

Migration Research within the Centre for Population Change

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Outline

- **The ESRC Centre for Population Change**
- **Migration research within the Centre**
- **Dynamic population modelling**
- **Example: Combining data to estimate ethnic internal migration over time**

The ESRC Centre for Population Change

- The University of Southampton in collaboration with a consortium of Scottish Universities has recently been awarded £5million by the ESRC to establish the UK's first ESRC funded Research Centre on Population Change.
- Led by Jane Falkingham (Demography), Paul Boyle (Geography), Maria Evandrou (Gerontology) and Sue Heath (Sociology)
- Partners with Office for National Statistics and General Register Office for Scotland
- Aims to improve our understanding of the key drivers and implications of population change within the UK

Main Themes of the Centre

- Dynamics of fertility and family formation
- Household change and living arrangements across the life course
- The demographic and socio-economic implications of national and international migration
- Modelling population growth and enhancing the evidence base for policy

Motivations

- Low fertility: Causes, future prospects and possible policy actions
- The emergence of 'new' forms of intergenerational relationships and living arrangements (e.g., partners living apart, adult children returning home and increasing childlessness)
- Increasing levels of migration both internally and between countries: Intentions and impacts on demographic structures, labour markets and social transfers
- The challenges and opportunities of individual and population ageing

Migration research within the Centre

- Migration, mobility and the labour market
 - *Interregional migration and skills redistribution*
- Migration, mobility and its impact on socio-demographic processes
 - *Non-labour market implications of family migration*
 - *International labour mobility and its impact on family and household formation among East and Central Europeans living in England and Scotland*
 - *Moving on and moving up: The implications of socio-spatial mobility for partnership and fertility*
- Migration and ageing
 - *Rural ageing, migration and care*
 - *Free movement, pension costs: The projected pension outcomes of European Union migrants to Britain in comparative perspective*

Dynamic population modelling

- General and flexible platform for modelling and analysing population change over time
 - *All main components of population change are included (by age and sex) along with various transitions populations may experience throughout their life course (e.g., those between states of residences, employment, marriage or health)*
 - *Disaggregations by subnational areas and characteristics (e.g. ethnicity) are possible*
- Models have been relatively unexplored because of the large amount of input data required (which are not always available over time, particularly between censuses) and complex calculations required to perform the estimations and analyses

Population modelling aims

- Our aim is to create frameworks for
 - *Dealing with the data*
 - *The estimation of the components of change (if inadequate or missing)*
 - *The dynamic modelling of populations*
 - *Demonstrating how these models help us to better understand populations change by focusing on three specific applications related to health and well-being in later life, migration and employment, and household change*

Overall aim of my research

- To provide a framework and methodology for the evaluation and estimation of migration flows in settings with inadequate or missing migration data
 - *Internal migration (censuses, surveys, registers)*
 - *International migration (independent collection)*
- **Emphasis**
 - *Macro-level / categorical*
 - *Gross (instead of net) migration flows*

Migration situation

- The study of migration is often hindered by data availability, quality and consistency
- Harmonization of data collection processes and the data they generate is not even close to being realized
- Our understanding of population change and the evidence for migration policy is therefore limited
- To overcome these obstacles, we need models to (i) harmonise and correct for inadequacies in the available data and (ii) estimate the missing patterns

Example: Combining data to estimate ethnic internal migration over time

- Current ESRC-funded project with Peter W.F. Smith and Corrado Giuliatti
- Census, registration and survey data are combined to estimate annual ODAS flows in England and Wales
 - *At various details (ethnicity, economic activity and education)*
 - *At various spatial scales (regions, counties, area groups)*
 - *Annually from 1991 to 2007*

