Methodological issues in ONS Longitudinal Study analysis of mortality and fertility by ethnic group

Bola Akinwale

Aims

- To describe uses of data on mortality/fertility by ethnic group
- To describe results of recent analysis of mortality using the ONS Longitudinal Study (LS)
- To discuss methodological issues associated with analysis of mortality and fertility by ethnic group
- To discuss proposals for dealing with methodological issues

Background

- Data on fertility/mortality by ethnic group are useful for a range of purposes
  - Monitoring race equality (Race Relations Amendment Act, 2000)
  - Population projections by ethnic group
  - Understanding overall social/demographic trends
- Lack of suitable longitudinal data sources for analysis by ethnic group
  - Adequate sample sizes
  - Sufficient follow-up
  - Ethnic group information

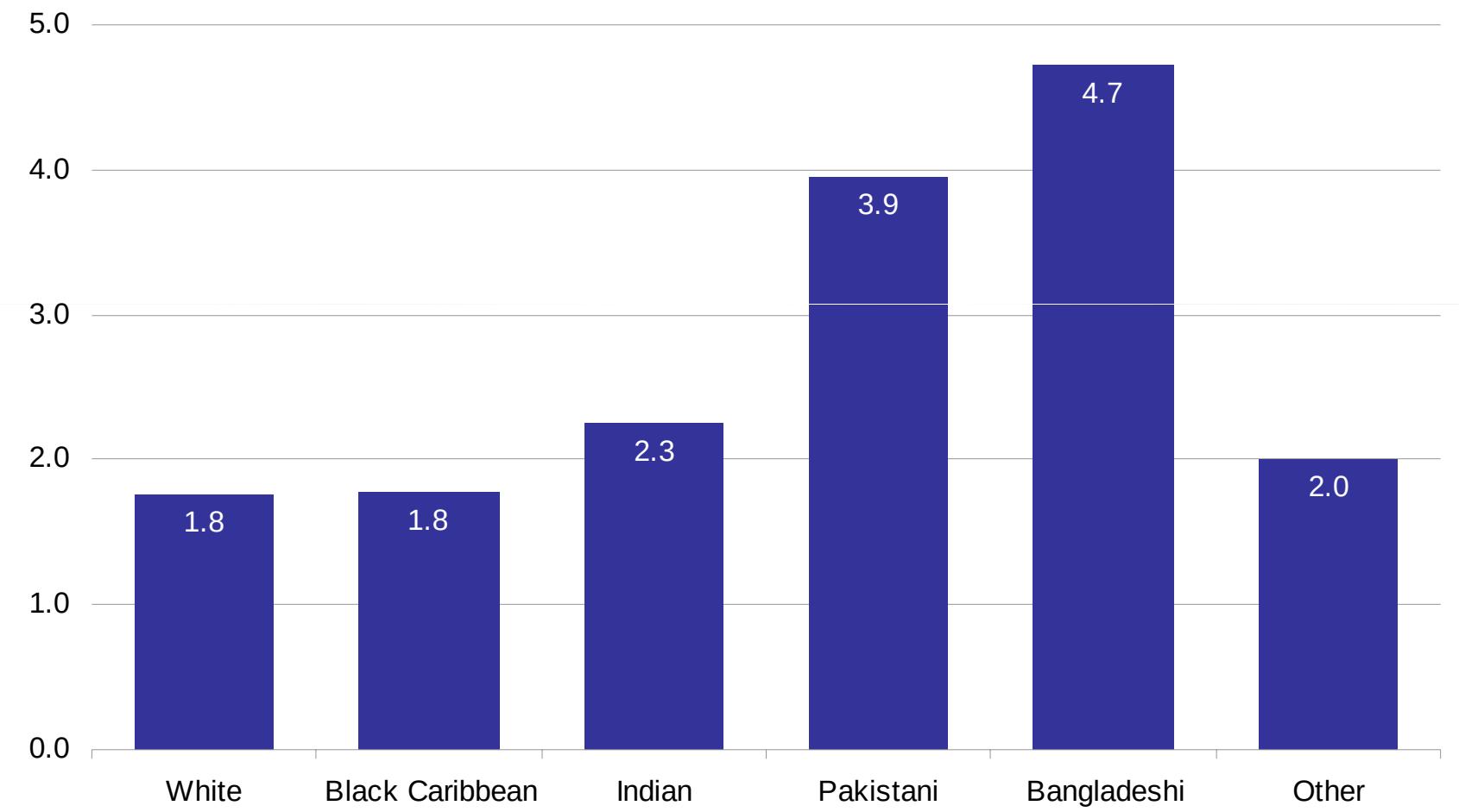
Why use the LS?

- Ethnic group collected for the first time at the 1991 Census (not collected at birth/death registration)
- Past studies of mortality have used country of birth as a proxy for ethnic group (restricted to 1st generation migrants)
- Past studies of fertility have used cross-sectional sources e.g. Census, LFS, GHS (indirect measurement of births)
- Prospective analysis is possible using the LS: information on entries & exits mean that the LS remains largely representative over time
- Cohort analysis possible using the LS

Person years at risk analysis using the LS

- Studies of fertility and mortality based on the LS use person years at risk (PYRs) as the denominator for rates
- PYRs are calculated by adding up the number of days or years that individuals within a defined group are at risk of experiencing an event
- One problem for the accurate PYRs in LS, is identification of the population at risk at each time interval during the period of risk

Total Period Fertility rate by Ethnicity: 1987-99 (Berthoud, 2001, based on LFS)

