

Rural Analyses of Worktravel Data



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The importance of work travel analyses for rural policy

- A key source of evidence on the inter-dependencies between towns, villages and dispersed populations in rural areas as the role of a place centred land-based sector declines in relative importance
- A source of evidence for inter-dependencies that cross the traditional 'urban-rural' divide
 - Significant for insights into sustainability that the environmental footprint of these journeys have
 - Significant for analysis of the drivers of productivity growth in rural areas

Four facets of worktravel evidence based on Census records

- The challenge of coding workplace and mode of travel information
- The issue of small cell adjustment of Census counts
- The limitations and implications of table specifications at different areal scales
- The combination of these issues for rural work travel analysis

Workplace coding in the Census (2001)

- All hinges of the Census Form question -
 - ‘What is the address of the place where you work in your main job?’
 - Census Quality Report suggests that ‘Respondent difficulties’ included
 - ‘respondents who have put down a part-time job, people who have more than one occupation and those who were unsure as to which was their main job’
 - ‘Item non-response’ was 7.8% - a few estimated from ‘Method of Travel’ question but 6.4% imputed
 - Coding relies on using an identifiable postcode in the address response

Workplace coding in the Census (2001)

- A little more worrying was that ONS checks on the accuracy of automatic scanning of Census forms (contracted out to Lockheed Martin) showed them to be 86.1% accurate compared with an agreed target of 94.5%
 - Although ONS claim that many were affected by ‘impossible’ postcodes in only the final two characters of the code
- In addition is the problem of households with more than one address

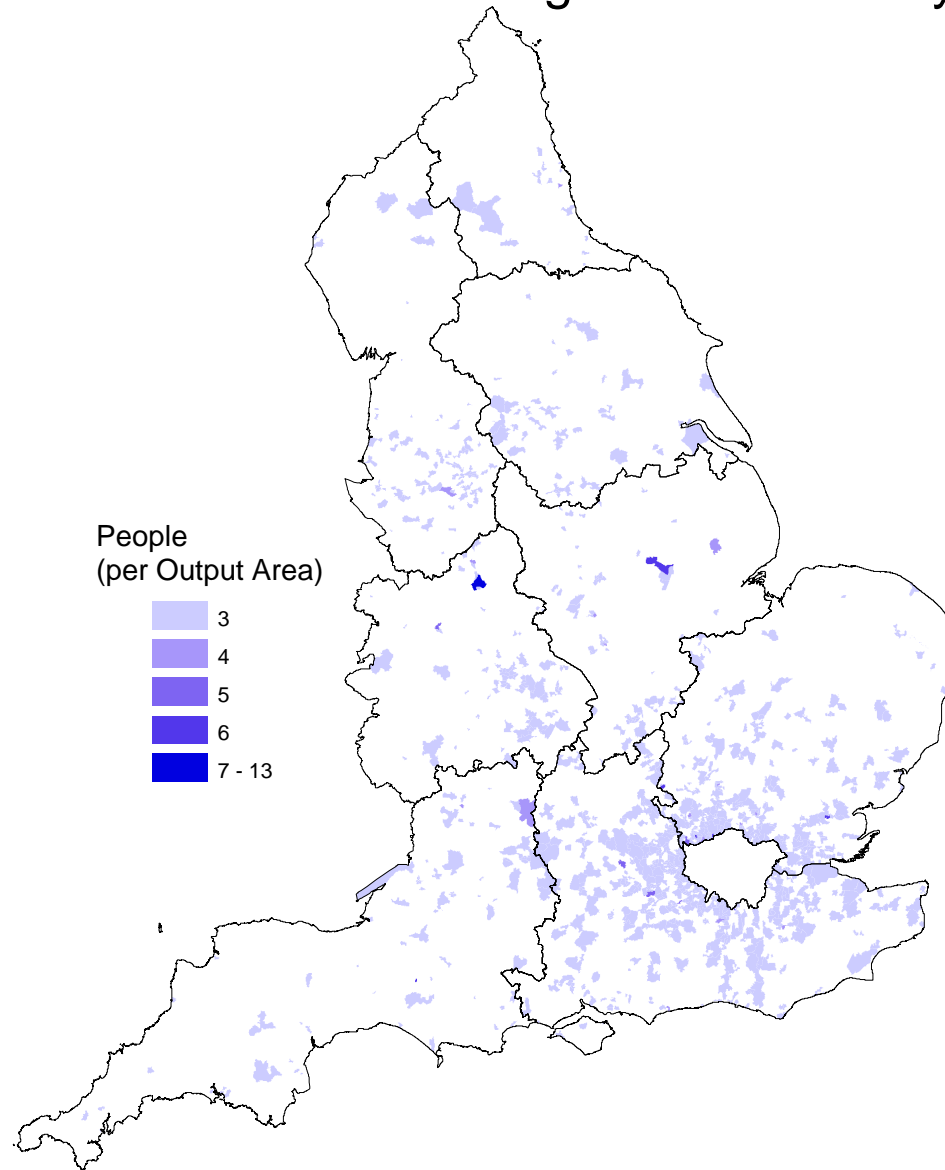
Mode of travel coding in the Census (2001)