Application

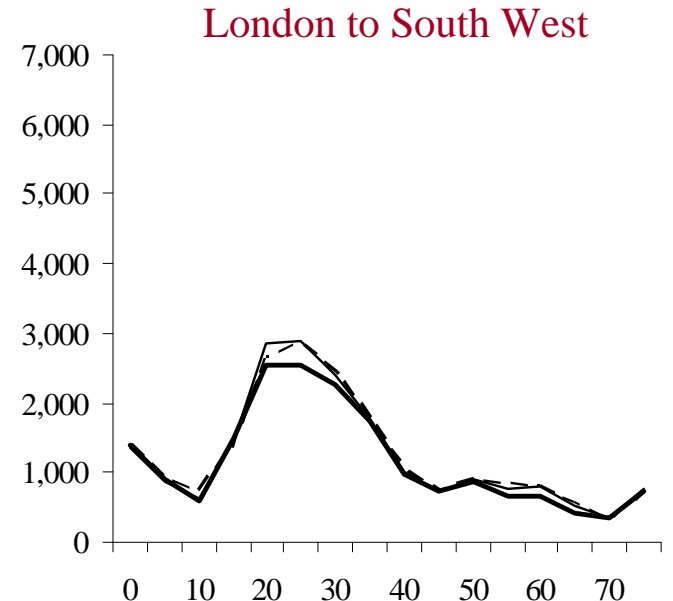
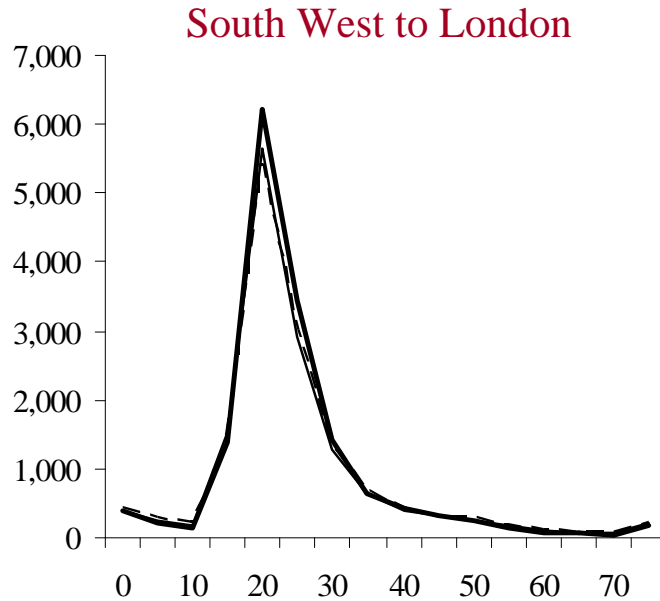
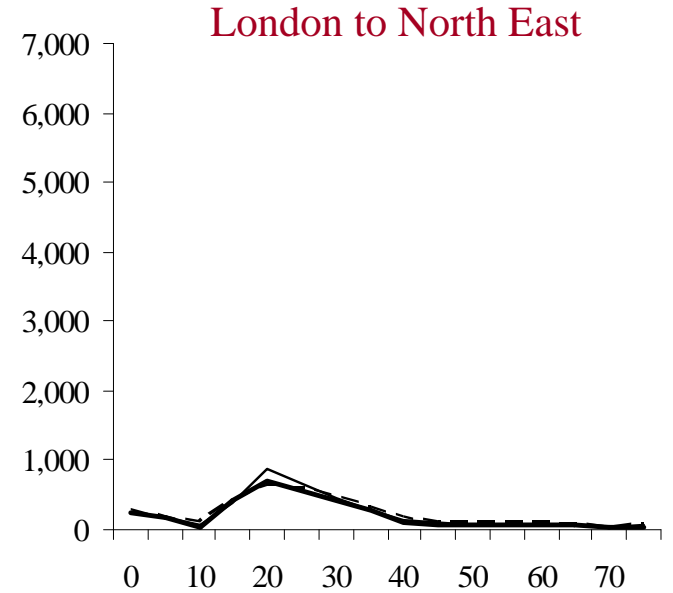
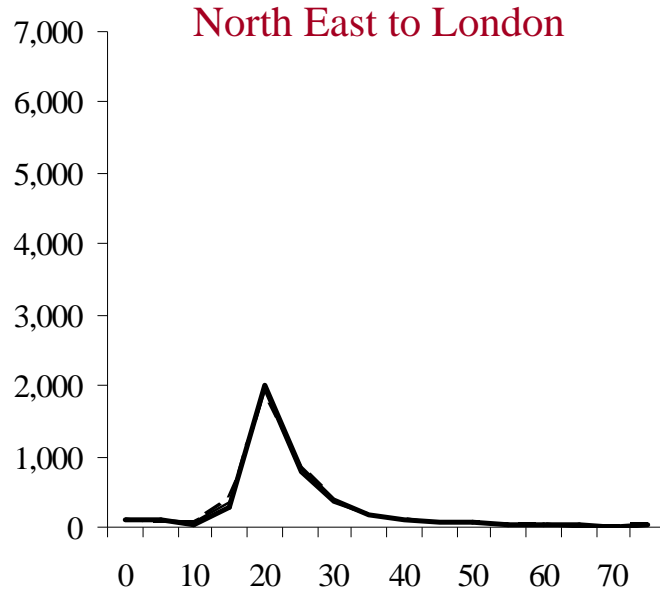
- Wish to estimate *ODASE* table
- *OD*, *OAS* and *DAS* tables are available from NHS registers from 1991 to 2007
- *ODAS* and *ODSE* tables are available from the 1991 and 2001 censuses
- Preliminary modelling of census data suggests [*ODE*, *OA*, *DA*, *AS*] model, so fit

