technologies typically assume that farmers learn from early adopters, which catalyzes the diffusion process. In this paper we investigate how learning through social networks influences farmers' demand for laser land leveling (LLL) — a resource conserving technology — in eastern Uttar Pradesh, India. To estimate network effects we identify potential adopters using an experimental auction that elicits willingness to pay and, from among these farmers, randomly select a treatment group ("first-generation adopters") who actually employ LLL services on their land, as well as a control group. We conduct a second auction one year later to elicit updated estimates of willingness to pay from the same sample of farmers. Three unique results emerge from this field experiment that improve our understanding of network effects and technology adoption. First, exposure to LLL via networks occurs primarily through visits to adopting farmers' fields rather than through conversations or seeing the technology applied. Second, having a first-generation adopter in a farmer's network increases his valuation of LLL by 27 percent on average. Third, using differences in farmers' input usage between the two auctions, we find that this network effect is importantly conditioned on the benefits associated with LLL, which implies that learning — rather than mimicry — is driving increases in demand.

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