CASE STUDY 3: PROMOTING ECONOMIC INCLUSION AND RESILIENCE IN NIGER

How to Randomize

Photo: Andrea Borgarello (courtesy of Catherine Thomas on Twitter)

This case study is based on: Bossuroy, Thomas, Markus Goldstein, Bassirou Karimou, Dean Karlan, Harounan Kazianga, William Parienté, Patrick Premand, Catherine C. Thomas, Christopher Udry, Julia Vaillant, and Kelsey A. Wright. 2022. "Tackling psychosocial and capital constraints to alleviate poverty." *Nature* 605, 291–297.

J-PAL thanks the authors for allowing us to use their paper as a teaching tool.

KEY VOCABULARY	
Unit of randomization	The level of observation (e.g., individual, household, school, village) at which treatment and comparison groups are randomly assigned.
Random sampling	The process of selecting units from a population of interest in a randomized manner to create a sample that is representative of the population.
Random assignment	The process of allocating a pool of eligible units–-individuals, households, schools, villages, etc.–-to treatment and comparison groups by means of a random process such as a coin toss, a random number generator, or a lottery.
Treatment assignment	The treatment or comparison group a unit is randomly assigned to. Note that whether a unit actually receives the treatment will depend on compliance with their treatment assignment.
Balance	When the treatment and comparison groups have similar average baseline characteristics. By design, randomization creates groups that will have similar characteristics on average. However, even when randomization is done correctly, average values of some characteristics may differ across groups due to random chance.
Stratification	The process of dividing units in your sample into different subgroups based on specific characteristics (e.g., gender, urban/rural) and then randomizing within those groups to ensure balance on these characteristics.
Factorial design	An evaluation design that tests different treatments in different combinations to understand their impact separately and in combination (also known as a cross-cutting design).
Temporal effects	The effect of time on a program's impact. Treatment effects may strengthen, wane, or remain stable over a period of time, which may differ between treatment groups.
Cost-effectiveness	The ratio of a program's overall impact on a particular outcome to the total implementation cost (e.g., additional years of education per $100 spent).

LEARNING OBJECTIVE

This case study explores how to design an evaluation and determine an appropriate randomization strategy to answer relevant research questions.

SUBJECTS COVERED

Evaluation design, randomization design, level of randomization, balance, multiple treatments, temporal effects.

INTRODUCTION

Low-income households face a range of challenges that limit their ability to cope with and build resilience against unpredictable shocks such as drought or illness. Social safety net programs provide support services (e.g., funds to help purchase food and other household needs) to the most vulnerable households. Productive inclusion programs combine this support with training and other components to increase earnings while also strengthening households' ability to withstand and recover from shocks.

A growing number of countries are seeking to implement packages of productive inclusion measures for safety net beneficiaries, but little is known about the impact of these programs when implemented at scale. There is also little evidence about the optimal combination of productive measures to effectively lift households out of poverty. This case study will draw on an evaluation of a multifaceted productive inclusion program in Niger to illustrate the concept of randomization design.[1]

STUDY CONTEXT

In 2023, an estimated 52 percent of the population in Niger lived on less than 1.90 US dollars (USD) a day.[2] The Sahel region of West Africa is particularly exposed to increasing climate shocks, making it difficult for low-income households to maintain sustainable livelihoods.[3] In response to growing food insecurity, the Government of Niger established a national unconditional cash transfer program targeting rural households in areas with the highest poverty rates. The program provided monthly payments of 10,000 West African CFA francs (XOF) to eligible households in select villages throughout the country.[4] With cash transfer beneficiaries as the population of interest, the government and researchers collaborated to understand the effectiveness of layering different program components on top of the existing national cash transfer program to increase household consumption and food security.[5]

[1] The evaluation in Niger is part of a four country study being conducted in Burkina Faso, Mauritania, Niger, and Senegal in partnership with national governments and the World Bank.
[2] See World Bank (2023).
[3] For more on the climate risks faced in the Sahel region, see Climatelinks (2017).
[4] The cash transfer represented about 16 USD at the time of the study, or roughly 11 percent of annual household consumption for targeted rural households.
[5] In addition to household consumption and food security, the researchers were also interested in outcomes related to household and beneficiary revenues, mental health, self-efficacy, social and community cohesion, and women's empowerment.

THE PRODUCTIVE INCLUSION RANDOMIZED EVALUATION

Researchers compared the impact of three packages of productive interventions for women already receiving monthly cash transfers through the Nigerien government's national unconditional cash transfer program.[6] The table below describes the different program components.

