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GOVERNMENT EXPROPRIATION COMPENSATION AND HOUSEHOLD ENERGY POVERTY: IMPLICATIONS FOR SUSTAINABLE DEVELOPMENT IN CHINA

Shujing Zhang

*School of Public Finance and Taxation, Southwestern University of Finance and
Economics, China*

zshujing99@163.com

Zhaoyuan Chen

*School of Public Finance and Taxation, Southwestern University of Finance and
Economics, China*

zshujing99@163.com

Abstract

Energy poverty remains a persistent challenge in developing countries and poses an important constraint on achieving sustainable development. Against this backdrop, this study examines how government expropriation compensation influences household energy poverty in China, focusing on land expropriation compensation and housing demolition compensation. Using nationally representative data from the China Family Panel Studies covering 2014–2022 and a difference-in-differences framework, the study identifies the causal effects of both types of compensation on alleviating energy poverty. The results show that land expropriation compensation and housing demolition compensation significantly reduce household energy poverty, with stronger effects observed for land compensation. The impacts are more pronounced among low-income, agricultural, and central-western households. Mechanism analysis reveals that compensation mitigates energy poverty primarily through increasing household income, improving housing conditions, and enhancing access to modern energy facilities. These findings suggest that compensation policies can contribute to reducing energy inequality and supporting broader sustainable development objectives by improving access to basic energy services.

Keywords:

Energy Poverty, Land Expropriation, Housing Demolition, Compensation Policy

1. Introduction

Energy poverty—also known as fuel poverty or energy vulnerability—refers to a condition in which households are unable to obtain sufficient and reliable energy services to meet their basic domestic needs (Thomson, Bouzarovski, and Snell 2017). As a pressing global challenge, energy poverty affects billions of people worldwide, particularly in developing regions where households still rely on traditional biomass for cooking and heating, leading to severe health risks and environmental degradation (González-Eguino 2015, Guruswamy 2011). Despite significant progress in expanding energy access, the lack of affordable, clean, and efficient energy remains a major obstacle to achieving the United Nations’ Sustainable Development Goal 7, which calls for “affordable, reliable, sustainable and modern energy for all.” China, as the world’s largest developing country, has made notable improvements in energy accessibility and infrastructure, yet regional disparities persist, especially in rural and low-income areas where households still face difficulties in accessing modern and clean energy sources (Zhang, Li, and Han 2019). Addressing energy poverty is therefore not only crucial for improving household welfare but also for promoting inclusive and sustainable development.

In China, land expropriation is a centrally regulated but locally implemented process that plays a critical role in urbanization, industrialization, and economic development. All land in China is publicly owned: the state controls urban land, while rural land is collectively owned by villages, with households holding use rights primarily for agricultural purposes (Huang et al. 2024, Sha 2023). Rural households cannot sell land directly to third parties for construction; instead, local governments have the legal authority to expropriate land for public interest projects, convert it into state-owned urban land, and transfer it to commercial users. Compensation for expropriated land typically includes payments for land loss, structures, crops, and resettlement subsidies, with standards varying across localities and increasingly reflecting factors such as location, land market conditions, and local development levels (Wang et al. 2017, Huang et al. 2024). The land expropriation system is shaped by

China's unique combination of economic decentralization and political centralization: local governments rely on revenues from land transfers as an important source of extra-budgetary funding, while political incentives encourage officials to promote local economic development through infrastructure construction and urban expansion (Sha 2023, Huang et al. 2024). Rapid urbanization, the expansion of industrial parks and special economic zones, and growing fiscal demands on local governments have collectively intensified land acquisition practices, making expropriation a pervasive feature of China's development landscape (Wang et al. 2017).

Housing demolition and expropriation have also become widespread phenomena accompanying China's rapid urbanization and spatial restructuring. Driven by redevelopment, infrastructure expansion, and shantytown renovation, large-scale demolition projects have reshaped both urban and rural areas over the past decades (Yu et al. 2017, Qiu and Chen 2023). The system has gradually evolved from administratively enforced demolition to a more regulated and legally based framework, especially after the 2011 Regulations on the Expropriation and Compensation of Houses on State-owned Land, which emphasized transparency, market-based valuation, and the protection of residents' living conditions (Qiu and Chen 2023). Compensation has also become more generous and diversified, including both monetary payments and in-kind resettlement, making housing demolition one of the largest channels of wealth transfer in contemporary China (Yi et al. 2024).

Building upon the above background, this paper examines the relationship between government expropriation compensation (GEC) and household energy poverty in China. Specifically, it focuses on two major forms of compensation—land expropriation compensation (LEC) and housing demolition compensation (HDC)—that have become increasingly prevalent during China's rapid urbanization and development. Using nationally representative data from the China Family Panel Studies (CFPS) covering 2014-2022, the study employs a staggered difference-in-differences approach to identify the effects of LEC and HDC on household energy poverty. Furthermore, it explores the heterogeneity of these effects across income groups, regions, and household types, as well as the potential mechanisms through which compensation may

influence energy poverty, such as improvements in income, housing quality, and access to energy facilities.

This study makes several key contributions. First, it contributes to the growing literature on the socioeconomic consequences of the property rights. Secure property rights have been shown to influence labor allocation, migration, investment, and entrepreneurship: rural land certification programs in Mexico and China increased migration and productive investment (De Janvry et al. 2015, Leight 2016), while communal land tenure in Sub-Saharan Africa constrained agricultural productivity (Gottlieb and Grobovšek 2019), and experimental land demarcation in Benin encouraged long-term investments (Goldstein et al. 2018). In urban settings, property rights improved labor supply and promoted entrepreneurship by alleviating credit constraints and enhancing asset liquidity (Field 2007, Wang 2012, Bu and Liao 2022). Beyond economic outcomes, property rights also shape social and political behaviors: in China, land expropriation reduced trust in local officials and increased conflicts, though better governance could mitigate these effects (Sha 2023). Building on this literature, this study is the first to examine how property rights uncertainty—represented by land expropriation and housing demolition compensation—affects household energy poverty.

Second, it contributes to the growing literature on the determinants of household energy poverty. Prior research highlights that income, education, and human capital reduce energy poverty by improving labor outcomes, economic status, and access to energy infrastructure (Makate 2024, Wang and Du 2024). Digital access and financial inclusion also play crucial roles, as the digital divide and limited access to high-speed internet or digital finance exacerbate energy poverty by restricting social capital, credit, and employment opportunities (Luan, Zou, and Huang 2023, Ackermann, Churchill, and Smyth 2023, Wang et al. 2025). Institutional arrangements, such as energy utilities and procedural justice mechanisms, further shape households' energy outcomes (Stojilovska 2023), and different energy sources influence their ability to meet basic needs (Halkos and Gkampoura). Building on this literature, this study is the first to examine how land expropriation and housing demolition compensation—forms

of property rights insecurity—affect household energy poverty in China, bridging the property rights and energy poverty literatures.

Building on the above, this paper investigates how land expropriation and housing demolition compensation influence household energy poverty in China. The paper is structured as follows: Section 2 introduces the data, key variables, and the measurement of energy poverty, and outlines the empirical strategy, including the difference-in-differences framework. Section 3 presents the main results, conducts robustness checks, examines heterogeneity, and explores the mechanisms through which compensation affects energy poverty. Finally, Section 4 concludes with policy implications.