



UNIVERSITY OF LEEDS

This is a repository copy of *Estimating age-specific fertility rates by ethnic group for population projections*.

White Rose Research Online URL for this paper:
<http://eprints.whiterose.ac.uk/100341/>

Version: Published Version

Monograph:

Norman, PD orcid.org/0000-0002-6211-1625 and Dubuc, S (2016) Estimating age-specific fertility rates by ethnic group for population projections. Report.

10.13140/RG.2.1.3740.3767

Reuse

Unless indicated otherwise, fulltext items are protected by copyright with all rights reserved. The copyright exception in section 29 of the Copyright, Designs and Patents Act 1988 allows the making of a single copy solely for the purpose of non-commercial research or private study within the limits of fair dealing. The publisher or other rights-holder may allow further reproduction and re-use of this version - refer to the White Rose Research Online record for this item. Where records identify the publisher as the copyright holder, users can verify any specific terms of use on the publisher's website.

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>

Estimating age-specific fertility rates by ethnic group for population projections

Paul Norman and Sylvie Dubuc

Population projections with an ethnic group dimension can inform the provision of relevant goods and services, such as appropriate housing and language support, and can help set targets for take-up of equal opportunities. Projections by ethnic group can also inform policy debates on international migration and diversity. To understand past population change by ethnic group and to inform projections of future populations we need demographic rates appropriate to each ethnic group. Whilst estimates of ethnic-specific migration and mortality rates have been calculated (Stillwell, et al., 2008; Rees et al., 2009;) here we focus on data sources which can help us understand fertility trends by ethnic group.

Area level data. The Vital Registration system in the UK is a first rate resource which provides us with geographical trends in fertility rates (Tromans et al., 2008). Although the birth counts are very reliable there is no information on ethnicity since this is not recorded on birth certificates. The UK's Census would be expected to be a good source of fertility by ethnic group since the 1991 and 2001 Censuses included questions on ethnicity. Somewhat surprisingly, censuses notoriously undercount infants (Norman et al., 2008). For some reason people seem to forget to include babies on their census forms! If you make assumptions about which ethnic group categorisations are comparable over time in the census you can calculate changing fertility using child to woman ratios. This method tends to return poor estimates for mixed ethnic unions though.

Individual level data. The versatility of microdata allows women of child-bearing age and their dependent child(ren) to be identified. The Census Samples of Anonymised Records (SARs) can be used to indicate fertility levels by ethnic group in 1991 and 2001 but age-specific rates are unsatisfactory in 2001 due to the age-bandings used for data release. The annual Labour Force Survey (LFS) has collected data on ethnicity since 1979 and together with the sophisticated Own-Children method can be used to produce fertility estimates by ethnicity (Berthoud, 2001; Dubuc, 2009). The method allows children to be matched to their mother within household and family units and reverse survived based on their age and the magnification of the sample size to provide reliable 'benchmark' national level ethnic and age-specific fertility rates. Due to changes in ethnic categorisations over time, long-term fertility trends (since the 1960s) are produced for broad ethnic groups (Coleman and Dubuc, 2010), while more recent trends can exploit the more detailed ethnic categorisation introduced in 2001 (Dubuc and Haskey, 2010).

So, we have an armoury of geographical population and microdata survey resources through which to chip away at our need for indicators of fertility by ethnic group. The 'triangulation' of the different

sources (Norman et al., 2010) and the modelling of curves (Williamson & Norman, 2011) can provide estimates of age-specific fertility rates for geographical areas over time (Norman et al., 2014).

References

- Berthoud, R. (2001). Teenage births to ethnic minority women. *Population Trends*, 104, 12–17.
- Coleman D A and Dubuc S (2010) The fertility of ethnic minorities in the UK, 1960s-2006. *Population Studies* 64(1) 19-41
- Dubuc S and Haskey J (2010) Ethnicity and Fertility in the United Kingdom. Chapter 4 in Stillwell, J. and van Ham, M. (eds.) *Ethnicity and Integration. Series: Understanding Population Trends and Processes*. Springer: Dordrecht.
- Dubuc S (2009) Application of the Own-Children Method for estimating fertility by ethnic and religious groups in the UK. *Journal of Population Research* 26: 207-225
- Norman P, Rees P, Wohland P & Boden P (2010) Ethnic group populations: the components for projection, demographic rates and trends. Chapter 14 in Stillwell, J. and van Ham, M. (eds.) *Ethnicity and Integration. Series: Understanding Population Trends and Processes*. Springer: Dordrecht: 289-315
- Norman P, Simpson L and Sabater A (2008) ‘Estimating with Confidence’ and hindsight: new UK small area population estimates for 1991. *Population, Space and Place* 14(5): 449-472
- Norman P, Rees P & Wohland P (2014) The use of a new indirect method to estimate ethnic-group fertility rates for subnational projections for England. *Population Studies: A Journal of Demography*, 68(1): 43-64 DOI: 10.1080/00324728.2013.810300
- Rees P, Wohland P & Norman P (2009) The estimation of mortality for ethnic groups at local scale within the United Kingdom. *Social Science & Medicine* 69: 1592–1607
- Stillwell J, Hussain S & Norman P (2008) The internal migration propensities and net migration patterns of ethnic groups in Britain. *Migration Letters*, 5(2): 135-150
- Tromans N, Natamba E, Jefferies J & Norman P (2008) Have national trends in fertility between 1986 and 2006 occurred evenly across England and Wales? *Population Trends* 133: 7-19
- Williamson L & Norman P (2011) Developing strategies for deriving small population fertility rates. *Journal Population Research* DOI 10.1007/s12546-011-9059-0