INTERVENTION	COMPONENTS
Productive inclusion program	• Group coaching to provide mentorship on income-generating activities • Formation of savings groups to allow participants to pool savings and access additional funds • Microentrepreneurship training to cover basic business skills • Information on where to buy and sell certain goods to facilitate access to markets
Capital support	• One-time lump-sum cash grant of 80,000 XOF
Psychosocial support	• Community-level sensitization workshops on aspirations and social norms • Life-skills training to promote socio-emotional skills

Productive inclusion program components such as coaching and savings groups can support the development of basic financial skills and address constraints to income-generating activities. Additional capital support in the form of a one time lump-sum cash grant could target barriers to productive investments. Psychosocial interventions such as life-skills training and community workshops could encourage economic aspirations, build interpersonal skills, and address restrictive social norms.

Villages with households receiving the national cash transfer program were stratified by geographic area and randomly assigned to a treatment or comparison group. Eligible households in treatment villages received different combinations of the interventions described above. Although some components (such as the community sensitization workshops) were delivered at the village level, the researchers measured outcomes at the household level.

[6] The Nigerien government's unconditional cash transfer program was rolled out in three phases from 2012 to 2019, reaching around 100,000 households. This study built upon the third phase of the program which was implemented from 2016 to 2019.

DISCUSSION TOPIC 1: SELECTING THE SAMPLE AND UNIT OF RANDOMIZATION

1.1 In the study, the researchers randomized at the village level. Explain why this would be an appropriate unit of randomization. Consider whether there are any reasons why you might want to randomize at a different level.

1.2 Why do you think the researchers chose to stratify villages by geographic area?

1.3 Within study villages, the researchers randomly selected a subsample of about 15 households per village for data collection (4,712 households in total). Why do you think the researchers chose to collect data only for a subset of eligible households?

DISCUSSION TOPIC 2: EXPLORING RESEARCH QUESTIONS

To understand the impacts of the different treatment interventions, we want to create treatment and comparison groups where the only systematic difference between groups is the intervention of interest. In this discussion topic, we will consider separate research designs and randomization strategies to answer specific research questions.

Consider what treatment and comparison groups we could use to answer each research question below.[7] Assume that your study sample is all eligible households in villages receiving the government's national cash transfer program.

2.1 What is the added value of providing a lump-sum cash grant as a component of a multifaceted productive inclusion program to increase household consumption and food security?

TREATMENT GROUP(S)	COMPARISON GROUP

2.2 Is a lump-sum cash grant or psychosocial support more effective at increasing household consumption and food security as part of a multifaceted productive inclusion program?

TREATMENT GROUP(S)	COMPARISON GROUP

[7] Note that the research questions and the treatment and comparison groups identified in this section might differ from the research questions in the original study. The exercise is thus not to identify the study design of the original study but to consider relevant study designs for different possible research questions.

DISCUSSION TOPIC 3: RANDOMIZATION DESIGN

The study in Niger answered several research questions simultaneously using a single randomized evaluation that tested multiple interventions in different combinations.

3.1 How would you design a study to do this? Draw a diagram to illustrate the randomization design and which groups you would compare to answer each research question below:

- Research Question 1: What is the added value of providing a lump-sum cash grant as a component of a multifaceted productive inclusion program to increase household consumption and food security?
- Research Question 2: What is the added value of providing psychosocial programming as a component of a multifaceted productive inclusion program to increase household consumption and food security?
- Research Question 3: Is a lump-sum cash grant or psychosocial programming more effective at increasing household consumption and food security as part of a multifaceted productive inclusion program?

DISCUSSION TOPIC 4: BALANCE BETWEEN GROUPS

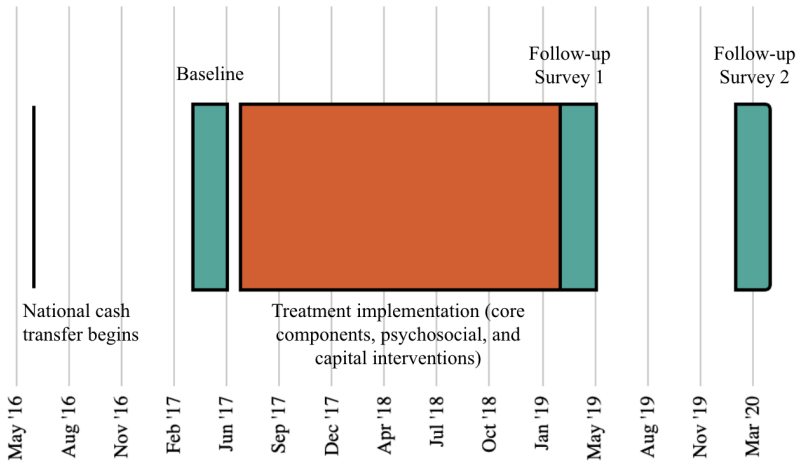
Randomization creates groups that are, on average, "balanced," meaning they are very similar in terms of their characteristics, such as age, gender composition, and education levels. However, even when randomization is done correctly, meaningful differences can occur by chance. These differences can bias your results if not accounted for in your analysis. Moreover, during program implementation, external influences can cause groups to become unbalanced by the end of the program–people may migrate or we may find it harder to track and survey respondents in one of the treatment or comparison groups. These and other events can reintroduce bias, diminishing the validity of the impact estimates.