$$\log \mu_{ijxyz}^{ODASE} = \lambda_{ij}^{OD} + \lambda_{ix}^{OA} + \lambda_{jx}^{DA} + \lambda_{xy}^{AS} + \log m_{ijz}^{ODE}$$

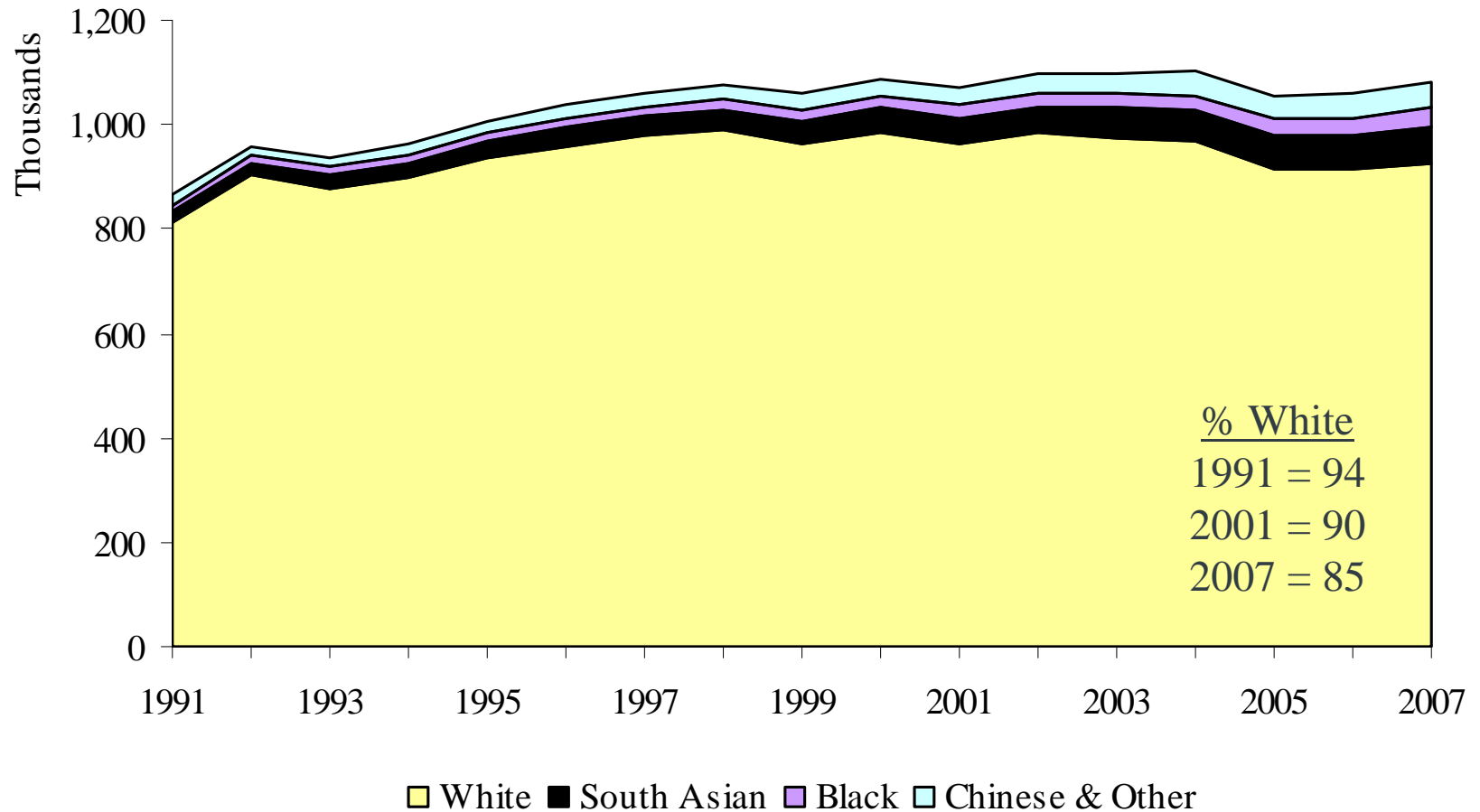
Estimated age patterns of migration between North East and London and South West, 2001

