

**Transport and Energy Consumption: Does Co-Location of Housing and Workplaces Occur Over Time?**  
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Robin Hickman, Halcrow Group  
David Banister, Transport Studies Unit, Oxford University

**Abstract**

Transport and energy consumption is an increasingly important topic in the light of global warming, sustainability and (even) energy security issues. The role of urban planning in helping to reduce transport energy consumption continues to be underplayed in research, policy and practice.

Current urban planning practice, particularly in suburban areas, tends to increase traffic volumes by dispersing activities and hence facilitates private car travel rather than that by public transport, walking or cycling. This paper examines the impact of time on the urban form and travel relationship and assesses whether housing and workplaces naturally “co-locate” over time, based on research carried out in Surrey, UK. The argument being that workplaces are following residences to the suburbs, hence travel distance reduces over time. This has proved difficult to prove (or disprove) in previous research.

Matched pair household survey analysis is used to overcome problems of attrition, a typical problem found in temporal analysis. The central strategic argument tested is that travel distance in the commute to work reduces over time; however car mode share is likely to increase, hence aggregate energy consumption also increases.

A further important, detailed issue is that although aggregate distance co-location might occur, focusing on the aggregate trend also hides several kurtosis effects: households located at higher densities, closer to major strategic centres, in areas with good public transport accessibility and strong jobs-housing balance are all likely to reduce their commuting travel distance. Other groups are likely to increase their composite transport energy consumption, for example, the higher income cohorts.

Urban planning therefore remains as a critical tool in efforts to reduce energy consumption in the transport sector. A “smart growth” strategy is most likely to help enable a reduction in transport energy reduction, but the success of this requires more than a simple focus on density. A differentiated policy approach is required – including action on a wide range of fronts - if transport sustainability is to be achieved in major new development.

**Contact:**

Robin Hickman  
Halcrow Group  
Vineyard House  
44 Brook Green  
London  
W6 7BY

tel: 0208-233-3555

switchboard: 0207-602-7282

fax: 0207-603-0095

email: [hickmanro@halcrow.com](mailto:hickmanro@halcrow.com)