Long-run (health) effects and demand for high-quality renewable energy in Senegal (IE-SolarSenegal)

Project stakeholders

Consortium lead: Institute of Health Economics (IHE) – Leibniz University Hannover (LUH)
Project partners: Development Impact Evaluation (DIME) – World Bank; School of Global Policy and Strategy – UC San Diego

Funding agency, duration and funds

Funding agency: World Bank and European Union (EU)
Funding line: Impact Evaluation to Development Impact (i2i) and the World Bank Lighting Africa (LA) Initiative
Duration: 8 months

Project goals

The study aims to (i) assess the development and health impacts associated with individual long-term ownership of a high-quality solar lamp; (ii) assess the effect of a one-off subsidy for a high-quality lamp on long-term demand for the same technology and a larger-scale solar energy source (i.e., solar home systems); (iii) assess the interaction effects of a one-off subsidy for a high-quality lamp and the exposure to a village-level information campaign on the demand for renewable energy products; and (iv) identify any village-level spillover effects of individual high-quality lamp ownership.

Background and project description

Sub-Saharan Africa (SSA) is home to over 600 million people without access to electricity. Solar technology products have emerged as a way to provide access to basic energy services, including modern lighting and refrigeration, and are assumed to be associated with development benefits such as household savings, increased productivity, better education, and improved health outcomes. Yet, despite these potential benefits, households still underinvest in solar technology. A large literature has emerged around the benefits and drawbacks of free or subsidized distribution of goods, and the implications for future demand. We contribute to this stream of work, inter alia, by experimentally examining for the first time the extent to which likely improved technology perceptions and household (economic) well-being cause vertical technology upgrading.

We make use of an impact evaluation designed to experimentally evaluate the efficacy of two types of mass media campaigns in raising awareness for the potential benefits of solar lighting products and therefore drive-up demand of solar lighting products. Starting in 2016, 150 villages were equally divided into a control group (50 villages) and information treatment(s) (100 villages), and baseline data was collected among a total of 7,085 households. After the baseline data collection, within each village, a random sub-sample of two households received a high-quality solar lamp free of charge (i.e., 300 households in total). Both interventions provide the basis for this study taking place six years after information and product delivery. We will leverage both the clustered randomized design and individual-level randomization to assess the effects of, and the long-term demand for high-quality solar lighting products. Additionally, we will evaluate spillover effects on solar lighting product demand by interviewing further village members.