

Polycentric Access to Employment with Non-Monotonic Distance Effects

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A central result of the standard urban economic model of Alonso (1964) and Muth (1969) is that the urban land rent gradient will be negative – house prices will decline with distance from the central business district (CBD). This result has proved robust to various extensions of the standard theoretical model – including the addition of multiple employment nodes, for example. Empirically, however, the result has proved problematic – various studies find that coefficients on distance to CBDs are positive and/or not significant. This paper argues that the disjoint between theory and empirics may be due to a non-monotonic relationship between land prices and access to employment. The proposed non-monotonic effect arises from the negative externalities associated with proximity to centres of production. While a similar hypothesis has been explored in a simple CBD setting (e.g. Li and Brown 1980) it has not been considered in a polycentric model; nor has it been explored empirically using gravity-based access measures with robust spatial econometric estimation. The goal of this paper is to address both these shortcomings.