Chapter 11

Issues Associated with the Analysis of Rural Commuting

Martin Frost
Birkbeck College London, UK

Adam Dennett
University of Leeds, UK

ABSTRACT

It is important to acknowledge that the reliability of the 2001 Census interaction data depends on spatial scale and geographical location. As the spatial scale becomes more refined, small cell adjustment becomes more significant because sets of flows are likely to contain more ones and twos prior to adjustment. Likewise, data for areas such as large towns and cities that have many commuters and migrants will tend to be more reliable than data for rural and sparsely populated areas where flows of commuters and migrants are likely to be relatively small. This chapter is concerned with commuting flows for rural areas and examines the sources of unreliability in the 2001 Census data by considering statistical disclosure controls, the quality of census responses and the implications of table specifications. The chapter also addresses some of the issues associated with analyzing data for rural areas and the anomalies that exist between area classifications defined by the Department for Environment, Food And Rural Affairs (DEFRA) and the Office of National Statistics (ONS).

INTRODUCTION

This chapter considers some of the issues surrounding the effective analysis of rural commuting. Much of the discussion focuses on the use of commuting data taken from the Census of Population – and particularly the Census of 2001. This remains the principal comprehensive source of commuting information within the UK, particularly for small spatial units. While some government surveys, such as the National Travel Survey, collect information on people’s work journeys, their sample size is relatively small and their results cannot be used much below the spatial scale of local authorities. The discussion in this chapter is set within two important policy contexts.

The first is the evolution of rural economies. For several decades employment in the land-based
Issues Associated with the Analysis of Rural Commuting

economy that once dominated many rural areas has been declining, while, at the same time, many towns and villages have been growing rapidly, often linked to in-migration of people employed in a range of service sector activities (for a review of relevant literature, see Winter and Rushbrook, 2003). This has led to increasingly complex patterns of inter-dependence between cities, towns and villages – powered in part by rising levels of personal mobility that allow people more choice in their relative locations of home and work. Simple questions like ‘how important are market towns in comparison with larger cities as a contemporary source of employment for rural residents?’ that are crucial for the development of rural economic development strategies can only be answered through an analysis of commuting patterns.

In many respects, the second context is derived from the first. All rural development policies stress the importance of attempting to reconcile economic development and population growth with environmental sustainability (Office of the Deputy Prime Minister, 2004). The problem here is that rural settlements are an intrinsically less compact way of combining residence and work opportunities for large numbers of people than major towns and cities. At a simple level this is reflected in the fact that commuting journeys are consistently longer for rural residents than they are for people living in larger urban settlements. The environmental implications of this difference are intensified by the fact that the vast majority of rural work journeys are made by car. In general, a key use of commuting data is in investigating the ‘environmental load’ created by population and employment growth in rural areas; a particular use is in identifying what kinds of rural settlement structures provide the least environmentally damaging solution to meeting these challenges.

It should be stressed, however, that although the policy contexts for analysing rural commuting are, in some respects, distinctive, many of the analytical problems and data issues that are raised are shared with equivalent studies of commuting throughout the settlement system. What focuses these issues more sharply in rural areas is that rural settlements are smaller and less dense than cities and metropolitan areas. Consequently, the commuting flows between rural zones tend to be smaller, with a higher proportion of pairs of zones with only a single person moving between them – and thus more exposed to the efforts of the census authorities to ensure individual anonymity. In addition, for rural settlements, a small number of very long commuting journeys can have a greater proportional impact on their commuting profiles than would be the case for a larger town or city. And, finally, the boundaries of small settlements are notoriously difficult to approximate with the areal units used for tabulating census results. For large settlements, problems of approximating an outer boundary with census output areas or wards often have little impact on the aggregate employment, resident and commuting profile for the settlement as a whole. The smaller the settlement becomes the greater are the potential distortions generated by these approximations.

Within these contexts, this chapter focuses on four principal issues. The first involves the consequences of the data disclosure controls used in the release of results from the 2001 Census to ensure that individual travellers could not be identified from the census tables. The second is the issue of the quality of responses made by individuals filling in those parts of the census form that provide the basis for identifying respondent’s work journeys and the mode of travel they used. The third issue is the interaction between the table specifications chosen by the Office of National Statistics (ONS) for the release of commuting data and the problems of approximating settlement boundaries using the standard ‘geographies’ used for the release of the data. Finally, the fourth issue is concerned with issues of analysing and interpreting flow data for rural areas, especially in the context of data constraints and definitions of rural that are static and, in some cases, difficult to interpret.