

Period-cohort migration intensities in England and Wales

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About the ONS LS

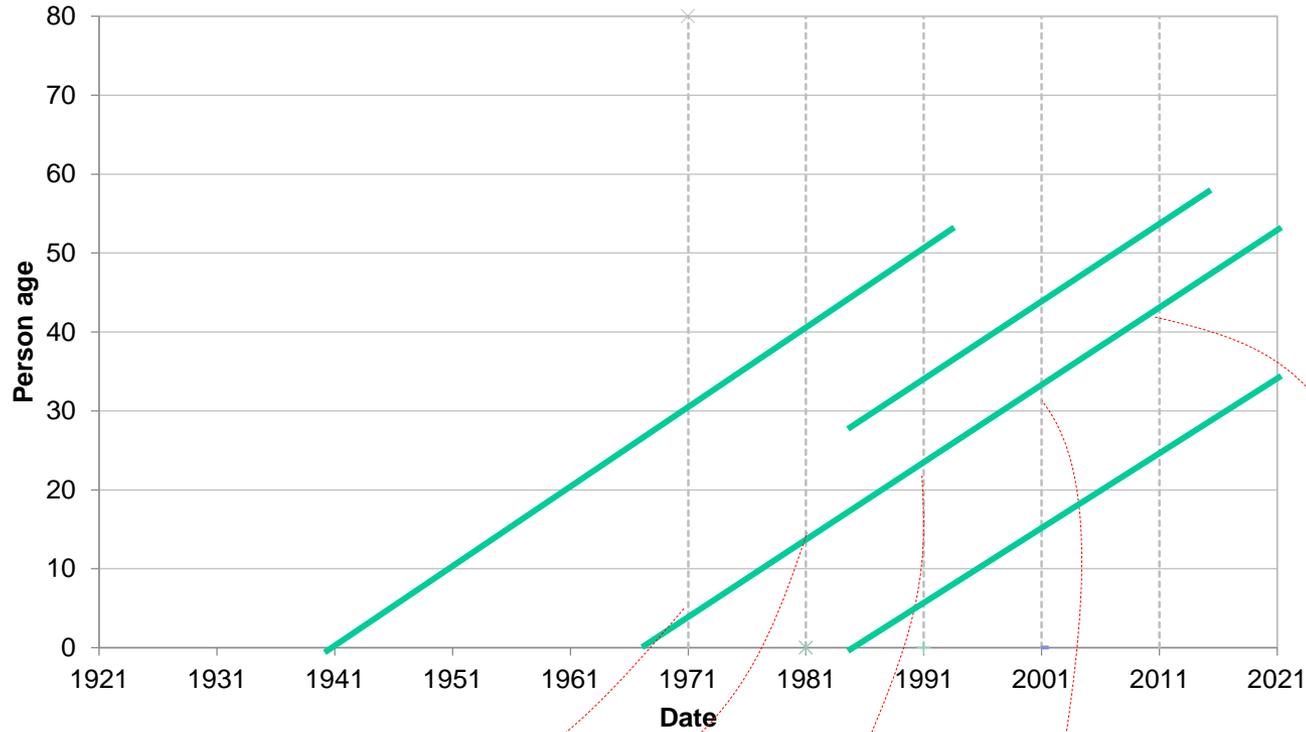
- The LS is based on 4 sample birth dates
 - i.e. 1% of population
 - Sample members do not know that they are in the sample
- The data for England and Wales include both census data (1971-2011) and administrative data
- Access to the data is controlled
- [Further info](#) (slides hidden in original presentation)

Longitudinal data

- There are three longitudinal studies in the UK
- They have different sample sizes and cover different time periods
- They also differ in the range and amount of linked data
- All have secure access arrangements