4.1 What is a balance test and when would it be important to conduct a baseline balance test? What are the tradeoffs to doing so?

4.2 When might we be concerned about imbalances found between the treatment and comparison groups?

DISCUSSION TOPIC 5: TEMPORAL EFFECTS

Figure: Timeline of Intervention and Data Collection Activities

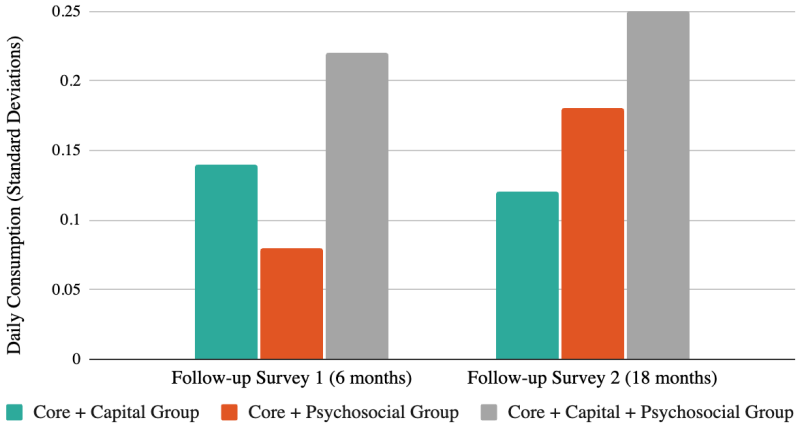


Note: Follow-up survey 1 was conducted at a median of six months post-intervention; follow-up survey 2 was conducted at a median of 18 months post-intervention.

Treatment effects can fade, strengthen, or persist over time and may differ by treatment group. One way to measure these temporal effects is to collect data on study participants at several intervals over longer periods. This can allow researchers to compare the short- and long-term effects of an intervention within and between treatment groups.

In this study, the researchers were interested in understanding the temporal effects of capital support compared with psychosocial support. The evaluation included two follow-up surveys at six and 18 months after the interventions. The figure below shows how the different treatment arms compared in terms of daily consumption between the first and second follow-up surveys.

Figure: Consumption by Treatment Arm Over Time Relative to the Comparison Group



Note: Daily consumption per adult for each treatment arm is measured in terms of standard deviations from the comparison group.

5.1 Why do you think it would be beneficial to understand whether treatment effects vary over time?

5.2 Why might we expect outcomes to differ temporally between treatment arms?

APPLICATIONS TO OTHER CONTEXTS

While this case study focuses on a specific example from Niger, both the evaluation design and the findings of the program have relevance to broader contexts. The Niger study itself is part of a larger four country experiment aimed at evaluating complementary interventions to traditional cash transfer programs (J-PAL 2021). While results from the other three countries' studies are forthcoming, there is a growing body of evidence that supports combining interventions to tackle extreme poverty.

Multipronged interventions, such as the Graduation approach pioneered by the NGO BRAC in 2002, have been proven to increase income and consumption in ultra-poor households across a number of contexts including Ethiopia, Ghana, Honduras, India, Pakistan, and Peru (Banerjee et al. 2015). The Graduation approach combines consumption support with productive asset transfers, coaching, and financial training to lift and keep households out of extreme poverty. The effects of these interventions, when combined with social safety net programs, appear more persistent in the long-run compared to less multifaceted approaches. A meta-analysis looking at long-term impacts (10 years or more) of cash transfer interventions found that the effects of integrated programming tended to persist over time as compared to programs that focused mainly on relaxing liquidity constraints (Bougen et al. 2019).

The study in Niger also addresses the importance of and need for psychosocial support for those experiencing poverty. Mental health can directly affect economic decision-making by taxing mental bandwidth and distorting beliefs about one's abilities. Advances in research on the mechanisms linking mental health and poverty can inform the development of poverty alleviation interventions to include psychosocial components (Ridley et al. 2020).

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REUSE AND CITATIONS

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