

The Built Environment and Motor Vehicle Ownership and Use: Evidence from Santiago de Chile

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Abstract

This paper examines the relationships between the built environment—both ‘neighborhood’ design characteristics and relative location—and motor vehicle ownership and use in a rapidly motorising, developing city context, that of Santiago de Chile. A vehicle choice model suggests that income dominates the household vehicle ownership decision, but also detects a relationship between several built environment characteristics and a household’s likelihood of car ownership. A second model, directly linked to the ownership model to correct for selection bias and endogeneity, suggests a strong relationship with locational characteristics like distance to the central business district and Metro stations. Elasticities of vehicle kilometres travelled (VKT), calculated via the combined models, suggest that income plays the overall largest single role in determining VKT. In combination, however, a range of different design and relative location characteristics also display a relatively strong association with VKT.

1. Introduction

Analyses of the influence of urban development patterns on travel behaviour can be traced back to the very beginnings of modern transport engineering. Boarnet and Crane (2001) suggest that the original ‘predictive’ focus of such analyses—i.e. estimating travel demand and infrastructure requirements based on where land development might occur—evolved to include an increasingly

‘prescriptive’ purpose—i.e. modifying land development patterns explicitly to influence travel demand. In fact, efforts aimed at using urban design and planning to influence travel behaviour can be seen in the original Garden City model of the early 20th century (see, for example, Lee and Ahn, 2003), the mid 20th-century ‘new community’ movement in the US (for example, Morris, 1969) and Dutch

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