

Statistical Expertise and Capabilities



RTI International has long been a statistical pioneer in both address-based sampling and small area estimation; we are also a market leader in random digit dial survey design and methods. We now add a groundbreaking new methodology to these capabilities— inbound calling surveys, which offers quicker data collection at a lower cost than traditional methods.

Overview

For more than 55 years, RTI has provided our government and private-sector clients with independent, objective, and scientifically rigorous statistical research, design, and technical services. We deliver high-quality results and work products that our clients can trust. We routinely publish our innovative statistical research findings in peer-reviewed journals, enhancing the reach and credibility of our work on behalf of clients.

RTI provides solutions to both common and exceptional study design and implementation issues with our expertise and capabilities in address-based sampling, small area estimation, random digit dial survey designs, and inbound calling surveys. We have the collaboration skills and expertise to apply these tools effectively to your particular data collection or study design problems.

Address-Based Sampling (ABS)

RTI pioneered the use of ABS for surveys. In 2000, we conducted the first published evaluation of mailing addresses for use with an in-person household survey in the United States. The evaluation found that a

sampling frame of mailing addresses provided nearly complete coverage of the Dallas, Texas, metropolitan area at approximately one-tenth the cost of traditional area sampling.

In 2011, the American Association for Public Opinion Research awarded RTI researchers the Warren Mitofsky Innovators Award for our groundbreaking ABS research. More recently, three RTI researchers were selected to serve on the American Association for Public Opinion Research Task Force on ABS, which published its report in 2016. We continually build on this award-winning innovation by enhancing our methodology to improve coverage, efficiency, and quality.

ABS is recognized as a cost-effective sampling frame that offers high coverage of the U.S. household population for in-person, mail, telephone, and multimode surveys. ABS frames rely on residential addresses in the U.S. Postal Service (USPS) computerized delivery sequence file provided by third-party vendors. RTI's deep understanding of the coverage and quality of the USPS file is critical to our ability to use it as a sampling frame for surveys.

RTI increases the utility of our national ABS frame by appending ancillary information from public and private sources. RTI appends geographic and demographic data from public sources like the U.S. Census Bureau and U.S. Bureau of Labor Statistics. In addition, RTI augments our ABS frame with a third-party marketing database. Using this database, RTI can apply address-level demographics to the entire frame, giving us the ability to improve sample efficiency through disproportionate stratification.

Random Digit Dial (RDD) Survey Designs

RDD surveys using both landline and cell phone numbers are a cost-efficient adaptation of tested methods of representing nearly all eligible persons or households in a study's target population. RTI is a leader in designing, fielding, and weighting and analyzing RDD surveys, having conducted many RDD telephone surveys and contributed to cutting-edge RDD methodology in the scientific literature.

Researchers need cost-effective methods for collecting representative data from the general population and targeted subpopulations. As more and more households rely on cell phones exclusively, traditional RDD samples of landline telephone numbers provide less coverage and the potential for increasing bias. RTI conducts studies using sample designs that efficiently incorporate both types of phone numbers to control cost, bias, and variance.

Designs for Inbound Calling Surveys (ICS)

RTI established ICS, an emerging survey sampling methodology. In ICS, individuals who place a call that fails to connect to the intended number are recruited to participate in a survey. These calls are routed to an interactive voice response system that collects their responses. Telecommunications industry experts conservatively estimate that U.S. and Canadian telephone carriers handle more than 150 billion calls a month, 5 to 10 billion of which fail to connect. This new methodology offers an efficient, time-saving, and cost-effective solution for fielding small- to medium-sized surveys for which timeliness, cost, and schedule are driving issues.

Small Area Estimation (SAE)

State and local agencies often face difficulties when designing studies because they lack local, area-specific data pertaining to counties, groups of counties, health service areas, and other administrative units. Most states and local areas do not have the economic resources or infrastructure to collect this volume of data via a direct survey approach. RTI creates and leverages advances in statistics and computing power to offer a viable, affordable approach to producing valid and reliable estimates for small areas.

SAE employs statistical models to link national or state survey outcome variables—such as disease indicators—to local area predictors, including county-level demographic and socioeconomic variables, so that prevalence rates for small areas can be predicted. Relating health status, behavior, and disease prevalence statistics for small areas (like counties) to these demographic and socioeconomic predictors provides a direct calibration of the indicators to the outcomes of interest. SAE methods can be applied to cases in which the number of area-specific sample observations is not large enough to produce reliable direct estimates. The areas may be defined by geographic domains, such as state or county, or by sociodemographic characteristics (e.g., income, race, age, or gender subgroups).

More Information

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