Revisiting selection and overlap control in surveys  
*(Philip Bell – joint work with Stephen Carlton, ABS)*

Abstract: The Australian Bureau of Statistics conducts a number of surveys of businesses, and uses a permanent random number technique to assign business to different surveys. Key objectives are to select different businesses in different surveys (overlap control) and the same businesses in repeats of a survey, up to some maximum number of times (rotation control).

I will discuss some research that seeks to allow better control over overlap when units move between survey strata due to changes in attributes or due to survey redesign. In this approach, referred to as conditional selection, sample selection in the current survey is performed using probabilities conditional on selection in previous surveys. The new work extends a method due to Tom Karmel, so that it can handle control between large numbers of surveys and with a variety of selection objectives.

In its basic form the method applies Poisson sampling, and does not ensure a fixed sample size. I will discuss approaches to fixing the sample size at a stratum level, or at a higher level. I will also present simulation results demonstrating some properties of the methods.