

Caregiver Financial Empowerment Study Data Analysis Plan

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1 Introduction

This document outlines the plan for analysis of the impact of a financial coaching intervention on a host of participant outcomes. We outline several hypotheses that the RCT will test. **This plan is being registered during the enrollment phase of the project and prior to any data analysis being conducted.**

2 Overview of the Study

2.1 Study Aims and Research Design

Research Question: What is the impact of participating in intensive financial coaching and financial literacy classes on workers’ financial capability, wellness, and mental health?

RCT: Three charitable organizations, the Jewish Federation Services (JFS) in Austin, Dallas, and Houston, are working with Notre Dame’s Wilson Sheehan Lab for Economic Opportunities (LEO) to implement a large-scale randomized control trial (RCT) of an intensive financial literacy program with 6-12 months of individual financial coaching, based on the United Way Thrive model, and 6 financial literacy classes offered by the Women’s Resource Center. The study aims to enroll at least 900 participants, evenly divided between treatment and control, over the span of 3 years with participants being monitored for at least 12 months from study intake.

Data: The researchers will provide evidence on the effectiveness of financial literacy coaching and classes on a host of important issues facing this population. The data for the project include a survey at intake, a follow-on survey at approximately 6-9 months, links to personnel records, links to unemployment insurance records and benefit receipt, and links to Experian Credit Report data. A key concern in this evaluation is whether the benefits of the program justify the cost of such an intensive intervention. By considering the “whole person” impacts, we are better able to capture the full scope of benefits to the worker and to the community.

Population: Participants are drawn from caregivers registered to provide in-home eldercare through a matching agency, BubbieCare, in Austin, Dallas, and Houston, TX. The workers are independently hired by families to provide in-home care to elderly, with matching and payroll services provided by the company. This group of low-income, non-career workers, many of whom are immigrants, may particularly benefit from enhanced financial literacy and capability. Moreover, improving workers’ wellness may yield benefits to the employers. In this setting, there are clear externalities to a more productive workforce – they can provide better care. This study design enables the analysis of worker productivity as proxied through wages and length of relationship with the families of care recipients.

Charitable organization and private employer partnership: One important aspect of the project is that it links a charitable organization, JFS, which seeks to improve the well-being of low income workers, with a private company that does not have the capacity to offer workforce

development directly. Financial coaching, which incorporates client-led goal setting and regular one-on-one sessions, is rapidly increasing in popularity and is believed to hold promise relative to less individualized financial education programs.¹ United Way’s Thrive program, launched in Houston, Texas in 2008, has already reached over 200,000 clients.² Yet, despite its growing popularity, few rigorous evaluations have been conducted.³ Moreover, the financial coaching and classes will all be conducted remotely in this study, allowing us to measure a new and potentially different format for content delivery.

3 Detailed Experimental Design

3.1 Enrollment Procedures

Participants will be eligible to participate in this study if they meet the following criteria:

1. Voluntarily agree to participation requirements outlined in the informed consent form
2. 18 years of age or older
3. Caregivers within the BubbieCare network and prospective caregivers

BubbieCare staff will be conducting enrollment of Caregivers (BubbieCare employees) into the study. The research team has built an enrollment procedure which includes a script to be used during every enrollment process that is intended to mitigate any undue influence that might occur during the enrollment process. BubbieCare staff will first use the script to inform Caregivers about the study, which states that:

- Joining the study is completely voluntary
- Joining the study would in no way affect your standing or status as a BubbieCare member
- The survey questions are entirely confidential, and BubbieCare staff will never be able to access or review your responses

If the Caregiver is interested in joining the study, these statements are also repeated in the study eligibility portion of the application and within the consent document (Consent for Participation in Research). Lastly, the Introduction to the Study and the consent document both state that the individual can choose to leave the study at any time during its course. By repeating these statements several times across the information, eligibility, and consent, the research team aims to eliminate any undue influence to Caregivers.