A comparison of two unsaturated log-linear models

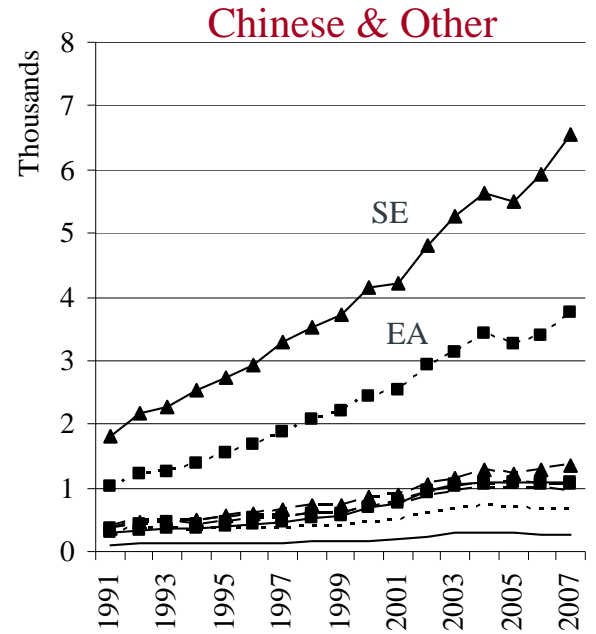
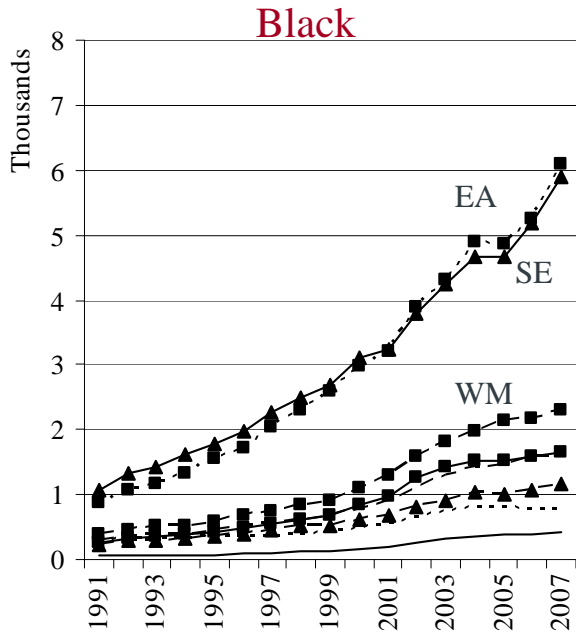
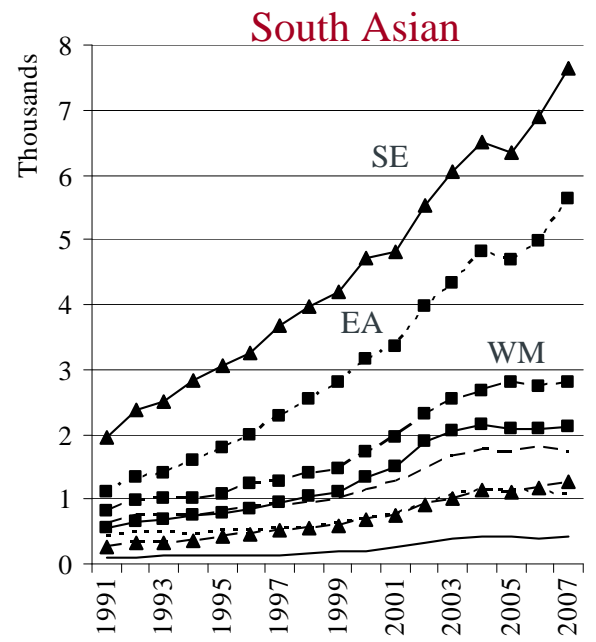
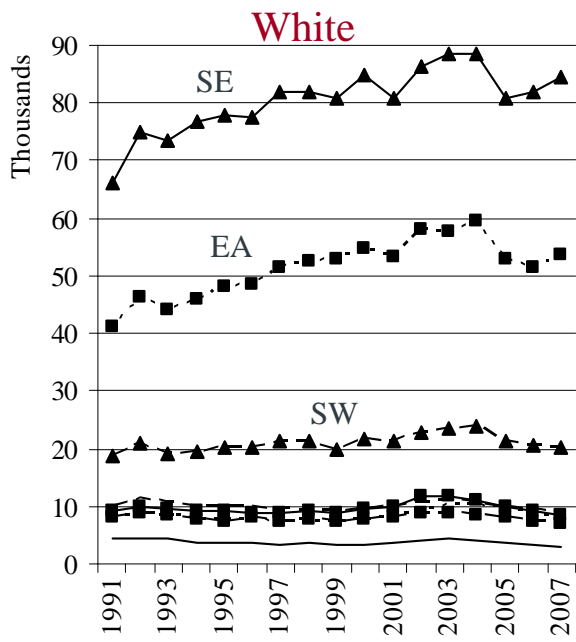
- Observed
- - - OD, OA, DA, AT
- ODA, AT



