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Convergence toward Persistent Inequality: Evidence from EU Energy Poverty

Eftychia Zaroutieri

University of the Peloponnese, Greece

Abstract

Energy poverty remains a central concern for EU social and energy policy, yet whether cross-country disparities are actually narrowing has received limited systematic attention. This paper examines convergence across the EU27 using two energy poverty indicators: arrears on utility bills (socioeconomic aspect) and inability to keep the home adequately warm (thermal aspect), over 2005-2025, benchmarked against severe material and social deprivation, a broader measure of poverty, over 2015-2025. We estimate absolute β -convergence in cross-sectional and panel specifications, complemented by δ -convergence, and address dynamic panel bias through bias-corrected Least Squares Dummy Variables estimation. Three findings emerge. First, convergence is supported across all indicators. Initially worse-off countries improved systematically faster, and cross-country dispersion declined; however, both results are weakest and most cyclical for arrears. Second, convergence is conditional rather than absolute. Introducing country fixed effects sharply raises estimated convergence speeds, a pattern that survives bias correction, implying that member states converge rapidly toward country-specific steady states that remain persistently different. Third, convergence is a post-2014 phenomenon. Catching-up was minimal during the financial crisis years and strong thereafter, while cross-country dispersion continued to decline through the 2022 energy price shock. The same pattern characterizes the broader deprivation measure, suggesting that energy poverty convergence is embedded in the EU's wider social convergence. Full cohesion in energy poverty therefore requires structural policy that shifts national steady states, since transitional dynamics are not sufficient.

Keywords: Energy Justice; Material Deprivation; Steady States; β -Convergence; δ -Convergence