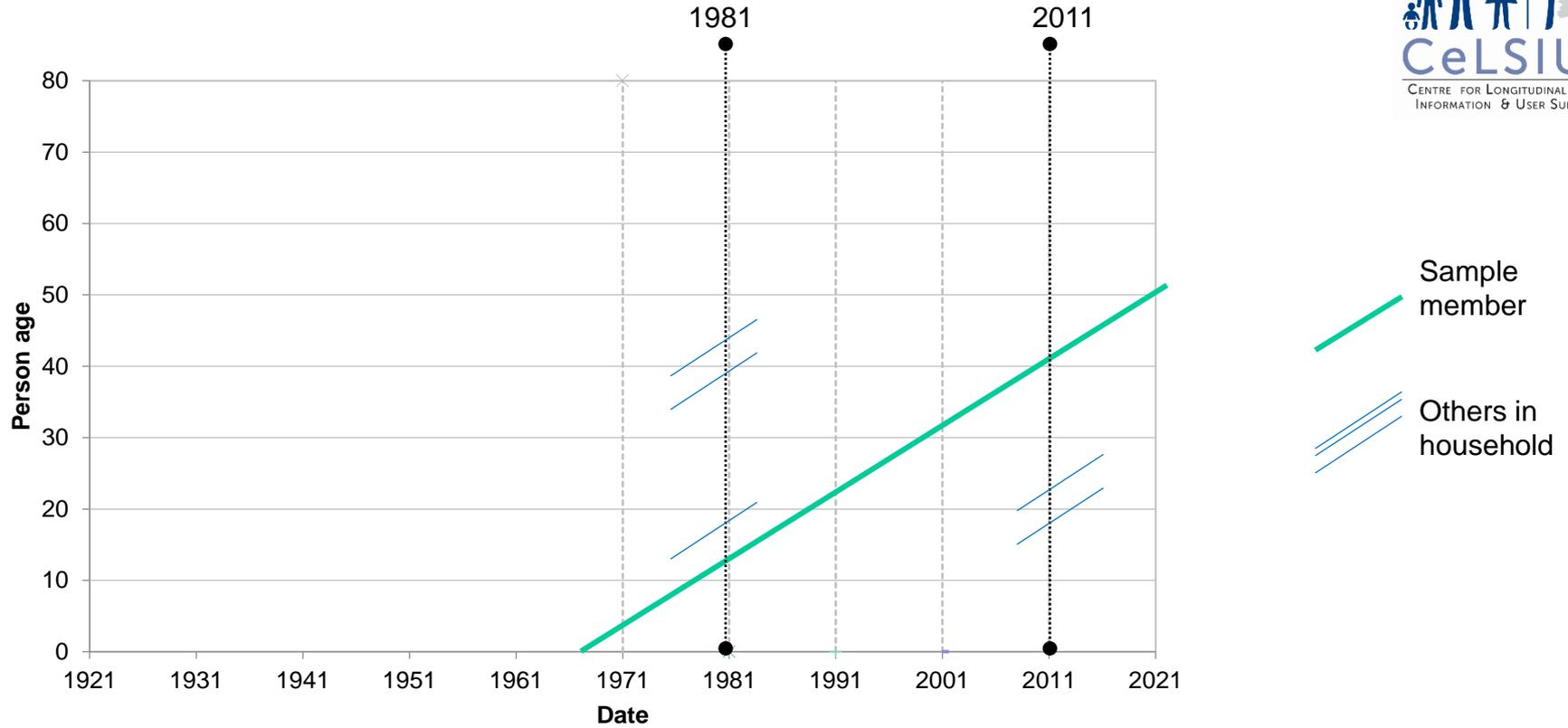
UK Census Longitudinal Studies

| | Sample size | 1971 | 1981 | 1991 | 2001 | 2011 |
|-------------------------------------|-------------|------|------|------|------|------|
| ONS Longitudinal Study | 4/365.25 | ✓ | ✓ | ✓ | ✓ | ✓ |
| Scottish Longitudinal Study | 20/365.25 | | ✓ | ✓ | ✓ | ✓ |
| Northern Ireland Longitudinal Study | 104/365.25 | | | ✓ | ✓ | ✓ |



What is in the LS?

- Similarly to census microdata, all variables apart from individual identifiers
 - More detail than the safeguarded and open microdata files
- Sample members and others in the household



Census Data



From each census

LS sample members

Other household members

Age, sex, marital status, country of birth

Family and household types, communal establishments

Housing: tenure, rooms and amenities

Qualifications, economic activity, occupation, industry and social class

Travel to work and one-year migration

Geographical information

2011 census

Ethnicity (1991-2011)

National identity (2011)

Year of arrival (2011)

Limiting long-term illness (1991-2011) & self-rated health (2001, 2011)

Care-giving (2001, 2011)

Religion (2001, 2011)

Short-term migration (2011)

