

Faculty seminar (17 January 2021)

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Topic:

Dealing with agricultural shocks: Income source diversification through solar panel home systems

Abstract:

This paper shows that solar panel home systems can help farmers in rural areas to mitigate income losses when they experience climatic shocks. We exploit a unique dataset, containing information about hourly electricity usage and daily loan repayment from customers of a solar panel company in Tanzania. Customer survey data combined with supervised machine-learning algorithms allows us to classify the customers' daily electricity usage behavior and predict the likelihood of electricity usage for business purposes. Farmers who were exposed to climatic shocks during the growing season are more likely to face loan repayment difficulties in the next harvest season, but are also more likely to adjust their electricity usage. Those who use solar panels in ways that are characteristic for business users, respond less strongly to such negative income shocks. This finding has important policy implications. Besides the direct benefits of access to electricity, solar panels can provide means for rural income diversification, which is particularly important in times of increasingly severe climatic events.