# Analyzing Drop Point Substitution in Address-Based Sampling

2020 Internship Showcase

Kate Mills

NC State

internships@rti.org

# Why Do We Need Address-Based Sampling (ABS)?

○ There are many times when we take a survey to learn about a population.

○ You might remember when you would get calls on your home phone asking for you to participate in a survey.

○ These telephone surveys used to be an efficient way to gain information.

○ Currently, due to the decline of home phones and the use of caller ID, response rates for these surveys have decreased drastically.

# What Is ABS?

o ABS is a method of selecting a sample from an address list representing the U.S. household population.

o RTI International uses a national list of addresses from the U.S. Postal Service's Computerized Delivery Sequence (CDS) file when selecting an ABS ([abs.rti.org](abs.rti.org)).

o There are many different types of addresses in the CDS file, such as city-style addresses, PO Boxes, and drop points.

o Drop points are a special class of addresses that have the potential to cause bias, particularly in mail surveys.

# What Is a Drop Point?

o A drop point is an address serving multiple housing units, making the selection of a unique housing unit difficult.

o For example, if a person rents out their basement to a tenant, there can be two housing units located at the same address.

o This causes problems for survey researchers because they are unable to tell which unit receives the survey information.

o This can introduce a variety of biases to survey estimates.
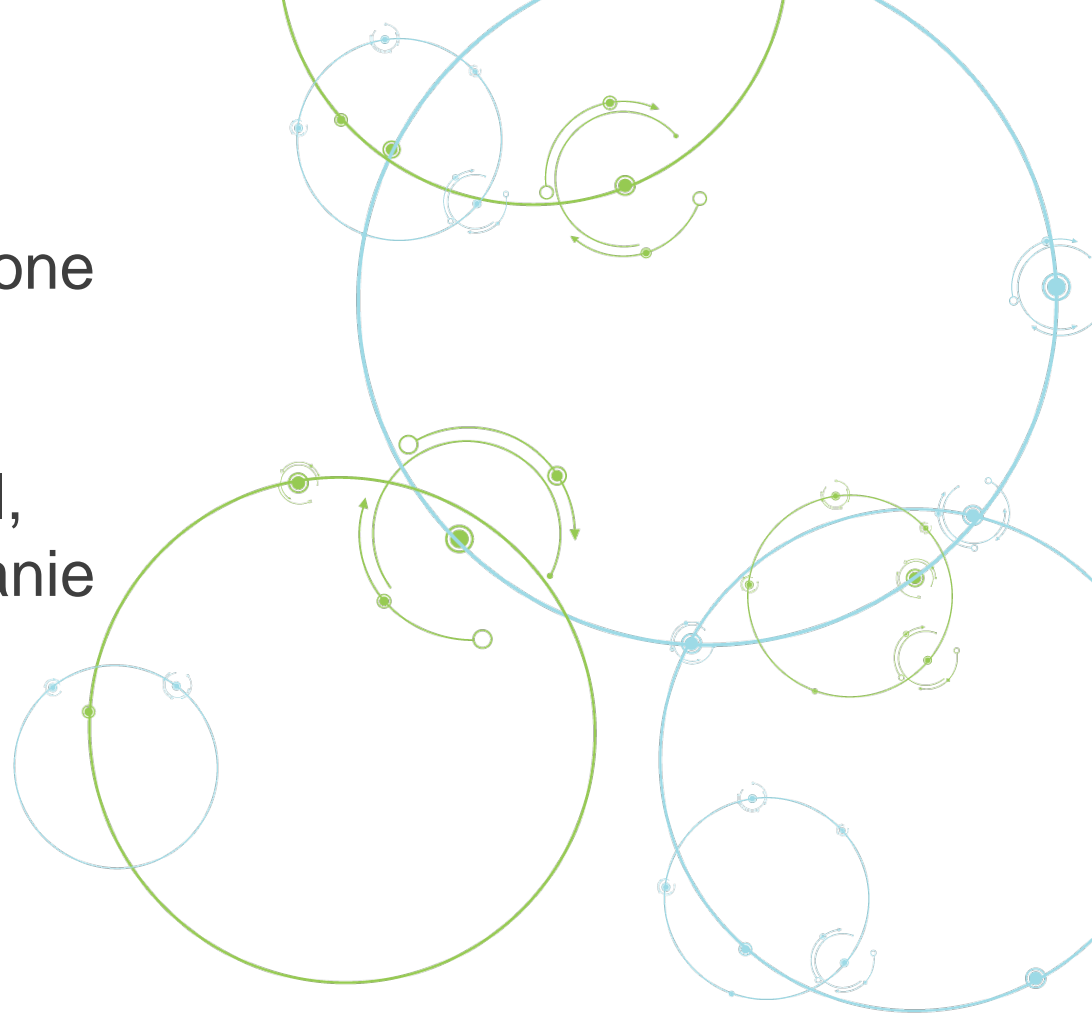
# The Potential Solution



○ RTI is evaluating a substitution method to solve this issue.

○ It involves replacing each drop point address with a substitute address that has the same number of defined housing units and is the shortest distance from the drop point.

○ Substitutes are chosen using SAS® software.

○ The substitution allows RTI to avoid biases caused by drop points assuming substitutes adequately represent drop point addresses.

# Does the Solution Work?

- My research this summer has allowed me to investigate how plausible this solution is in practice.

- I took a stratified random sample of drop points and their substitutes to investigate a variety of factors, such as size and type of address, to help measure how similar or different the drop points are compared with their substitutes.

- I will then analyze the data to test on an individual and aggregate level if these differences are significant.

- My analysis will help RTI determine the suitability of the drop point substitution method.

# Acknowledgments

I would like to thank everyone at RTI who has helped me work on this project, specifically Joe McMichael, Rachel Harter, and Stephanie Zimmer.

# Image Sources

- **Phone Call Image:** https://www.gettyimages.com/detail/photo/man-on-telephone-holding-son-royalty-free-image/78289118?adppopup=true

- **Mailbox Image:** https://www.gettyimages.com/detail/photo/trio-of-colorful-rural-mailboxes-royalty-free-image/464836074?adppopup=true

- **Homes Image:** https://www.gettyimages.com/detail/photo/seven-sisters-stitched-close-up-big-file-royalty-free-image/92930157?adppopup=true

# Thank you

Contact: Kate Mills | email: internships@rti.org