

READ

Common Randomization Designs

With Real-World and Hypothetical Examples

Randomized evaluations are a valuable tool for evidence-informed decision-making because they are uniquely designed to find the causal impacts of a program. While they are not the best research method for every scenario, there are many situations where randomization could be well suited. To help decisionmakers identify potential opportunities for randomized evaluations, this document outlines common randomization designs, when they might be a good fit, and examples of how they can and have been used.

BASIC LOTTERIES



In a basic lottery, all eligible participants in your evaluation sample are randomly assigned to the treatment(s) or comparison group using a manual or computerized system (e.g., a random number generator).

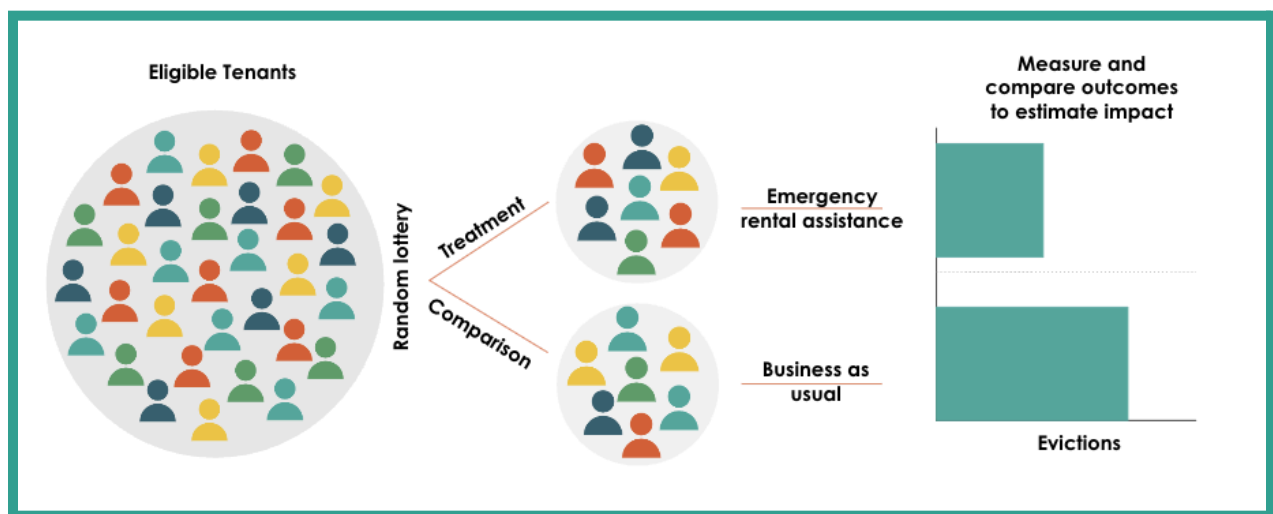
Basic lotteries can be paired with other, more complex designs, but on their own are a fairly common and straightforward method of randomization.

Often used when

- Demand for the program exceeds supply of the program
- The program is not guaranteed to all who qualify for it

Hypothetical Example

A social service department wants to understand the impact that their emergency financial assistance program has on evictions. They currently have 1,000 tenants who qualify for the assistance, but only have enough funds right now to serve 500. They hope that if they find the program works to reduce evictions, they might be able to get more funds. The department partners with local academic researchers to lead on designing and carrying out the study. The researchers and department decide together that a lottery is the fairest way to allocate the available funds. Leveraging the embedded lottery, researchers compare eviction rates between those who won the emergency rental assistance lottery (the treatment group) and those who did not (the comparison group).



Real-World Example

Agarwal, Sumit D., Benjamin Lê Cook, and Jeffrey B. Liebman. "Effect of cash benefits on health care utilization and health: a randomized study." *Jama* 332, no. 17 (2024): 1455-1463.

