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Seminar

Speaker: **Eric Slud**
US Census Bureau, Center for Statistical Research & Methodology and Mathematics Department
University of Maryland
College Park

Title: **Small Area Confidence Bounds on Small Cell Proportions in Survey Populations**

Time: **3:20 – 4:20pm, *Wednesday*, October 17, 2012**

Place: **552 Hill Center**

Abstract

Abstract: Motivated by the problem of `quality filtering' of estimated counts in American Community Survey (ACS) tables, and of reporting small-domain coverage results from the 2010 decennial-census Post-Enumeration Survey (PES), this talk describes methods for placing confidence bounds on estimates of small proportions counts within cells of tables estimated from complex surveys. While Coefficients of Variation are generally used in measuring the quality of estimated counts, they do not make sense for assessing validity of very small or zero counts. The problem is formulated here in terms of (upper) confidence bounds for unknown proportions. We discuss methods of creating confidence bounds from small-area models including synthetic, logistic, beta-binomial, and variance-stabilized (arcsin square root transformed) linear models. The model-based confidence bounds are compared with single-cell bounds derived from arcsin-square-root transformed binomial intervals with survey weights embodied in the "effective sample size". The comparison is illustrated on county-level data about Housing-Unit Erroneous Enumeration status from the 2010 decennial-census (postenumeration) Coverage Measurement Survey.

The primary methods of the talk are "small area estimation", a kind of empirical Bayes model-based prediction relevant to survey problems, with some discussion of parametric-bootstrap methods for interval estimation.

This talk is based on joint work with Aaron Gilary and Jerry Maples of the Census Bureau.

*** Refreshments will be served at @2:50pm in Room 502 Hill Center ***

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