Process:

1. BubbieCare will facilitate the enrollment of existing and new Caregivers to the study. Caregivers in the BubbieCare network will be contacted by a BubbieCare staff member to inform

¹See Collins and O’Rourke, *Journal of Consumer Affairs*, (2010) and Fernandes, Lynch, and Netemeyer, *Management Science*, (2014).

²<https://www.unitedwayhouston.org/assets/uploads/documents/news-publications/19-THRIVE-brochure-web.pdf>

³Only one existing study uses randomized controlled trials: Theodos, Stacy, and Daniels, *Journal of Economic Behavior*, (2018) evaluates two financial coaching interventions in different cities, finding positive yet varied results in each.

them of the study opportunity using a Script written by the LEO research team. If the caregiver wishes to participate in the study, the caregiver will fill out the Application form OR the BubbieCare staff member will read the entire consent form and receive verbal consent.

2. Caregivers who complete the Application are enrolled in the study and assigned to Treatment or Control automatically within the SurveyCTO software.
3. At the end of the Application, the study participant will receive a personalized link to an in-take survey. If the participant does not immediately complete the in-take survey, LEO will send the link via email and/or text the following day. LEO will contact them to as a reminder to complete the intake survey, as well as a notice after completing the survey, when LEO will send them the \$20 Walmart gift card incentive via email.
4. LEO will send a list of study participants and Treatment/Control status to JFS weekly.
5. JFS will reach out to the participants to alert them of their randomization status. The next contact JFS will have with the participant is the coach calling the participant directly to initiate coaching.
6. Coaches are randomly assigned clients based on location and subject to availability.
7. During the pilot phase, the Application and Survey were combined. During the early phase of enrollments, the research team is tracking enrollment rates to determine whether separate or combined Application and Survey leads to higher participation and engagement.

BubbieCare staff will support the study by informing individuals about the study, and assisting in the informed consent process as required, by phone or video call. There are two main formats to inform individuals about the study, that lead to consent. (1) audio/video call, and (2) email/text. Email or text can subsequently lead to (1) if the individual has more questions about the study, and/or requires assistance.

In the instance where a phone call is set up for a caregiver and BubbieCare staff to speak (such as during the onboarding process), the BubbieCare staff will either:

1. introduce the study using the Script (included in the attachments to this protocol), and share the enrollment application (informed consent document) with them virtually to view and sign; or
2. in the case that the BubbieCare staff is unable to share the enrollment application with them to view virtually (when the call is not a video call, or the person does not have the technological ability to open and view a consent document while speaking on the phone with the BubbieCare staff), then the BubbieCare staff will still introduce the study using the Script, and if the individual is interested, the BubbieCare staff will complete telephone informed consent by reading the entire consent document. If the individual verbally consents, the BubbieCare staff will record this on the consent document.

In the instance where the enrollment application (informed consent document) is shared through a text or email, the BubbieCare staff will do the following:

- utilize the Script document and FAQ document to inform the Caregiver of the study
- include a link to the study's enrollment application (informed consent document)

- provide them with the options to set up a phone call with the BubbieCare staff (see option (1)).

Randomization into the study will be automatically performed by the intake survey in SurveyCTO. Baseline survey collection will be conducted through SurveyCTO. Assistance will be provided, if needed, by BubbieCare staff by phone or video call. Subjects who are placed into the treatment group can attend Thrive financial coaching and literacy sessions. They will participate in this program for up to a year, and will also be asked to complete a follow-up survey after the treatment is completed. For those that are randomly selected to the control group, the only additional time commitment will be completing the follow-up survey.

Whenever the study enrollment reaches 100 participants, there will be a random lottery to decide one enrolled participant to win a \$100 visa gift card. The lottery will take place exactly nine times, after each group of 100 participants is enrolled. The individual winner of the prize will be contacted privately using their provided contact information and they will receive the gift card either electronically or by mail. Participants who complete follow-up surveys may be compensated for their time and participation. Participants who complete the initial intake survey within 5 business days of submitting their application will also receive a \$20 Walmart gift card by email to thank them for their time.