Main language

LS structure: England & Wales

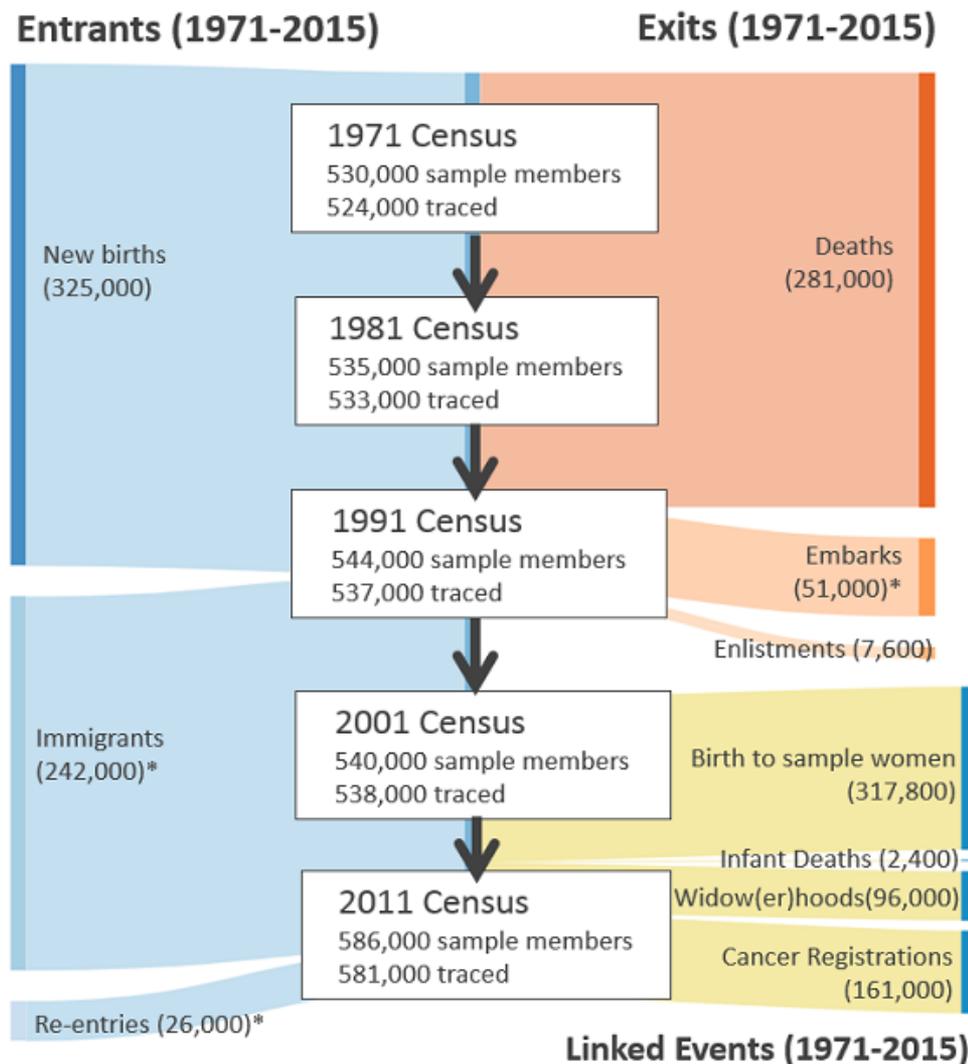


Image source: Office for National Statistics
<https://www.ons.gov.uk/aboutus/whatwedo/paidservices/longitudinalstudies>

Migrants in the LS

- The LS permits two views of internal migration
 - The responses to the regular ‘where were you living a year before the census?’ questions
 - Derived variables comparing addresses/locations at two successive censuses, giving a ten-year migration observation

Previous work

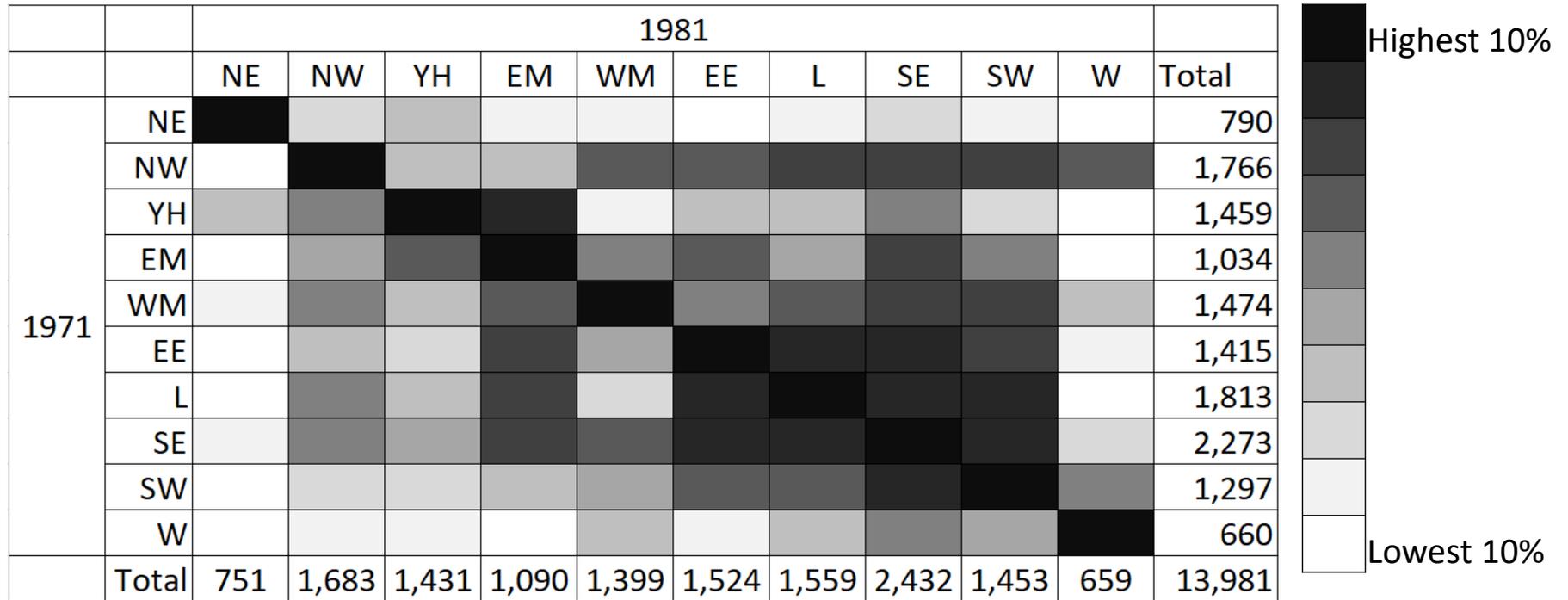
We looked at ‘highly mobile’ LS members

- Present at every census
- Moved (at least once) between each census
- Further, we constrained the sample to LS members aged under 20 in 1971
 - This was to emphasize the utility of the LS: potential to look at parental characteristics

Previous work (2)

- Almost 14k LS members had moved between every census (and were age <20 in 1971)
 - This corresponds to about 1.3m persons in the population
- We looked at inter-regional moves between each census
 - Some region-region flows were small, therefore we reported results as decile membership

