CLEAN COOKING
FUELS AND ECONOMIC DEVELOPMENT IN DEVELOPING COUNTRIES.

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Overview

Enabling access to energy is vital in addressing many of the present global development issues which affect people's economic, health and social well-being as well as the ability to meet the goal of reducing carbon emissions through clean energy use (International Energy Agency (IEA), 2016). Nonetheless, in spite of increased attention from multiple agencies and governments, energy poverty remains a severe development issue: particularly in developing countries, where access to modern energy systems is mostly embryonic. Yet, to date, most research have focused on general access to electricity and the generation of clean energy to replace fossil fuels, failing to address the lack of basic access to clean energy for cooking and heating (Saracini, 2014).

In this paper, we address this gap by reviewing the issue of lack of access to clean cooking fuel as well as providing empirical evidence of the impact of use of solid fuel on economic development (using Gross Domestic Product (GDP) as indicator).

Methods

To examine the causality relationship between use of solid fuel for cooking and/or heating (hereafter 'solid') and Gross Domestic Product (hereafter 'GDP'), the panel cointegration method is deemed fitting (Ouedraogo, 2013; Hamit-Haggar, 2012). Firstly, the panel unit root tests for the series are performed to examine the stationarity properties of the variables – GDP and solid. Next, cointegration tests are performed. Thirdly, the cointegration vector is examined utilizing Panel Fully Modified Ordinary Least Square (hereafter FMOLS) and Dynamic Ordinary Least Square (hereafter DOLS). Finally, a panel error correction model is established to investigate the direction of causality.

Results

Simulations are currently ongoing. However, Table 1 below shows some preliminary results of the first step of the analysis. Table one shows the unit root test for the variables of interest. The illustrated results demonstrate the

Table 1 Results for panel unit root tests for GDP and Solid

		Null: Unit root				Null: No unit root	
	Tests	Levin, Lin and Chu (LLC)	Im, Pesaran and Shin (IPS)	ADF - Fisher Chi square	PP - Fisher Chi square	Hadri	z-stat
	Variable						
Level	GDP	- 0.63912 (0.2614)	4.79892 (1.0000)	39.0981 (1.0000)	38.3720 (1.0000)	16.8465 (0.0000)	16.5608 (0.0000)
	SOLID	3.46139 (0.9997)	1.47780 (0.9303)	154.975 (0.0000)	220.855 (0.0000)	19.4236 (0.0000)	20.9639 (0.0000)
First difference	GDP	-11.4345 (0.0000)	-9.89545 (0.0000)	257.387 (0.0000)	381.983 (0.0000)	5.64430 (0.0000)	5.15373 (0.0000)
	SOLID	-28.5899 (0.0000)	-31.8400 (0.0000)	462.855 (0.0000)	498.473 (0.0000)	11.9748 (0.0000)	11.0287 (0.0000)

stationarity (or lack of) properties of the variables. This is an essential step in the causal analysis of panel data.

Conclusions

In this paper, we will investigate the empirical relationship between the use of solid fuels for cooking and/or heating and economic development in terms of GDP per capita. From a policy perspective, knowing the impact of lack of access to clean fuels for cooking and/or heating on economic development might help influence more policies which focus on addressing the issue – a current reality in most developing countries. If our findings confirm a causal relationship, more attention will need to be placed on the issue of lack of access to clean cooking fuels if the development potential of these countries are to be attained.

References

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