

Surveys of Consumers (SoC) Telephone Sample Design (Revised on 11/01/2022)

The method used to select monthly nationally representative samples of persons is generally referred to as random digit dialing (RDD) of cellular telephone numbers. However, any single monthly sample consists of two parts, an RDD sample of cellular telephone subscribers selected in that month and a sample of RDD sample cellular telephone subscribers who completed interviews six and twelve months previously. The former is referred to as the RDD sample, and the latter the re-contact sample.

RDD Cellular Telephone Sample Design

Prior to July 2015, the SoC selected a sample of persons using a dual-frame landline-cellular telephone sample design. By July 2014, the percentage of persons 18 years of age and older in the U.S. with only wireless (cellular) telephone service had risen to 39.1%, while the percent of persons with cellular telephone service, whether with or without landline service, had risen to nearly 91%.¹ To simplify data collection and estimation procedures, the SoC switched, starting July 2015, to sampling from a single cellular telephone frame only. This change decreased the coverage rate in the dual-frame sample of 97.8% to a 91% level using the cellular telephone only frame. The reasoning behind the change was to simplify selection, management, weighting, and estimation by using a single frame sample while anticipating a continuing increasing coverage rate of cellular phone service among U.S. persons 18 years of age and older. The single frame coverage rate is approaching, and will soon equal, the 94-95% coverage rate for landline telephone samples in the 1970s and 1980s when telephone samples became widely used and the potential coverage bias at that coverage rate was considered to be an acceptable risk of using the less expensive telephone mode of data collection.

The SoC selection of cellular telephone numbers is a simple random sample selected from a list of all possible cellular telephone numbers in the 48 coterminous States and the District of Columbia.²

¹ Blumberg SJ, Luke JV. Wireless substitution: Early release of estimates from the National Health Interview Survey, July–December 2013. National Center for Health Statistics. May 2015. Available from: <http://www.cdc.gov/nchs/nhis.htm>.

² Alaska and Hawaii are excluded because of the expense of staffing to call telephone number in distant time zones from the University of Michigan Survey Research Center's telephone facility located in Ann Arbor, Michigan. The facility is located in the Eastern time zone of the U.S. Staff would need available to call only a few numbers from parts

The telephone system in the U.S. uses 10-digit numbers. The first three digits are an area code, the next three a central office code, and the last four a suffix. There are 1,000,000,000 numbers possible in this 10-digit system, but not all possible numbers are assigned to subscribers.

The telephone system is subdivided geographically into regions called area codes, corresponding to the first three digits of the 10-digit number. Area codes are further subdivided into geographic areas called exchanges defined by State authorities. Each exchange has at least one area code/central office code combination assigned to it by a private company authorized to allocate area/central office code combinations to exchanges on behalf of the Federal Communications Commission.

There are 10,000 numbers in an area/central office code combination. These 10,000 numbers are divided into 10 1,000-banks defined by the first digit of the four digit suffix. Thus, the first seven digits of a U.S. telephone number define a 1,000-bank consisting of a sequence of 1,000 consecutive telephone numbers.

Cellular telephone numbers are not assigned to subscribers at random from among the 100,000,000,000 possible numbers. Service providers receive from State-level public service commissions the right to provide cellular subscription to residents in exchanges. Once authorized, the service provider requests a seven-digit code from Telcordia Technologies, Inc. (the current contractor responsible for 1,000-bank assignment to providers). The service provider, after appending a three-digit number to the seven-digit code, assigns a 10-digit number to subscribers with, at the time of assignment, a billing address in the exchange.

U.S. telephone providers do not release publicly the specific cellular telephone numbers assigned to subscribers. A sample of cellular telephone numbers cannot be obtained from a list of subscribers. Instead, a random digit dialing system is used to generate telephone numbers to be called.

A sample provider obtains from Telcordia a list of all possible seven-digit cellular telephone 1,000-banks (SoC uses Market Strategies Group, Inc.). All 1,000 possible suffixes, from 000 to 999, are appended to the seven-digit codes to generate all possible

of Alaska and all of Hawaii as late as 2 or 3 A.M. each day. Given the expected small samples from Alaska and Hawaii in a national sample the size of the SoC, and the relative expense of maintaining staff to call such numbers late in the evening, a deliberate decision was implemented not to generate numbers from Alaska or Hawaii.

10-digit cellular telephone numbers. The sample provider then randomly selects without replacement numbers from this frame of all possible cellular telephone numbers.

Survey Research Center (SRC) staff select a sample of such cellular telephone numbers using Market Strategies systems. The SRC staff check the sample, and then return it to Market Strategies to append activity codes provided by telephone companies for each cellular phone number. SRC staff then select from the sample those numbers with specific activity codes known to be more likely to be subscriber numbers.

These ‘pre-screened’ numbers are then called. Unassigned numbers are discovered only during dialing, but interviews are attempted with subscribers.

RECONTACT Sample

Each month the cellular telephone RDD sample of numbers is supplemented by the set telephone numbers from cellular telephone numbers where an interview was completed six and twelve months before. All completed interview numbers from six and twelve months before are included. The re-contact numbers yield second and third interviews with the person answering the re-contact call. Re-contact interviews are included as part of the monthly sample of interviews used to generate SoC results. Monthly cellular re-contact interviews have a higher likelihood of yielding a contact and a completed interview than the RDD cellular telephone number selected for a given month.