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# Exploring the nexus between fiscal decentralization and energy poverty for China: Does country risk matter for energy poverty reduction?

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## Abstract

Interpreting energy poverty in respect of lack of accessibility, availability, and affordability of energy resources, this study aims to explore the macroeconomic determinants of multidimensional energy poverty in China over the 2005Q1-2019Q4 period. Three weighted and one unweighted energy poverty indices are constructed to measure the incidence of energy poverty in China using relevant energy-related indicators that capture the accessibility, availability, and affordability dimensions of energy poverty. The overall results indicate that a 1% rise in the degrees of fiscal decentralization and country risks aggravates the energy poverty situation in the long run by reducing the energy poverty indices at most by 0.05% and 0.03%, respectively. In contrast, positive shocks to the levels of economic growth, renewable energy share, and technological innovation by 1% are evidenced to be associated with declines in the energy poverty indices in the long run at most by 0.43%, 0.18%, and 0.06%, respectively. Besides, the marginal impacts of these variables are seen to be comparatively larger for the composite energy poverty indices that emphasize more on the accessibility dimension of energy poverty in China. Based on these findings, greening the fiscal decentralization policies, lowering country risks, promoting economic growth, stimulating higher renewable energy use, and financing technological innovation are recommended for mitigating the incidence of energy poverty in China. These policies are also expected to assist China in partially achieving the Sustainable Development Goals agenda of the United Nations and enable the nation to attain its 2060 carbon neutrality target.

## Keywords

Energy poverty, Fiscal decentralization, Country risk, Sustainable development goals, Renewable energy, Technological innovation

## Highlights

- Nexus among fiscal decentralization and energy poverty has been examined.
- Role of Composite risk and technological innovation is explored for energy poverty.
- Data for China is used from 2005Q1-2019Q4.
- Higher level of fiscal decentralization and country risks aggravate the energy poverty.
- Growth, renewable energy and technological innovation mitigate energy poverty.

JEL classification  
Q41, I31




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## DIU Organized '3Zeros Exposure Program'

Daffodil International University (DIU), Bangladesh and Panyapiwat Institute of Management (PIM), Thailand jointly organized the '3Zeros Exposure Program' on November 11, 2021 where renowned activists in the field of Social Business have joined as the resource persons to conduct lecture and virtual visit sessions for the students of PIM to give a rise to the distinct concept of 3ZERO.

The main purpose of this program was to bridging the young minds, zeroing poverty, unemployment and net carbon emissions to make a livable world for the future.

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Bridging young minds to zeroing Poverty,  
Unemployment & Net-Carbon Emissions

Virtual  
**3Z Exposure Program**  
11<sup>th</sup> October, 2021  
Daffodil International University

Zoom meeting grid showing 30 participants.