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Energy poverty and thermal comfort in northern urban China: A household-scale typology of infrastructural inequalities

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Title: Energy poverty and thermal comfort in northern urban China: A household-scale typology of infrastructural inequalities

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Abstract: Cities in China have undergone considerable transformation in recent decades with unprecedented economic growth, rural to urban migration and a rapidly emerging middle class all contributing to increased energy consumption. In this context, we investigate the inability of urban households in the cold climate zone in northern China to access sufficient domestic energy services, and thus their vulnerability to energy poverty, focusing upon heating provision. Results of a questionnaire survey of households in the urban area of Beijing (n=880) are analysed using Latent Class Analysis, a methodologically novel approach to developing a typology of energy poverty. The analysis highlights the existence of significant vulnerabilities that increase the likelihood of a household being unable to access adequate heating in the home in this context. Despite provision of state-subsidies for heating in cities in northern China, a mechanism that might be anticipated to buffer households from energy poverty, these do not shield from the cold those households that lack access to efficient and flexible networked infrastructures, or a high quality, built environment. Our findings represent the first detailed study of energy poverty in relation to heating in this geographical context and have significant implications for domestic policy-making concerned with energy poverty, residential energy efficiency and domestic energy consumption.

Keywords: Energy poverty; Vulnerability; Urban China; Thermal comfort; Heating infrastructure; Latent Class Analysis

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