- 'Respondent difficulties' included
 - 'the most common was the use of different methods of travel on different days. Other respondents used two methods of travel and ticked more than one. A number of respondents mentioned the method of transport they used in the course of their work.'
- Item non-response was 6.3% with 5.0% ultimately imputed
- Accurate data capture accuracy was high at 99.3% reflecting the 'tick box' nature of the Census Form response

The products of coding difficulties

- The possible sources of error may occur independently but can also interact to produce 'improbable' journeys
- Intuitively, it seems to many experienced users of Census work travel data that these problems have a stronger influence in 2001 than before
 - Some of this may be that people's lives and journeys are becoming more complicated and more dispersed
 - Some may be the result of coding difficulties
- The 'improbable' journeys can have a significant influence of average and median journey distances – particularly for modal groups

Numbers commuting from London by Underground



The issue of small cell adjustment

- Travel to work tables (particularly for small areal units such as Output Areas or Wards) are notoriously sparse
- To maintain anonymity small cell adjustment sets any values of 1 or 2 travellers between any pair of areas to either 0 or 3
- The effect is constrained to be neutral over the total extent of any table – but it may not be neutral for individual origins or destinations
- The positive side is that all previous Censuses measure work travel on a 10% sample of returns

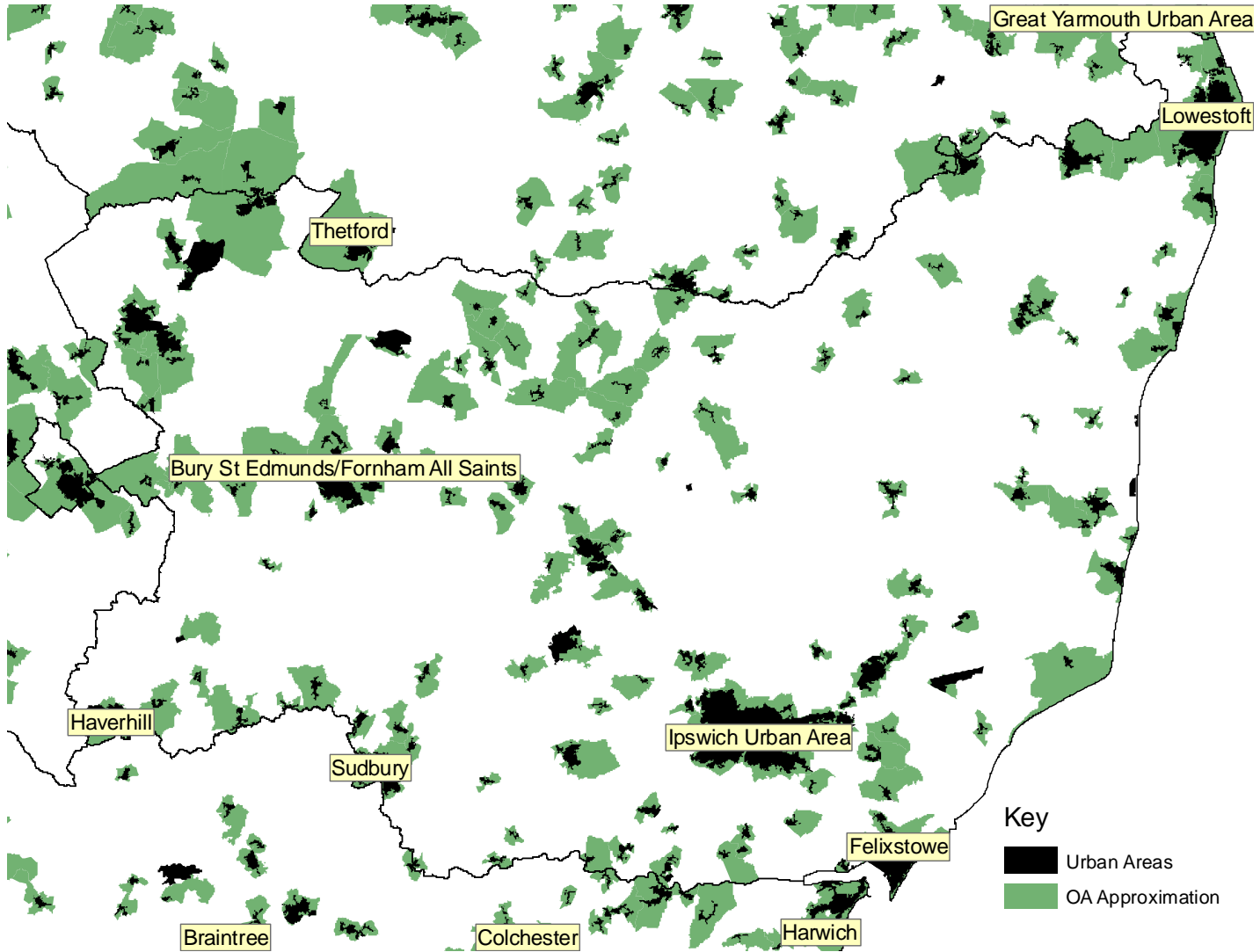
Small cell adjustment – a simple test

- Travel between North Hertfordshire and London estimated by adding up all constituent Output Areas, Wards and treating Local Authority as a whole
- Output Areas 5,735 9.6% of employed residents
- Wards 5,840 9.8%
- Local Authority 5,692 9.7%

