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Urban spatial structure, transport-related emissions and welfare *

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Abstract

In this paper, we study the effects of urban design on pollution and welfare. We build a theoretical model of residential choices with pollution externalities arising from commuting, where the size of the central business district (CBD) and the demand for housing are endogenous. We show that a polycentric city is desirable from welfare and ecological perspective, provided that travel speed and/or the number of roads directly connected with the CBD are sufficiently high. The spatial extension of cities remains the critical variable to curb transport-related urban pollution.

Keywords: Urban form; Housing; Travel speed; Carbon emissions; Welfare.

JEL Classification: Q53; R14; R21

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