Estimated levels of interregional migration in England by ethnicity, 1991-2007



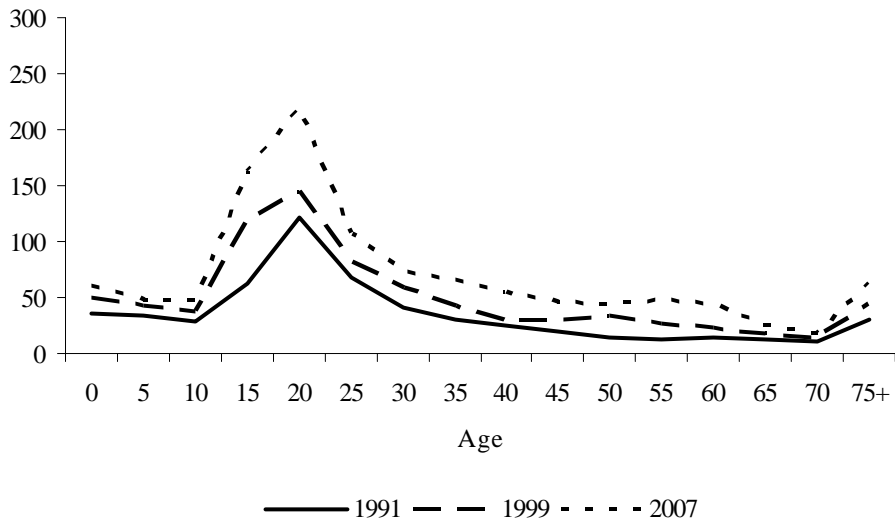
Estimated interregional migration from London by ethnicity, 1991-2007



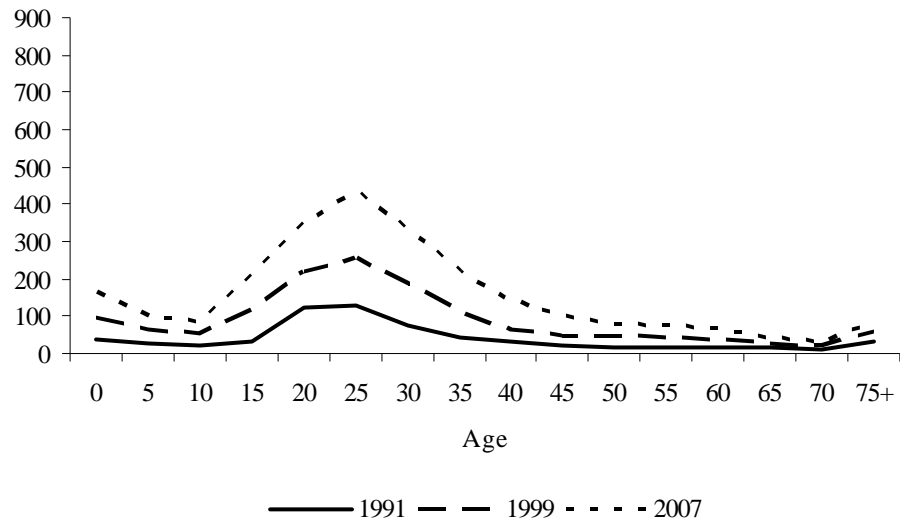
- Destinations
- NE
 - - - YH
 - WM
 - ▲- SE
 - - - NW
 - EM
 - EA
 - ▲- SW