BubbieCare employs qualified staff capable of communicating with Caregivers who are non-English speakers. The enrollment process will follow the same protocol in English and Spanish, and all aspects of the enrollment process (Introduction to the Study, the Application including the Consent Document, and the Survey) will be available in both English and Spanish.

All intake documents (Introduction to the Study, the Application including the Consent Document, and the Survey) are translated by LEO, or an external source (eg. the Translation Interpretation Network) whom LEO has previously used for translations.

3.2 Participant Flow and Data Collection Timeline

JFS is creating coaching capacity to serve approximately 150-200 financial coaching clients at any time. Clients have the opportunity to interact with a coach for a period of 6-12 months, with the expectation that coaching will be more frequent at first. Thus, we anticipate study participants to be added on a rolling basis in order to keep coaching at near-full capacity.

Between March and May 2021, we will have a push to quickly enroll up to 400 study participants evenly split between treatment and control. These study participants will be drawn from newly hired caregivers (approximately 20 per week) and a pool of current caregivers (approximately 400 total). If coaching capacity is reached, enrollments can be paused until clients graduate or drop-out.

The second cohort of study participants will follow either:

1. Add a small number (approximately 10 per week) study participants to keep the client-load up to coaching capacity.
2. Wait until the first cohort of participants is nearly completed, and create a second large cohort in January 2022.

The research team will choose a plan to complete study enrollments once the initial phase of enrollments is complete. At that time, the research team will assess coaching capacity and the flow of new enrollments to choose the best way to serve clients quickly, efficiently, and effectively.

3.3 Data Sources

LEO will send personally identifiable information to third-party administrative data holders (e.g., such as earnings and government benefit receipt from the Ray Marshall Center (RMC) at UT Austin and credit outcome from Experian) to link to outcomes. LEO will prepare a data set containing the minimum identifiers needed for the administrative record holders to link participants to their data. We have requested in the informed consent form the ability to release participant names, dates of birth, and social security numbers, where necessary, in order to conduct administrative record merges. The agencies will pull the requested data, perform any requested analysis, and return to LEO a dataset that removes all personally identifiable information. Study participants will be asked to complete a second survey approximately 6 to 12 months following their study enrollment. This survey will collect follow-up information on outcomes that are not available by third-party administrative sources, such as subjective measures of physical and mental health. The survey instrument will be nearly identical to the first survey pending any updates that are needed as identified in the preliminary data analysis.

3.3.1 Primary Data Collection: Surveys

A key data source is a short survey collecting information on demographics, income, savings and spending experiences, mental health, and financial knowledge. The 10-15 minute survey includes about 40 questions and will be given upon enrollment into the study. A very similar follow-up survey will be given 6-9 months after enrollment. To encourage high response rates, financial incentives will be offered for survey completion.

3.3.2 Treatment Characteristics - Coaching Data

JFS will share data with LEO each month capturing participants' experiences in the program. Variables will include coaching session dates, name of coach, agency location, participant identification, topics discussed, session notes, and program standing. Coaches will also report financial literacy course attendance dates and instructor, collected by asking the participant during the coaching sessions.

3.3.3 Experian Credit Reports

The subjective measures of financial well-being will be complemented by Experian Credit Report data. Experian is a multinational consumer credit reporting company and will provide data on credit scores and debt. LEO will be requesting quarterly data from Experian, which will allow the researchers to construct a panel to analyze outcomes over time including total credit card balance and credit score. We anticipate receiving quarterly data with some lag.

3.3.4 Public Assistance Receipt (RMC)

LEO is working with the Ray Marshall Center to collect monthly records on participants' amounts received from Temporary Assistance for Needy Families (TANF) and Supplemental Nutritional Assistance Program (SNAP), two key federal programs providing aid to families in need.

