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# Exploring the spatial and temporal determinants of gas central heating adoption

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## Abstract

In order to better understand the potential for both policy and technological improvements to aid carbon abatement, long-term historical information on the time-path of transition from more traditional to cleaner fuels is useful. This is a relatively understudied element of the fuel switching literature in both developed and emerging economies. This research adds to this literature by examining the adoption time-path of network gas as a heating fuel. We merge a unique dataset on gas network roll-out over time, with other geo-coded data and employ an instrumental variables technique in order to simultaneously model supply and demand. Results indicate a non-linear relationship between the proportion of households using gas as their primary means of central heating and the length of time the network has been in place in each area. Proximity to the gas network, peat bogs, and areas which have banned the consumption of bituminous coal also affect gas connections. Variations in socioeconomic and dwelling characteristics at area level can also help explain connections to the gas network. A better understanding of this variation is crucial in designing targeted policies and can aid network expansion decisions.

**Keywords:** Residential fuel choice; Spatial economics; Instrumental variables estimation

**JEL Classification:** Q40; C31; C36

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