Estimated age-specific migration of female South Asians

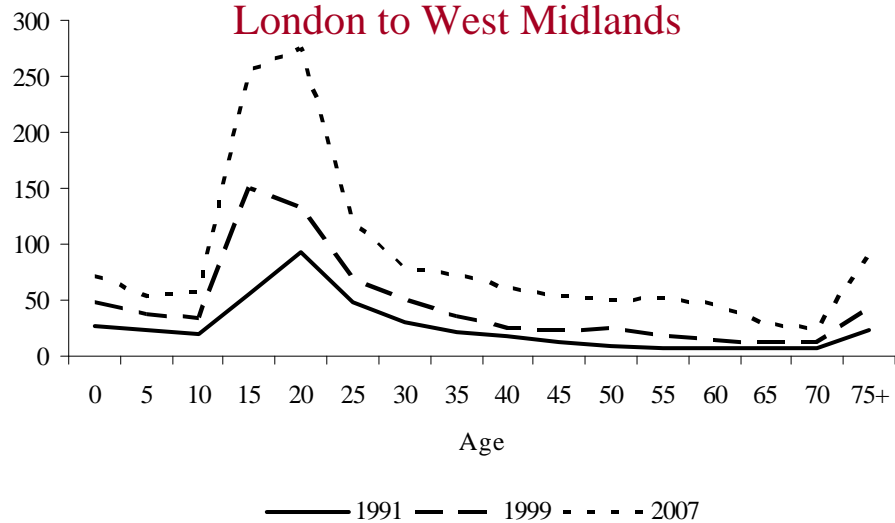
West Midlands to London



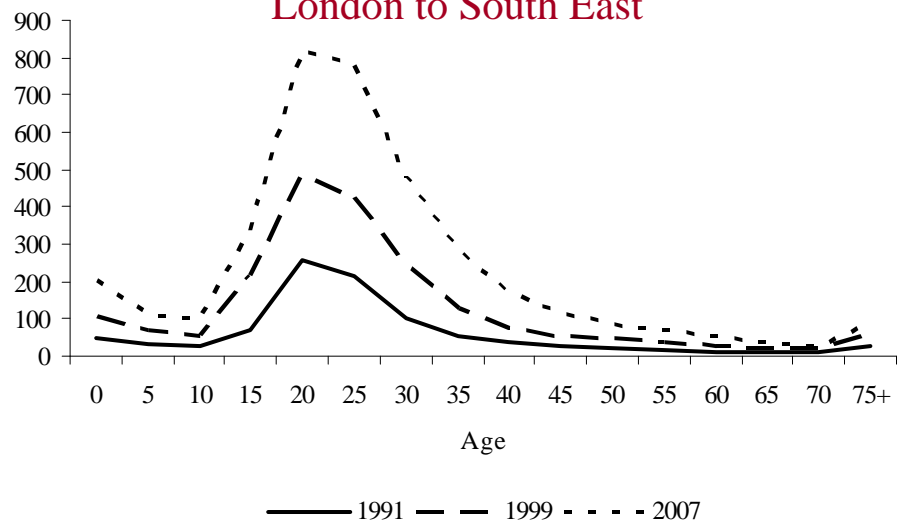
South East to London



London to West Midlands



London to South East



Conclusion

- The ESRC Centre will focus on key issues affecting population change in the UK
- Migration and its relationships with fertility, ageing and household change represent the main themes
- Major emphasis on dynamic (multistate) population modelling in the context of incomplete data (measures of uncertainty included)