'Highly mobile' LS members: 1971-81



Source: ONS Longitudinal Study

Source: ONS Longitudinal Study

| | | 1981 | | | | | | | | | | |
|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| | | NE | NW | YH | EM | WM | EE | L | SE | SW | W | Total |
| 1971 | NE | Black | Grey | 790 |
| | NW | Black | Black | Grey | 1,766 |
| | YH | Black | Black | Black | Grey | 1,459 |
| | EM | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | Grey | 1,034 |
| | WM | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | 1,474 |
| | EE | Black | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | 1,415 |
| | L | Black | 1,813 |
| | SE | Black | 2,273 |
| | SW | Black | 1,297 |
| | W | Black | 660 |
| Total | | 751 | 1,683 | 1,431 | 1,090 | 1,399 | 1,524 | 1,559 | 2,432 | 1,453 | 659 | 13,981 |

| | | 1981 | | | | | | | | | | |
|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| | | NE | NW | YH | EM | WM | EE | L | SE | SW | W | Total |
| 1991 | NE | Black | Grey | 640 |
| | NW | Black | Black | Grey | 1,560 |
| | YH | Black | Black | Black | Grey | 1,379 |
| | EM | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | Grey | 1,095 |
| | WM | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | 1,349 |
| | EE | Black | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | 1,583 |
| | L | Black | 1,674 |
| | SE | Black | 2,523 |
| | SW | Black | 1,515 |
| | W | Black | 662 |
| Total | | 751 | 1,683 | 1,431 | 1,090 | 1,399 | 1,523 | 1,559 | 2,432 | 1,453 | 659 | 13,980 |

| | | 2001 | | | | | | | | | | |
|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| | | NE | NW | YH | EM | WM | EE | L | SE | SW | W | Total |
| 1991 | NE | Black | Grey | 640 |
| | NW | Black | Black | Grey | 1,560 |
| | YH | Black | Black | Black | Grey | 1,378 |
| | EM | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | Grey | 1,095 |
| | WM | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | 1,349 |
| | EE | Black | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | 1,584 |
| | L | Black | 1,675 |
| | SE | Black | 2,523 |
| | SW | Black | 1,515 |
| | W | Black | 662 |
| Total | | 612 | 1,543 | 1,374 | 1,196 | 1,295 | 1,673 | 1,280 | 2,706 | 1,666 | 636 | 13,981 |

| | | 2001 | | | | | | | | | | |
|-------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| | | NE | NW | YH | EM | WM | EE | L | SE | SW | W | Total |
| 2011 | NE | Black | Grey | 635 |
| | NW | Black | Black | Grey | 1,556 |
| | YH | Black | Black | Black | Grey | 1,395 |
| | EM | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | Grey | 1,287 |
| | WM | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | Grey | 1,306 |
| | EE | Black | Black | Black | Black | Black | Black | Grey | Grey | Grey | Grey | 1,718 |
| | L | Black | 794 |
| | SE | Black | 2,692 |
| | SW | Black | 1,869 |
| | W | Black | 730 |
| Total | | 612 | 1,543 | 1,374 | 1,196 | 1,295 | 1,674 | 1,280 | 2,706 | 1,666 | 636 | 13,982 |

Lifetime path of hypothetical migrant
 1971: East Mids
 1981: East Mids
 1991: Yorks & Humbs
 2001: Yorks & Humbs
 2011: London

Updated work

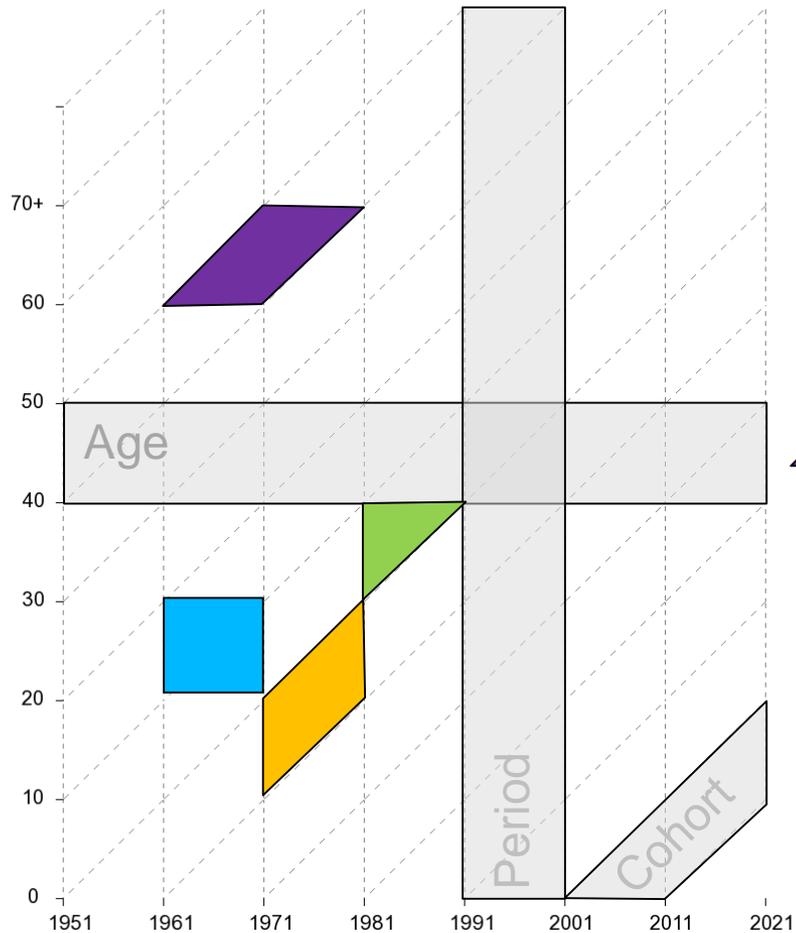
- We know that there are enough migrants to study inter-regional moves
- Are there enough migrants to study moves by age and gender, in order to calculate migration intensities
 - We looked at migrants in all periods for 10-year age groups, and calculated migration intensities
 - We also wanted to represent results visually

