EXHIBIT E

Handbook of Research Methods in Public Administration

Second Edition

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Many American television viewers have absorbed this argument. Broadcasters frequently report survey results, results based on a random survey of adult Americans. For example, broadcasters report that 63 percent of Americans say employer penalties are the most effective approach to reducing illegal immigration and then go on to say that the margin of error for the survey was ± 3 percent. We, the television viewers, interpret the report as saying between 60 and 66 percent of us believe that employer penalties are the most effective way to reduce illegal immigration. This interpretation is essentially correct. Few viewers could go on to explain the assumptions behind the data, such as respondents to the survey were randomly chosen and that there is another error rate besides the one reported. Still, Bernoulli's description of probability sampling has laid the basis for data collection that is so common in the United States that the average citizen cannot escape its effects. From news reports to telephone market surveys to product labeling, Americans are the recipients of data collected from probability samples.

There are four types of probability samples: simple random sample (SRS), systematic sample, stratified sample, and a cluster sample. If one has a list of the theoretical population to begin with, she can do any of the first three types. If she does not have a list of the theoretical population, then she must consider doing a cluster sample or redefining one's theoretical population so that a list exists. In other words, if one's theoretical population is all households in the city of Fullerton as of October 1, the city can provide her with such a list because it provides water service to all households. Thus, one can do a SRS, stratified sample, or systematic sample. However, if the city bills landlords for water usage for apartment complexes because each apartment does not have its own meter, then no list of the theoretical population is available from the city. If this is true, consult with the central Post Office in the area to see if they can direct one to a firm that has a list of addresses. If still no luck, then a cluster sample is one's only respectable option.

The quality of the sample rests on the quality of one's list of the theoretical population. The list should be up-to-date. The list also should describe the population about which one wants to draw conclusions. If apartment renters are left off the list of households, then the conclusions one draws from the sample of households only represents home owners and home renters. This may not be a problem if apartments make up less than 5 percent of the city's households. The point is one needs to critically evaluate whether a list is available that adequately reflects the theoretical population. The list one uses to draw a sample from is called a sampling frame.

14.3.1 Simple Random Sample

Many research designs and most statistics assume that the data is collected by means of a simple random sampling. Thus, SRS is the ideal type of sample in theory. It may not be the most appropriate one to do in practice. We need to discuss how to do the different samplings before we can expand on this point.

To do a SRS, one must have a sampling frame, which is the list of the theoretical population. Then, take the following steps:

1. Number every unit on the list. It does not matter whether one starts numbering from one or one thousand. But it is easier if one uses the typical numbering system of 1, 2, 3, etc.
2. Obtain a random number chart. They are in the appendixes of most statistics books.* Many popular computer software packages such as Excel, SPSS, and Stata also include a random number generator function. See also the Research Randomizer Web site for a tutorial on how to assign random numbers (Urbaniak and Plaus, 2006).
3. Decide on how to read the chart. One can start anywhere on the chart. Because it is random, there is no pattern to the appearances of the numbers. One can read rows left to right or

* RAND Corporation printed a book of random digits (1955).