

Dividends of Expanding Clean Fuel Access: Rural-Urban Evidence on Infant, Maternal, and Nutrition Gains

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Abstract

Access to clean cooking fuels is essential for improving health, equity, and environmental sustainability globally. Despite ongoing policy efforts, a large number of households, particularly in developing countries, continue to rely on polluting cooking fuels, contributing to adverse health outcomes, environmental degradation, and economic hardship. This study uses panel data covering 102 developing countries from 2000 to 2022 to empirically examine the effects of clean cooking access on human wellbeing. Employing fixed effects and instrumental variable approaches, we address endogeneity concerns and identify causal impacts. We also investigate rural-urban disparities and find that urban populations experience larger improvements in health and nutrition per percentage point increase in clean cooking access. Focusing on sub-Saharan Africa, we simulate multiple scenarios of increased clean cooking access and estimate substantial gains: Raising rural access from 10% to 25% could avert approximately 84,000 infant deaths and prevent 1.68 million cases of child stunting. Achieving universal access in urban areas—an increase from 35% to 100%—could avert 377,000 infant deaths and yield over 11 million disability-adjusted life years, reflecting substantial reductions in household air pollution-related disease burden. These findings underscore the need for urgent, inclusive, and context specific policy interventions to close the clean cooking gap to advance global health and development goals. While rural households remain a priority, the scale of potential benefits in urban areas highlights the importance of a dual-focus approach in clean energy planning.

Keywords: Energy access; Clean cooking fuels; Energy poverty; Health; Infant and maternal mortality; Developing countries.

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