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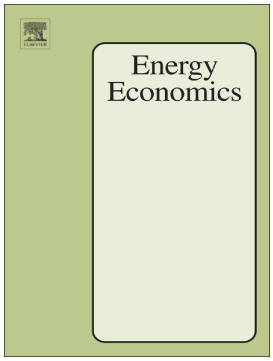

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Miguel Poblete-Cazenave, Shonali Pachauri

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A Structural Model of Cooking Fuel Choices in Developing Countries

Miguel Poblete-Cazenave*, Shonali Pachauri

International Institute for Applied Systems Analysis (IIASA),
Schlossplatz 1, A-2361 Laxenburg, Austria

Abstract

Access to cleaning cooking fuels and stoves is an important indicator of well-being, as this enables several improvements in quality of life. In many developing countries, a big proportion of the population still depends on biomass for cooking, and the adoption of clean cooking fuels is still limited. Here we propose a structural model to estimate household demand and choices for cooking fuel using micro-datasets from nationally representative surveys for a subset of developing countries. We test the model by estimating the demand response to simulated changes in fuel prices and income. We find that the model provides a close approximation to the observed patterns in the data from the surveys. We also find that as long as incomes rise and the relative difference between the prices of biomass and cleaner fuels decreases, households will transition to cleaner cooking fuels. We discuss potential applications of the method for constructing and analyzing future scenarios of cooking energy transitions.

1 Introduction

There are many dimensions of poverty, one of them related to the availability and accessibility of different fuel options for cooking. Approximately forty percent of the world's population uses solid fuels for cooking, such as firewood or charcoal (International Energy Agency (IEA) and the World Bank, 2017). These fuels, along with the use of rudimentary stoves, creates a

*Corresponding Author. Email Address: poblete@iiasa.ac.at

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