

## Washington Statistical Society Seminar

**Title:** Two (Not-So) Different Approaches for Dealing with Not-Missing-at-Random Unit Nonresponse

**Speaker:** Phillip Kott, PhD, Senior Research Statistician, Research Triangle Institute

**Chair:** Katherine E. Irimata, Mathematical Statistician, National Center for Health Statistics

**Date:** Tuesday, December 12, 2023

**Time:** 3:30 – 4:45 PM EST

### **Abstract:**

Unit nonresponse can cause bias in survey-derived estimates when the probability of unit response is correlated with the variable(s) being estimated. If nonresponse is ignorable when a variable being estimated is modeled - or, equivalently, the unit nonrespondents are missing at random, then traditional methods can be used to remove (asymptotically) the bias from the estimate of the variable's population mean. When unit nonresponse is not ignorable - or, equivalently, unit nonrespondents are not missing at random, then pattern-mixture modeling and SUDAAN's WTADJX procedure provide two different approaches for dealing with unit nonresponse. We will examine those approaches and see that they are more similar than they appear to be even though pattern-mixture modeling focuses on the model for the variable being estimated while WTADJX implicitly models the probability of unit response. Each approach has its advantages and disadvantages. We will then discuss whether these approaches can, in the absence of measurement error, satisfactorily measure the (potential for) bias in more traditional estimates.

### **About the speaker:**

Phil Kott learned survey statistics working for BLS, EIA, NASS, the Census Bureau, and then again at NASS, where he rose to be its Chief Research Statistician. For his statistical contributions to NASS, he has been inducted into its Hall of Fame. Phil is currently retired from federal service and working part time for RTI International. Phil received a PhD in economics from Brown University in 1979. His background in economics exposed him to both the usefulness and folly of assuming simple mathematical models, which has served him well in his 40 plus years as a survey statistician. He is a past President of the WSS, a fellow of the American Statistical Association, and a past chair of its Survey Research Methods Section.

For additional information about this event, please contact Katherine Irimata ([oui4@cdc.gov](mailto:oui4@cdc.gov)), WSS Methodology Program Chair.

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