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ENCOURAGEMENT DESIGNS



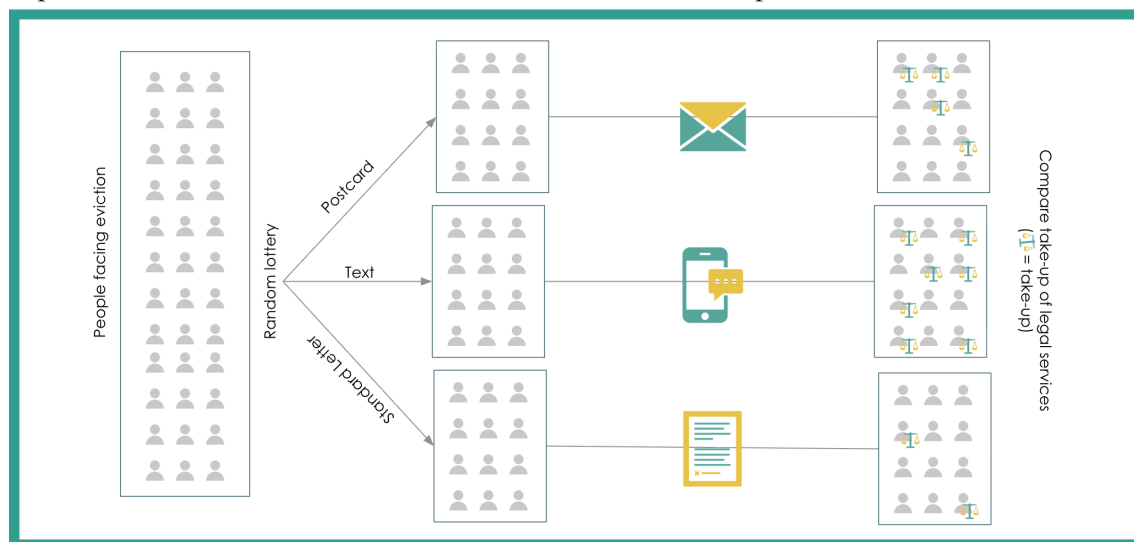
In an encouragement design, the primary research question is finding the best ways to increase participation in a program. People who are eligible to participate in a program, but who are not yet enrolled, are randomly assigned to receive a nudge to enroll, such as a letter or text (the treatment group) or not (the comparison group). Many encouragement designs leverage multiple treatment arms to compare different encouragements to each other. If the encouragement is successful and many people enroll in the program, it may also be possible to estimate the impact of the program itself, but this isn't guaranteed.

Often used when

- A program is undersubscribed, meaning there are more open slots than participants
- When there are eligible people who are not yet enrolled in a benefit to which they are entitled

Hypothetical Example

A city passed a new law that says all tenants facing eviction now have the right to representation in housing court, but tenants must contact the court ahead of time to get their attorney. Many people do not know they have this right or the steps they need to take, so take-up of this new opportunity is low. Researchers team up with the city to increase awareness and use of the free representation. Researchers review court records for upcoming eviction proceedings and randomly assign tenants to receive an informational postcard in the mail, a text message, or just the court's standard letter given to everyone facing eviction. They then assess the number of tenants from each of these three groups that take the steps to obtain representation. They also hope to look at the outcomes of the cases of those with representation versus those without it.



Real-World Examples

Finkelstein, Amy, and Matthew J. Notowidigdo. “Take-up and targeting: Experimental evidence from SNAP.” *The Quarterly Journal of Economics* 134, no. 3 (2019): 1505-1556.

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Linos, Elizabeth, Allen Prohofsky, Aparna Ramesh, Jesse Rothstein, and Matthew Unrath. “Can nudges increase take-up of the EITC? Evidence from multiple field experiments.” *American Economic Journal: Economic Policy* 14, no. 4 (2022): 432-452.

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EXPANDED ELIGIBILITY DESIGNS



Sometimes referred to as “randomizing on the bubble,” expanded eligibility designs seek to understand how a program impacts people who are eligible, but not guaranteed, access to a program. This opportunity can occur when a program adjusts their eligibility criteria to serve more people. In this design, researchers use a lottery or similar tool to randomly allocate program slots to people in this newly eligible group and then measure outcomes for those who receive the program and those who do not. It does not capture the impact of the program overall, as those who have always had access to the program continue to have access, and are therefore not part of the evaluation.