The samples

We selected two populations

1. Sample members who were present for at least two successive censuses, so could be observed to have at least one ten-year movement response
2. Sample members who were present at every census (1971, 1981, 1991, 2001, 2011) in the observed period and have a valid (moved/not-moved) indicator for each inter-censal period

Lexis† diagram representation



Period (1971-81) - Cohort (1951-61)

Age (20-30) – Period (1961-71)

Age (60-70) – Cohort (1901-11)

Age (30-40) – Period (1981-91) – Cohort (1941-51)

Smallest reference-able element: a lexel?

† see Vandeschrick (2001) *Demographic Research*

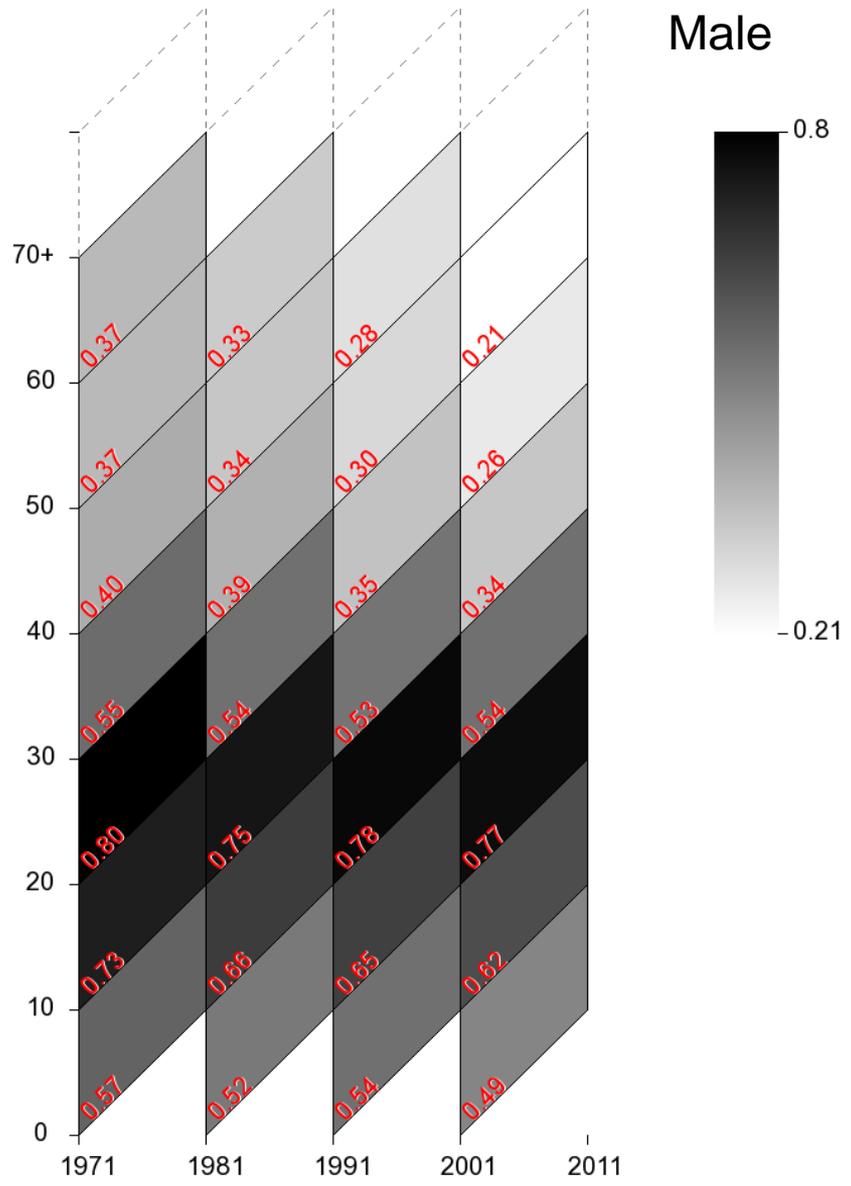
The samples

Sample members who were present for at least two successive censuses

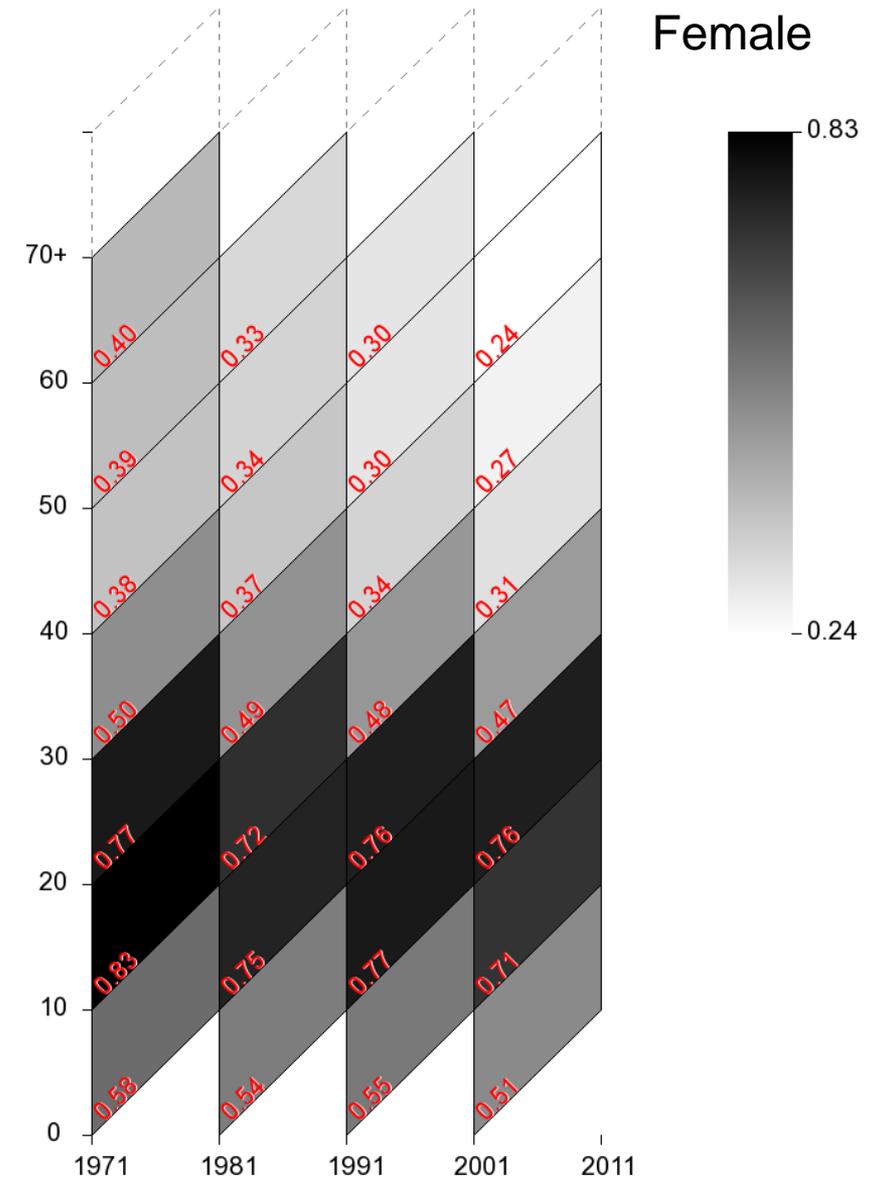
- Variable number of persons in each cell
- Annual total (by gender) ranges from 190k to 220k sample members (present at observed census and previous census)
- Derivation approach for ten-year question has varied from census to census, so values are not *perfectly* comparable

Migration intensities: LS sample members present at successive censuses

Male



Female



[[Data](#)]

