UK Internal Migration by Ethnicity

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Acknowledgement: Evaluation, Revision and Extension of Ethnic Population Projections - NewETHPOP
ESRC, Grant Ref ES/L013878/1, Duration: 1 Jan 2015 to 31 May 2016
Principal Investigator: Philip Rees, Co-Investigators: Pia Wohland, Paul Norman, Nik Lomax
• **Aim**
  – To present ongoing work in estimating internal migration rates by ethnic group for use in an ethnic population projection model, NewETHPOP

• **Outline**
  – What we did in the ETHPOP model
  – What has changed in the NewETHPOP model
  – General scheme for estimating LAD to LAD flows for ethnic groups, 2000-01 to 2013-14
  – Migration inputs for NewETHPOP
  – Quick analysis of 2011 migration by ethnic group
What we did in the ETHPOP model

- Used a commissioned table of LAD to LAD migration by broad ethnic groups and **assumed that member groups had the same migration rates**
- Considered the **LAD to LAD out-migration rates** but for the Minority Ethnic groups these were **too sparse**
- Therefore we used total out-migration and total in-migration in a **bi-regional model** rather than a multi-regional
- Because the data referred to Census migrants we computed migration rates **conditional on survival**
- **Updated** the migration rates after 2000-01 using **a time series** of LAD out-migration rates to 2006-07
- Applied the general **Rogers-Castro model migration schedule** to estimate age-specific rates from overall rates
How can we improve the treatment of internal migration in the NewETHPOP model?

- Census 2011 has provided (as of March 15) much more detailed data via the Detailed Characteristics tables and Origin-Destination statistics so we need make fewer assumptions.
- Lomax (2013) has estimated a full OD matrix for UK LADs, which can be used to estimate a 2000-01 to 2013-14 of all group migration.
- We can combine out-migrants and in-migrant totals by ethnicity with the LAD to LAD matrix, so that we can estimate LAD to LAD matrices for ethnic groups using IPF or optimization methods for 2000-01 and 2010-11 (ODE array).
- This means we can use the more general multi-regional model.
- And we can implement a destination attractiveness factor (cf Statistics Canada’s inter-province model by Patrice Dion) to counter-act the convergence to stability property of applying a constant multi-region rates matrix.
- We can also do this for other years by interpolating the ethnic group marginal O and D rates. This will mean re-visiting the 2001 Census data.
- Our projection model will use a movement (migration events) accounting framework rather than a transition (migrants) framework in line with international practice and the ONS Conceptual Framework for Population and Migration Statistics.
- The 2011 Census provides a classification of migrants (for the UK) by single year of age, so that we can use this with some local age information, rather than the model migration schedule.
- We rescued new-born migrants from oblivion at a late stage in the specification of the SMS and they are reported in one table.
Scheme for estimating LAD to LAD flows by ethnicity from 2000-1 to 2013-14

(cf James Raymer and Corrado Giulietti 2009 Ethnic migration between area groups in England and Wales. Area, 41(4) 435-451)
– Migration inputs for NewETHPOP
  • The LAD to LAD migration flows/rates can be used in a multi-regional population projection model (in ETHPOP we used a bi-regional model). This aligns our model with the England SNPP

– Understanding the spatial structure of ethnic migration
  • Sander et al 2014 have developed a very useful circular plot method for representing flow data, which we will use
  • We will use population cartogram methods as these represent the detail in urban areas where Minority Ethnic groups are concentrated
The global flow of people, 2005-2010
by Nikola Sander, Guy J. Abel & Ramon Bauer
at the Wittgenstein Centre for Demography and Global Human Capital
http://www.global-migration.info/

We will use the same technique for UK regions/home countries with ability to zoom in on LADs
Population Cartogram

Chinese Location Quotients

Rees et al. (2010)
Ethnic classification used in NewETHPOP

<table>
<thead>
<tr>
<th>Code</th>
<th>Groups included</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBI</td>
<td>White: British, Irish, Gypsy, Irish Traveller</td>
</tr>
<tr>
<td>WHO</td>
<td>White: Other White</td>
</tr>
<tr>
<td>MIX</td>
<td>Mixed/Multiple Ethnic Groups</td>
</tr>
<tr>
<td>IND</td>
<td>Asian/Asian British: Indian</td>
</tr>
<tr>
<td>PAK</td>
<td>Asian/Asian British: Pakistani</td>
</tr>
<tr>
<td>BAN</td>
<td>Asian/Asian British: Bangladeshi</td>
</tr>
<tr>
<td>CHI</td>
<td>Asian/Asian British: Chinese</td>
</tr>
<tr>
<td>OAS</td>
<td>Asian/Asian British: Other Asian</td>
</tr>
<tr>
<td>BLA</td>
<td>Black/Black British: African</td>
</tr>
<tr>
<td>BLC</td>
<td>Black/Black British: Caribbean</td>
</tr>
<tr>
<td>OBL</td>
<td>Black/Black British: Other Black</td>
</tr>
<tr>
<td>OTH</td>
<td>Other Ethnic Group</td>
</tr>
</tbody>
</table>

This 12 group classification was adopted after consultation with ONS, NISRA, NRS and WG.

It differs from the ONS recommended 10 harmonized groups because we need to recognise the WHO and MIX groups and BLA, BLC and OBL groups.
Crude Migration Index (Total Migrants/Population)

Crude Migration Index definition

\[ CMI = \left( \frac{M}{P} \right) \times 100 \]

- \( M \) = total area migration
- \( P \) = population at risk

Note: Total migration = \( O + D + W \)
Migration turnover and churn for ethnic groups: all LADs in UK

Turnover index definition

$$TO = \left( \frac{D + O}{P} \right) \times 1,000$$

Churn index definition

$$CH = \left( \frac{D + O + W}{P} \right) \times 1,000$$

D = total in-migrations
O = total out-migrations
W = within area migration
P = population at risk

Note: within LAD migration not used in projection model
Net migration rates for selected ethnic groups

\[ NMR = \left( \frac{D - O}{P} \right) \times 1,000 \]

D = total in-migrations
O = total out-migrations
P = population at risk
Migration driven by the age structure of the population. Migration events occur at different stages in the life course

A model migration schedule for females in the UK, derived from the 2011 Census
• Total NMR masks considerable variation by age
• Population age structure for ethnic groups varies considerably
• As does the migration rate by age
• All groups most active between 16-34 but Chinese group migration far higher
Pakistani and Chinese migration rates by age

- Age 16 to 24 covers both moves in to and out of education
- Age 65 plus covers retirement moves as well as moves made later in life for care or amenity reasons
- There is work to be done to harmonise the Census tables and estimate the migration schedules in more detail
• Concluding remarks
  – We hope this presentation outlines initial thinking in how to make operational the migration input for our new ethnic population projection model
  – Migration is a key component which dictates the size and composition of an area: it is also the most difficult to estimate and project
  – We hope to establish how the ethnic groups are spatially diffusing across the country as part of the UK’s “diversity explosion” (cf Bill Frey 2015 on the USA)
  – There is a huge amount of information to be digested, visualised and disseminated: see www.ethpop.org
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