Nazmiye Balta-Ozkan Paper abstract:

Urban economics and energy use: from pounds to electrons

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Abstract:

Agglomeration economies are the driving force for the concentration of a large number of firms in spatial proximity to each other. These can include shopping centres in city centres whereby transaction costs of consumers are reduced significantly by being able to visit a larger number of stores than otherwise. It is highlighted that natural advantages, such as the availability of renewable resources, might also lead to a concentration of firms. Agglomeration economies therefore have two implications for energy networks: on the demand side, the concentration of firms operating in similar sectors might generate similar types of energy demand patterns. Similarly on the supply side, the availability of onshore or offshore wind resources might lead to congestion at transmission network level. Yet, the relationship between agglomeration economies (pounds) and power grids (electrons) are poorly understood. Some of the unanswered questions include: at what level of economic concentration do the marginal costs of energy production outweigh the marginal benefits of agglomeration? The aim of this paper is to develop insights on how land use models can be blended with energy network models to provide a better understanding of urban energy economies. The paper will draw insights from energy studies and urban and regional planning literatures to develop a better understanding of these relationships.

Keywords: Urban economy, agglomeration, urban energy, network congestion.

JEL: O3, O4, R1