Source: ONS Longitudinal Study

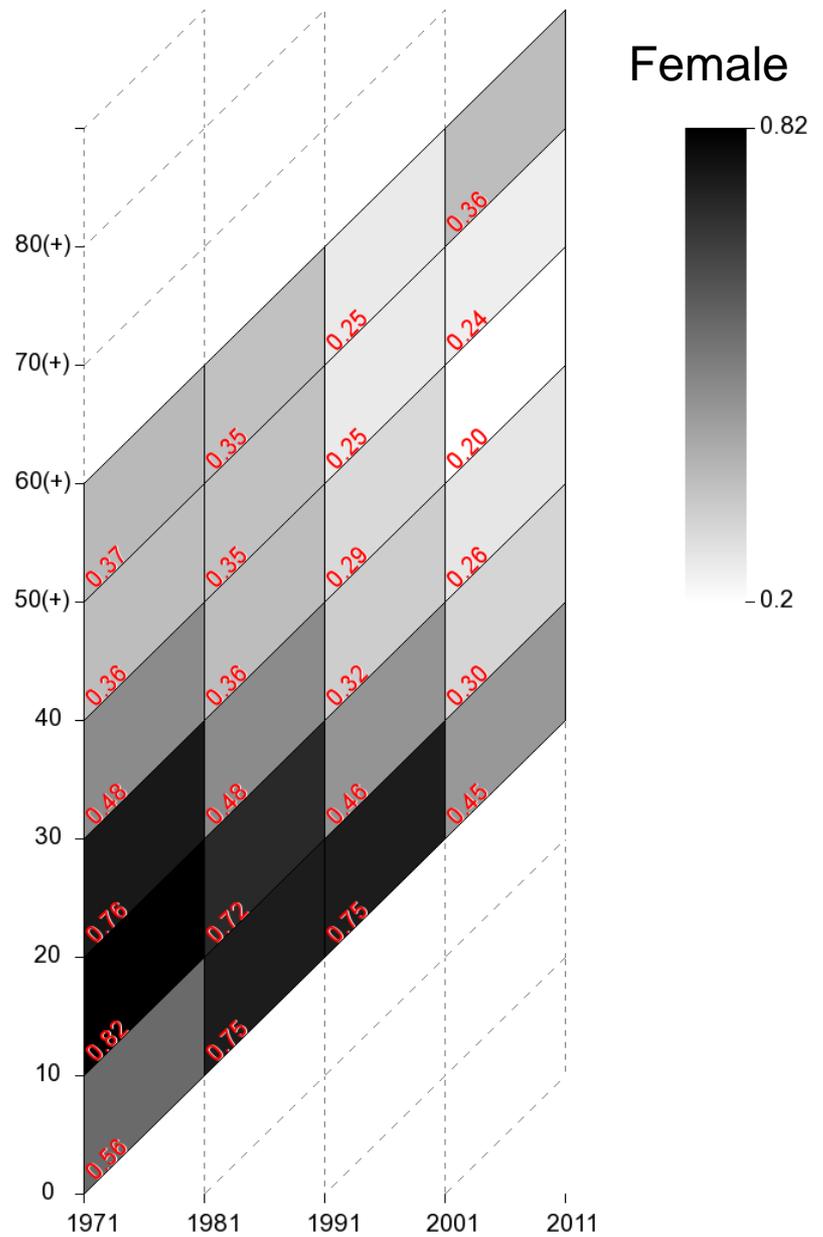
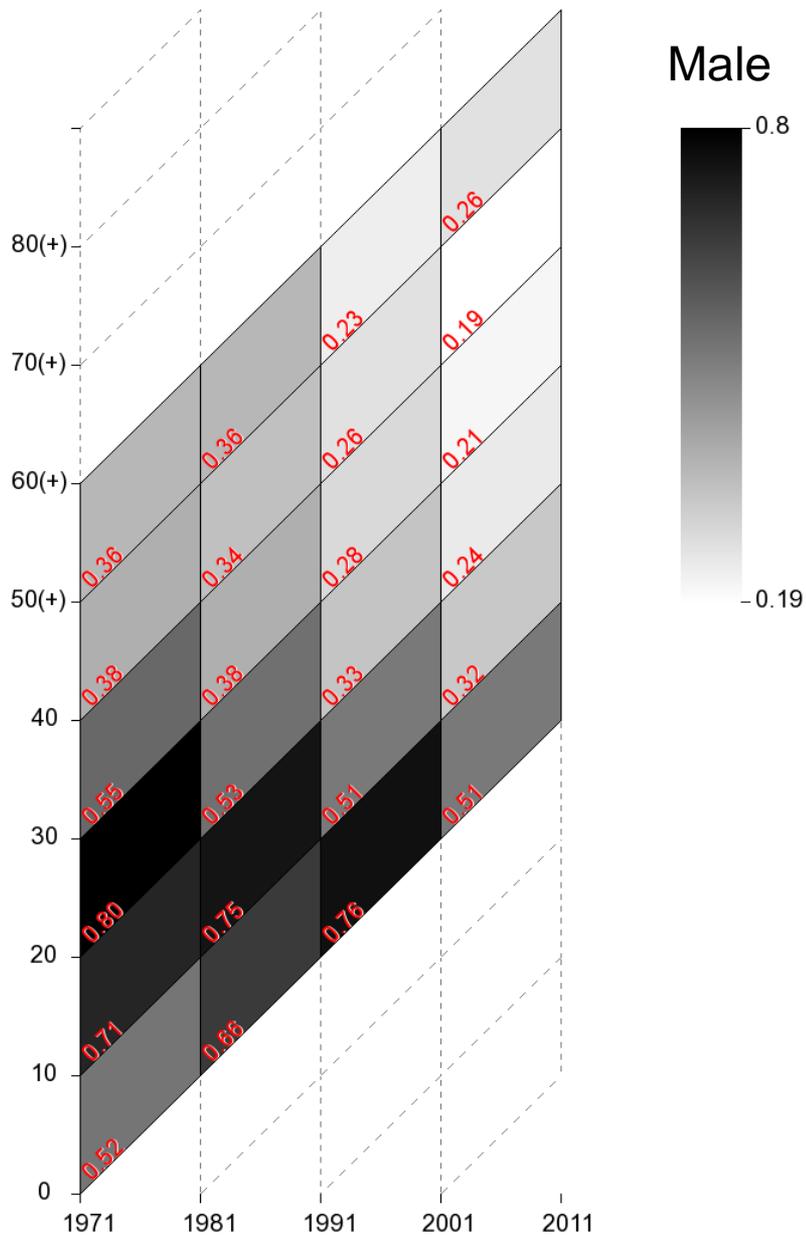
[[Data](#)]

The samples

Sample members present at every census

- All persons must have been present from 1971 census through to 2011 census (limits possible ages)
- 89k male and 105k female sample members
- They must also have a valid moved/not-moved indicator
 - Do not take distance of move into account in this table
 - Sample members may have moved zero, once or many times

Migration intensities: LS sample members present at every census



[[Data](#)]

Source: ONS Longitudinal Study

[[Data](#)]

