

## Electricity Services and COVID-19: Understanding the Role of Infrastructure Improvements and Institutional Innovations

**Authors :** Javed Younas

**Abstract :** Fiscal challenges pervade the electricity sector in many developing countries. Low bill payment and high theft mean utility customers have little incentive to conserve. It also means electricity distribution companies have less to invest in infrastructure maintenance, modernization, and technical upgrades. The low-quality electricity services can result in impaired economic benefits from connections to the electrical grid. We study the impacts of two interventions implemented in Karachi, Pakistan, with the goal of reducing distribution losses and increasing revenue recovery: infrastructure improvements that made illegal connections physically more difficult and institutional innovations designed to increase communities' trust in and cooperation with the utility. Using differences in implementation timing across space, we estimate the interventions' impacts before the COVID-19 pandemic and their role in mitigating the pandemic's effects on electricity services. Results indicate that the infrastructure improvements reduced losses, as well as the electricity delivered to the distribution system, a proxy for a generation. The institutional innovations significantly impacted revenue recovery, but not losses in their initial months; however, the efforts mitigated the pandemic's negative effect on the utility finances.

**Keywords :** electricity, infrastructure, losses, revenue recovery

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