



Estimating Parametric Fertility Models with Open Birth Interval Data

Carl P. Schmertmann, Ph.D.
André Junqueira Caetano, M.S.

Date Received: 6 August 1999
Date Published: 22 September 1999

Abstract:

In the past thirty years, more than 100 censuses gathered fertility data through questions on women's date of last birth. The standard "births last year" (BLY) approach for such data truncates timing information, using binary indicators for births in the prior year only. The first author recently proposed consistent, maximum-likelihood estimation approaches using untruncated date of last birth (DLB). In this paper we extend DLB techniques to parametric models. We construct estimators for Coale-Trussell M and m parameters from open interval lengths. We apply the new procedure to Brazilian census data, producing maps and spatial statistics for BLY and DLB m estimates in 723 municipalities in Minas Gerais. DLB estimators are less sensitive to sampling error than BLY estimators. This increased precision leads to clearer spatial patterns of fertility control, and to improved regression.

(NOTE from the editorial office: to best view the HTML of this article, you should be using Windows 95 or higher. Readers using other operating systems may not be able to view all of the embedded symbols, and we suggest they use the PDF version instead.)

Authors' affiliation:

[Carl P. Schmertmann](#), Ph.D. is an Associate Professor of Economics, Center for the Study of Population, Florida State University, Tallahassee, Florida, USA

[André Junqueira Caetano](#), M.S. is a Doctoral Student in Sociology/Demography, University of Texas, Austin, Texas, USA


Table of Contents:

Abstract
1 Introduction
2 Statistical Background
2.1 DLB Data
2.2 Estimating a Simple Fertility Schedule with DLB Data
2.3 Summary Indices for Piecewise-Constant Models
2.4 Poisson Estimation
2.5 Discussion
3 Empirical Examples: Methods and Data
3.1 Poisson Regression for Coale-Trussell Parameters
3.2 Brazilian Census Data
3.3 Simulated Small-Sample Properties of BLY and DLB estimators
4 Improvements in Small-Area Demographic Analysis with DLB Data
4.1 Example 1: Spatial Analysis
4.2 Example 2: Regression Analysis
5 Conclusion
6 Acknowledgments
References

Article:
Estimating Parametric Fertility
Models with Open Birth
Interval Data

[Abstract](#)
[1 Introduction](#)
[2 Statistical Background](#)
[3 Empirical Examples](#)
[4 Small-Area
Demographic Analysis](#)
[5 Conclusions](#)
[6 Acknowledgments](#)
[References](#)
[Figures](#)

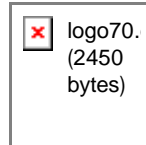
Keywords: fertility, open birth intervals, Coale-Trussell model, Brazil, statistics

To view and/or download the PDF file, click on the icon . Once you are in the PDF file, use your browser back button to return to the online article, or select one of the sections from the article window on the left.

Word count: 6,000



*Estimating Parametric Fertility Models
with Open Birth Interval Data*



Carl P. Schmertmann

André Junqueira Caetano

© 1999 - 2000 Max-Planck-Gesellschaft ISSN 1435-9871

<http://www.demographic-research.org/Volumes/Vol11/5>