Data table for previous slide (m)

| create4.d o | TOTAL (throughout) | | 71-81 | | 81-91 | | | 91-01 | | | 2001-11 | | | |
|----------------|--------------------|--------|-----------|-----------|--------|-----------|-----------|-------|-------------|-----------|---------|-------------|-----------|-------|
| | Male | Female | Male | | Male | | Male | | Male | | Male | | | |
| Age in 71 | | | age in 81 | Not moved | Moved | age in 91 | Not moved | Moved | age in 2001 | Not moved | Moved | age in 2011 | Not moved | Moved |
| age 0-9 | 22039 | 25768 | age 10-19 | 10531 | 11508 | age 20-29 | 7413 | 14626 | age 30-39 | 5199 | 16840 | age 40-49 | 10835 | 11204 |
| age 10-19 | 22056 | 24295 | age 20-29 | 6322 | 15734 | age 30-39 | 5442 | 16614 | age 40-49 | 10861 | 11195 | age 50-59 | 14913 | 7143 |
| age 20-29 | 21937 | 24096 | age 30-39 | 4451 | 17486 | age 40-49 | 10413 | 11524 | age 50-59 | 14761 | 7176 | age 60-69 | 16572 | 5365 |
| age 30-39 | 15054 | 17252 | age 40-49 | 6849 | 8205 | age 50-59 | 9274 | 5780 | age 60-69 | 10798 | 4256 | age 70-79 | 11934 | 3120 |
| age 40-49 | 7088 | 10662 | age 50-59 | 4426 | 2662 | age 60-69 | 4656 | 2432 | age 70-79 | 5280 | 1808 | age 80-89 | 5762 | 1326 |
| age 50+ | 978 | 2438 | age 60+ | 630 | 34870+ | | 628 | 350 | age 80+ | 750 | 228 | age 80+ | 723 | 255 |
| | 89152 | 104511 | | | | | | | | | | | | |
| | | | | | 0.52 | | | 0.66 | | | 0.76 | | | 0.51 |
| | | | | | 0.71 | | | 0.75 | | | 0.51 | | | 0.32 |
| | | | | | 0.80 | | | 0.53 | | | 0.33 | | | 0.24 |
| | | | | | 0.55 | | | 0.38 | | | 0.28 | | | 0.21 |
| | | | | | 0.38 | | | 0.34 | | | 0.26 | | | 0.19 |
| | | | | | 0.36 | | | 0.36 | | | 0.23 | | | 0.26 |

Source: ONS Longitudinal Study

Data table for previous slide (f)

| create4.d o | TOTAL (throughout) | | 71-81 | | 81-91 | | 91-01 | | 2001-11 | | | | | |
|----------------|--------------------|--------|-----------|-----------|--------|-----------|-----------|--------|-------------|-----------|--------|-------------|-----------|-------|
| | Male | Female | Female | Female | Female | Female | Female | Female | Female | Female | Female | Female | | |
| Age in 71 | | | age in 81 | Not moved | Moved | age in 91 | Not moved | Moved | age in 2001 | Not moved | Moved | age in 2011 | Not moved | Moved |
| age 0-9 | 22039 | 25768 | age 10-19 | 11404 | 14364 | age 20-29 | 6493 | 19275 | age 30-39 | 6329 | 19439 | age 40-49 | 14112 | 11656 |
| age 10-19 | 22056 | 24295 | age 20-29 | 4253 | 20042 | age 30-39 | 6720 | 17575 | age 40-49 | 13055 | 11240 | age 50-59 | 16968 | 7327 |
| age 20-29 | 21937 | 24096 | age 30-39 | 5800 | 18296 | age 40-49 | 12589 | 11507 | age 50-59 | 16303 | 7793 | age 60-69 | 17882 | 6214 |
| age 30-39 | 15054 | 17252 | age 40-49 | 8954 | 8298 | age 50-59 | 10977 | 6275 | age 60-69 | 12320 | 4932 | age 70-79 | 13766 | 3486 |
| age 40-49 | 7088 | 10662 | age 50-59 | 6860 | 3802 | age 60-69 | 6907 | 3755 | age 70-79 | 7964 | 2698 | age 80-89 | 8098 | 2564 |
| age 50+ | 978 | 2438 | age 60+ | 1538 | 900 | 70+ | 1589 | 849 | age 80+ | 1832 | 606 | age 80+ | 1556 | 882 |
| | 89152 | 104511 | | | | | | | | | | | | |
| | | | | | 0.56 | | | 0.75 | | | 0.75 | | | 0.45 |
| | | | | | 0.82 | | | 0.72 | | | 0.46 | | | 0.30 |
| | | | | | 0.76 | | | 0.48 | | | 0.32 | | | 0.26 |
| | | | | | 0.48 | | | 0.36 | | | 0.29 | | | 0.20 |
| | | | | | 0.36 | | | 0.35 | | | 0.25 | | | 0.24 |
| | | | | | 0.37 | | | 0.35 | | | 0.25 | | | 0.36 |

Source: ONS Longitudinal Study

Migration intensities

- Intensities appear to be falling for both men and women, for all ages apart from 20-30 (and perhaps, m30-40)
- Successive cohorts are showing reduced intensities as they pass through the same ages
- The results so far include all moves; it may be beneficial to restrict results to inter-regional moves

Acknowledgement

The permission of the Office for National Statistics to use the Longitudinal Study is gratefully acknowledged, as is the help provided by staff of the Centre for Longitudinal Study Information & User Support (CeLSIUS). CeLSIUS is supported by the ESRC Census of Population Programme (Award Ref: ES/K000365/1). The authors alone are responsible for the interpretation of the data.

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