

Capitalisation of Energy Efficiency in the Residential Housing Market Using Spatial Econometric Modelling

Kryštof Veřtát^{1,2}, Milan Ščasný^{1,2}

¹Environment Centre, Charles University, Prague, Czechia. ²Institute of Economic Studies, Faculty of Social Sciences, Charles University, Prague, Czechia

Extended Abstract

[Download file](#)

Abstract Summary

Energy consumption in residential housing is an important component of household expenditure and a major source of carbon dioxide emissions. Improving energy efficiency can reduce energy demand and energy costs. This research investigates how energy efficiency affects residential property prices in the Czech Republic and whether the energy efficiency price premium differs across property types, locations and time. Using real estate data from Sreality.cz, we analyse 85,446 flats and 54,044 family houses. Spatial dependencies are addressed using spatial lag and spatial error models. Spatial heterogeneity is analysed using models with energy efficiency, and region interaction and geographically weighted regression. Our results reveal that the energy efficiency significantly increases property prices, with EPC A premium of 14 % for flats and 50% for family houses, in comparison with EPC G. Models analysing spatial heterogeneity show significant spatial variation with negligible or negative effects in the largest urban areas, but strong positive effects in rural areas. Temporal analysis indicates that energy price shocks, such as in 2023, lead to stronger capitalisation of energy efficiency.

Presenting Author Biography

Kryštof Veřtát is an incoming PhD student at the Institute of Economic Studies, Faculty of Social Sciences, Charles University, and a junior researcher at the Environment Centre, Charles University. His work focuses on the capitalisation of energy efficiency and other environmental amenities into residential property prices, using hedonic pricing models and spatial econometric methods.