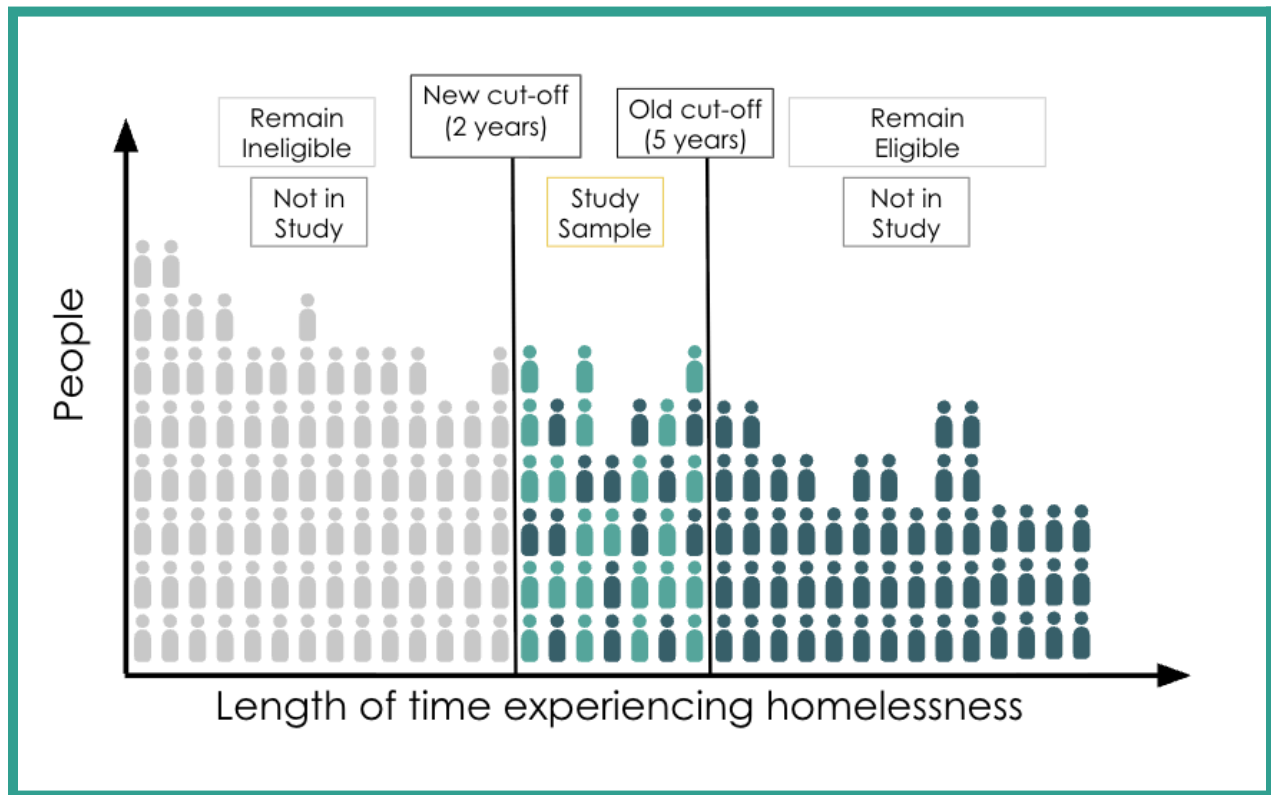
Often used when

- A program gets new funds and can expand the program to new populations
- A program wants to guarantee access for some (such as those most in need) but isn’t able to serve everyone

Hypothetical Example

A nonprofit provides intensive case management (ICM) to people who have been homeless for five or more years. They recently hired several new case managers, and are able to take on new clients. With the new capacity, they decided to offer their ICM services to people who have been experiencing homelessness for more than two years, but underestimated the number of people who would meet this new eligibility threshold. The organization wants to continue serving anyone who has experienced homelessness for more than five years. They want to understand the impact of their ICM program so they partner with an academic researcher. Together the team decides to use randomization to determine who of the newly eligible population (people who have experienced homelessness for 2-4 years) receives ICM.

While this evaluation cannot measure the effect of ICM on those who always receive ICM (those homeless for five or more years), it does measure the effect of receiving ICM on individuals who have been homeless for 2-4 years (the newly eligible group).



Real-World Example

Baicker, Katherine, and Amy Finkelstein. 2011. “The Effects of Medicaid Coverage – Learning from the Oregon Experiment.” *The New England Journal of Medicine*. July 20, DOI: 10.1056/nejmp1108222.

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Phillips, David C., and James X. Sullivan. “Do homelessness prevention programs prevent homelessness? Evidence from a randomized controlled trial.” *Review of Economics and Statistics* 107, no. 5 (2025): 1187-1196.

