"Experimental Evidence on the Economics of Rural Electrification" (joint with Ken Lee and Ted Miguel)

Abstract:

We present results from an experiment that randomized the expansion of electric grid infrastructure in rural Kenya. Electricity distribution is the canonical example of a natural monopoly. Randomized price offers show that demand for electricity connections falls sharply with price. Experimental variation in the number of connections, combined with administrative cost data, reveals considerable scale economies, as hypothesized. However, consumer surplus is far less than total construction costs at all price levels. Moreover, we do not find meaningful medium-run impacts on economic, health, and educational outcomes, nor evidence of spillovers to unconnected local households. These results suggest that current efforts to increase residential electrification in rural Kenya may reduce social welfare. We discuss how leakage of funds, reduced demand (due to red tape, low reliability, and credit constraints), and other factors may impact this conclusion.