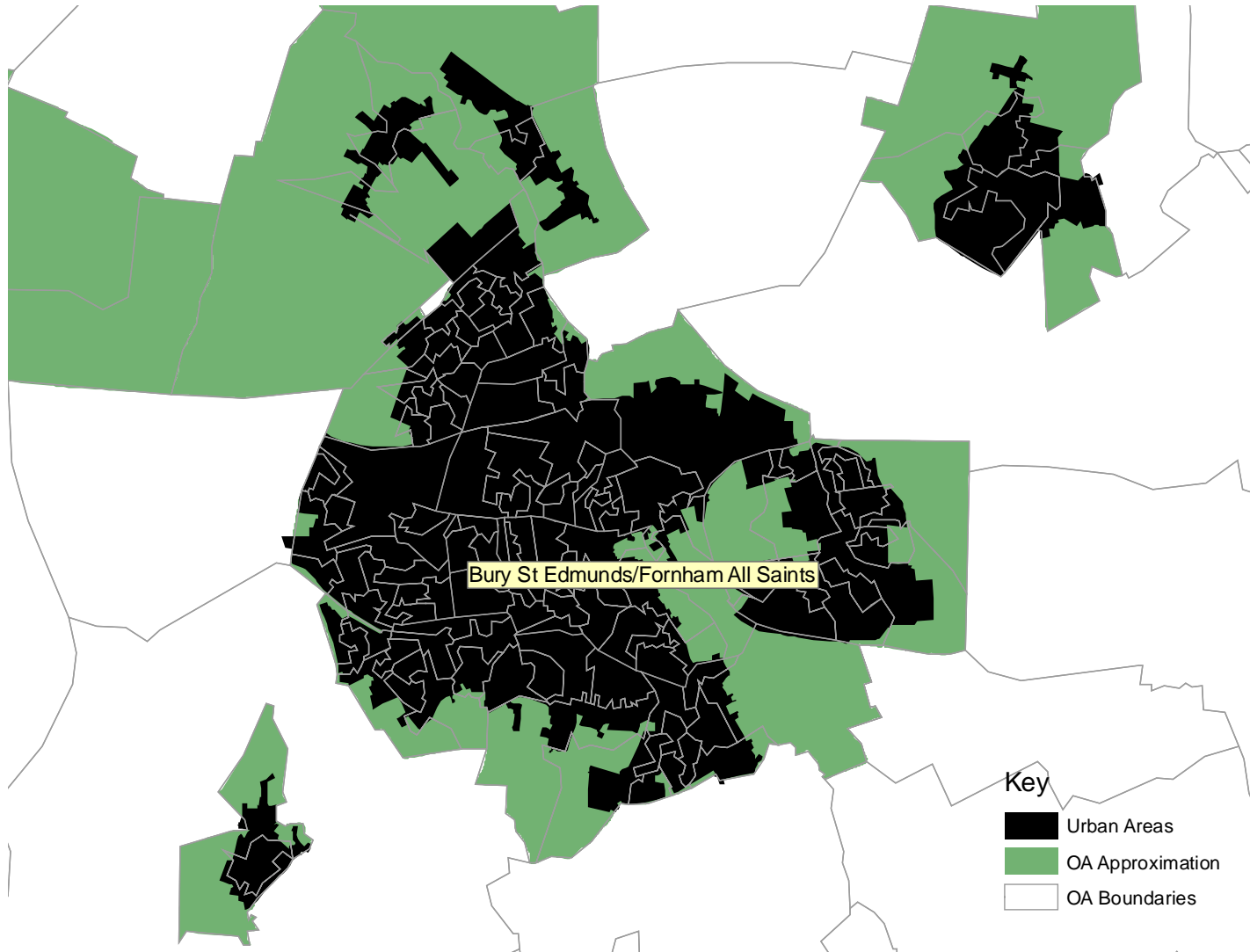
Table specifications

- One big issue for the work travel analysis of relatively small places – there is no male/female breakdown of travellers at the Output Area scale
- We know that there are still significant differences between the average journey lengths of men and women (male journeys tend to be longer across almost all labour market sub-groups)
- Analyses including a gender component are forced to approximate settlements (rather badly) by ward level definitions

