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Household Electrification and Indoor Air Pollution

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## Abstract

This paper provides the first experimental evidence that household electrification leads to substantial reductions in indoor air pollution. Two years after electricity rollout, we measured overnight fine particulate matter (PM<sub>2.5</sub>) concentration, which was on average 66% lower among households that were randomly encouraged to connect to the electrical grid compared to those that were not. As a result, prevalence of acute respiratory infections among children under six was 8-14 percentage points lower in the former group. We find suggestive evidence that these changes are at least partly driven by reductions in kerosene use.

**JEL codes:** Q53, Q56, I15, I18, O13, O33

**keywords:** household electrification, indoor air pollution, fine particulate matter, health

## 1 Introduction

In 2009, 1.3 billion people lacked access to electricity at home (International Energy Agency, 2011). At night, households with no access to electricity make do mostly with candles or kerosene lamps to satisfy their illumination needs. These sources of light provide poor illumination and, more importantly, emit high amounts of pollutants that are harmful to

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