Phillips, David C., and James X. Sullivan. “Personalizing homelessness prevention: Evidence from a randomized controlled trial.” *Journal of Policy Analysis and Management* 43, no. 4 (2024): 1101-1128.

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PHASE-IN DESIGNS



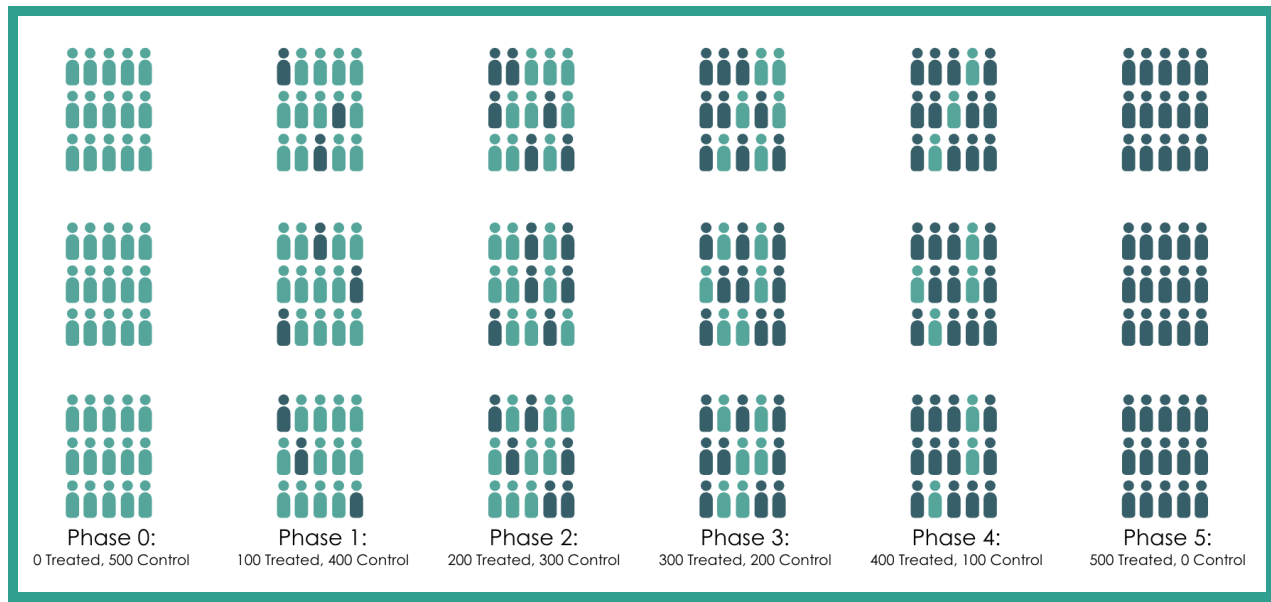
In a phase-in design, all eligible participants receive the program eventually. People are randomly assigned to receive the program—or treatment—at different points in time, or in different phases. As time goes on, more people join the treatment group and there are fewer people in the comparison group, until eventually everyone receives the treatment and the study concludes. With this design, there is no ability to assess long-term outcomes because there is no long-term comparison group.

Often used when

- There are enough resources to serve everyone eventually
- The outcome(s) of interest are shorter-term in nature and can therefore be measured within the phase-in period

Hypothetical Example

A county is in the process of acquiring vacant lots and turning them into supportive tiny home villages for people experiencing homelessness who also have a disability. Each village can house 100 people, and there are currently 500 people in the county who meet their eligibility criteria. They have been able to open a new village every six months, and want to better understand the impacts of this initiative. They partner with an academic researcher and together they decide that a lottery is the best way to allocate people to housing units. They want to make sure that all 500 people will eventually be able to access a tiny home, so they use a phase-in approach. At phase one, 100 people are chosen via lottery to move into the first village and the other 400 serve as a comparison group. Six months later, researchers collect data on returns to homelessness for this first cohort, another village opens, and 100 more people are chosen via lottery to move in. Now there are 200 people in the treatment group and 300 in the comparison group. This continues every six months for another year and a half, until the fifth village opens, all 500 eligible participants are living in tiny homes, and data collection concludes.



Real-World Example

Fairlie, Robert W., and Jonathan Robinson. “Experimental evidence on the effects of home computers on academic achievement among schoolchildren.” *American Economic Journal: Applied Economics* 5, no. 3 (2013): 211-240.

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