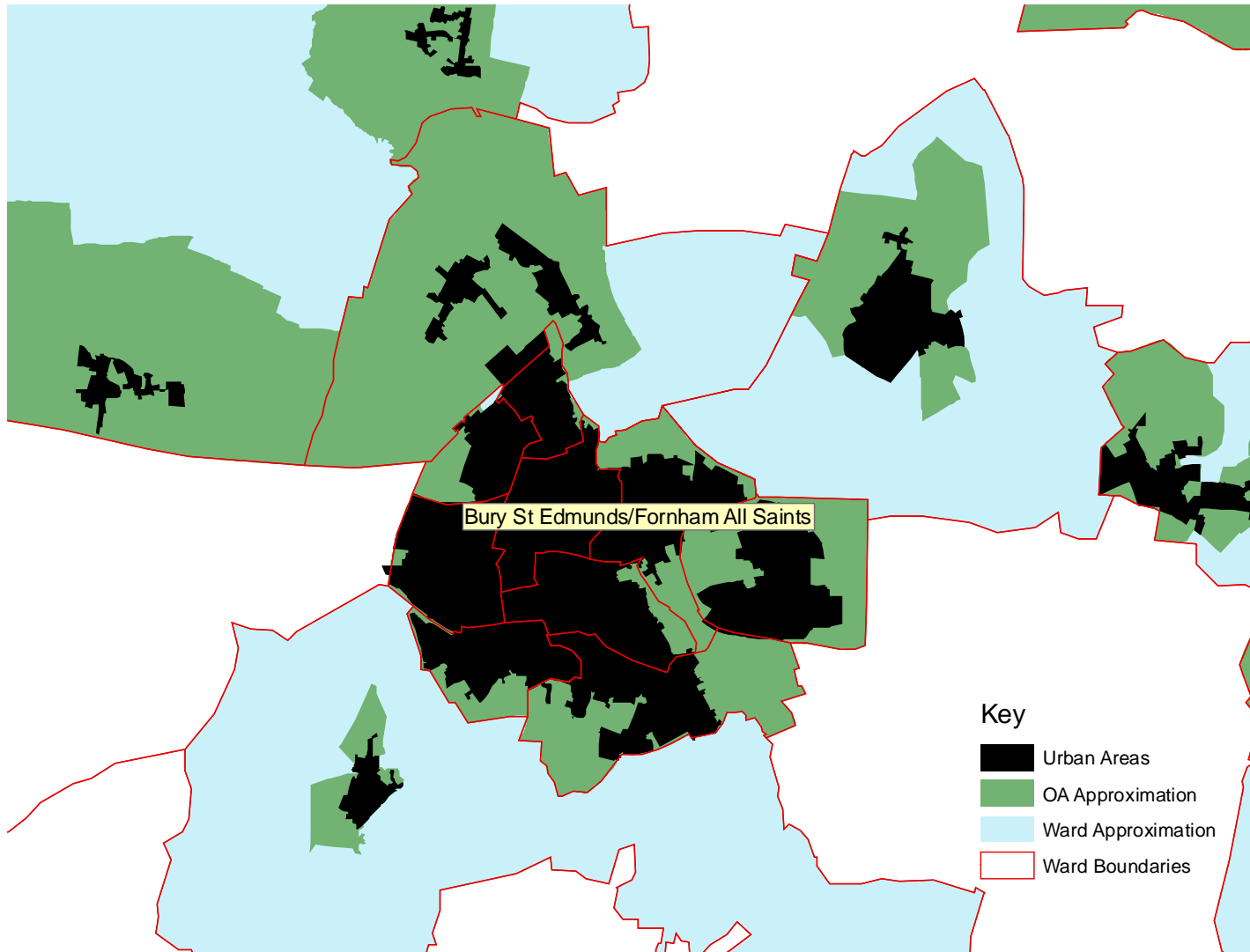
Divergence between settlement boundaries and output area approximations: Suffolk



Divergence between settlement boundaries and output area approximations: Bury St Edmunds



Divergence between settlement boundaries, output area and ward approximations: Bury St Edmunds



The effects on rural analyses of work travel

- Often limited to using ward-level approximations of settlements
 - A particularly severe problem for the current definitions of what is 'rural'
- Difficult to use travel distances to estimate environmental impact of travel as mode groups often have inflated average and median distances
- Difficult to map 'catchment areas' around settlements
 - Partly because travel directions and links are very complex
 - Partly because small cell adjustment can have significant influence of relatively small settlements
- Difficult to focus on the characteristics of individual settlements

But.....strategic views are still viable – the changing pattern of commuting, 1981-2001

	From	LS Town	LS Village	S Town	S Village
To					
Metro Urban		12.0	20.1	60.8	85.3
Large Urban		13.1	20.2	107.4	21.5
Other Urban		17.6	15.4	67.5	71.1
Market Towns		26.6	11.0	62.4	43.4
LS Town		-25.1	15.8	32.9	12.0
LS Village		30.0	-22.9	53.7	18.2
S Town		76.8	63.0	-19.8	9.6
S Village		65.5	40.7	0.0	-26.1