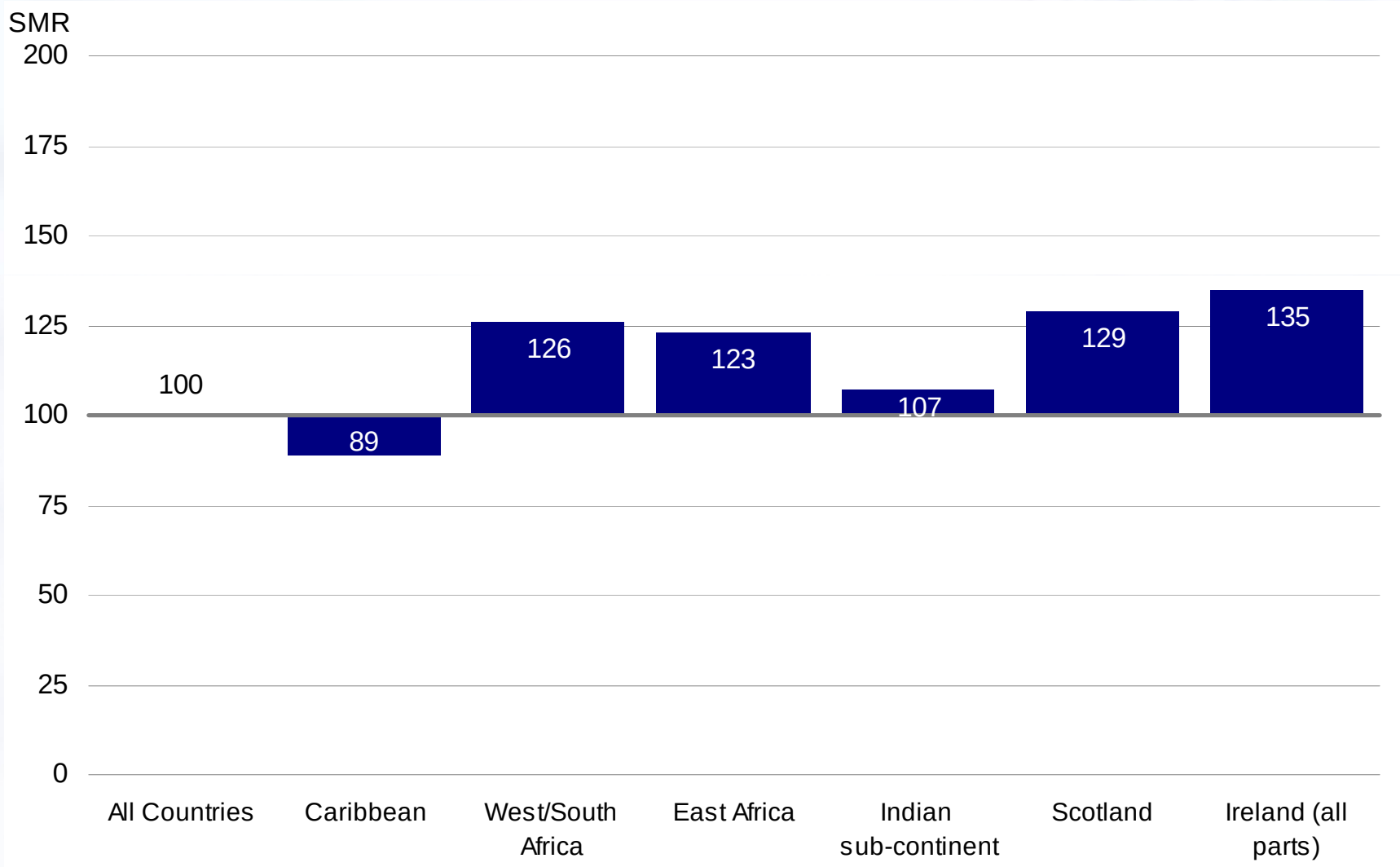


Source: Berthoud (2001), based on LFS

Mortality by ethnic group: methodology to date

- Standardised Mortality Ratios for sample members present and traced in 1991 for period 1991-99
- Updated to include more recent deaths to 2002
- Analysis by country of birth for comparison

Standardised Mortality Ratios by country of birth, men aged 20-64, all causes (Harding, 1997)



Source: Harding, 1997

Methodological problems (I)

- Younger age profile of minority ethnic groups
  - E.g. At 2001 Census 2 per cent of Black African males were over 65 compared with 15 per cent of White males
- Sample sizes for some groups are too small for reliable estimates
  - E.g. There were just 857 Chinese males in the 1991 Census traced LS sample. Just 51 of then (6 per cent) died by 2002
- Loss to follow-up is higher among minority groups and causes overestimation of the population at risk during the period of analysis
  - E.g. 31 per cent of Black Caribbean males were lost to follow-up between 1991 and 2001

Methodological problems (II)

Fertility

- Non-linkage of birth records
- Selective entry of fertile women to the sample
  - Variation by ethnic group?
- Incomplete birth histories among migrants

Mortality

- Lack of deaths data and young ethnic minority population
  - Most recent deaths for 2003

Some solutions to methodological problems

	Advantages	Disadvantages
•*Broader ethnic grouping*	Bigger groups, more reliable	Less detail
•*Exclude loss to follow-up group*	Overcomes overestimation of PYRs	May overcorrect: rates may be too high
•*Adjust PYRs for loss to follow-up*	Sensitive correction	Assumptions may not be true

Proposed alternative methodology for mortality analysis

- Logistic regression model, using death between 1991 and 2003 as outcome (additional years data)
- Distinguish between UK-born and overseas-born among minority ethnic groups
- Include measures of socio-economic status
- Additional years of data are needed for reliable SMRs by 10-group 1991 ethnicity calculation

Questions or comments?