3.3.5 Unemployment Insurance Records (RMC)

LEO is working with the Ray Marshall Center to collect participants' quarterly Unemployment Insurance employment status and wage records. These data will be pulled as a panel to observe

participants' employment and wage trends before, during, and after the intervention. These data may be complemented by UI receipt data, if available.

3.3.6 Personnel Records

BubbieCare will share personnel data with LEO on a weekly basis regarding participants' BubbieCare membership status, hours worked and wages by client, and other information including absenteeism, match rate, and client ratings. They also will share baseline characteristics including gender, languages spoken, professional experience history, medical or other special certifications acquired, and the result from a stress management test derived from the Psychosocial Well-Being Scale (PSWS) known as a burnout score.

3.4 Power Calculation

JFS has collected baseline and follow-up information for participants of their financial coaching program, allowing us to estimate the appropriate sample size to detect statistically significant effects of the program. They find an increase from 26% to 50%, or a 24 percentage point increase, in those responding that they currently have an automatic deposit or electronic transfer set up to put money away for a future use (such as savings). They also find an increase from 0% to 8%, or 8 percentage points, in those responding that they are "very confident" that they or their family could come up with money to make ends meet within a month if they had an unexpected expense, or someone in their family lost a job, got sick or had another emergency. Using these figures, setting power to 80% and a compliance rate of 40%-60%, we estimate that we will require a sample size of about 900 (with 450 in treatment, and 450 in the control group) to detect the effects at a 95% confidence level.⁴

3.5 Coaching and Community Services

Financial coaching and financial literacy classes should directly benefit the treated individuals. Both are intended to increase participants' financial and overall well-being.

One way in which financial coaching and/or financial literacy classes may directly benefit individuals is through providing links to community resources, such as food pantries, formal banking relationships, or financial assistance. JFS will not use participation in the research study, irrespective of treatment or control status, as a factor in determining the eligibility of the applicant for assistance from JFS.

Participants in both the treatment and control will be made aware of JFS in the course of the study. Therefore, a further indirect benefit to study participants includes a connection to JFS, which may alert participants to community resources already available to them.

The financial coaching will occur over phone or video call. The JFS coaches will record call notes on each coaching call in their secure JFS system, as is standard for JFS (e.g., if the individual expressed a need for food assistance). In addition, JFS will record basic information on the call, including call length, coach name, and topics covered on the call. The research team will use this information to measure the type and extent of treatment received by the treated study participants.

⁴The compliance rate range is borrowed from Theodos et al., *Journal of Economic Behavior and Organization*, (2018) who report first class attendance rates of 37% and 56% in the two financial coaching programs they evaluate. The specific estimated sample size required for the automatic deposit question is 419 and 291 for a 50% and 60% compliance rate, respectively. For the question on unexpected expenses, we use a baseline of 4% instead of 0% to avoid division by zero, and a 7 percentage point adjusted minimum detectable effect (MDE). Based on these calculations, the estimated required sample size is 753 and 523 for a 50% and 60% compliance rate, respectively.

4 Outcomes and Hypotheses

The study design includes a host of primary and secondary outcomes that will be considered. The Research Team may include additional variables and data sources as they become available over the course of the study. Below is an outline of the planned outcomes and sources.

4.1 Main Outcome: Financial Capability and Engagement

Primary outcomes will be collected via an in-take and a 6-9 month follow-up survey. These subjectively measured outcomes will be complemented by Experian Credit Report data, where and when available.

- Financial Capability Scale
- Financial Literacy Scale
- Willingness to respond (higher questionnaire item response rate) to finance-related survey questions
- Direct measures of credit, debt, and savings.

4.2 Main Outcome: Labor Market Earnings

- Earnings at BubbieCare
- W2 earnings
- Length of employment spells

4.3 Additional Outcomes: Physical and Mental Health

- Survey responses to physical health
- Survey responses to access to care
- Survey responses to mental health screener

4.4 Additional Outcomes: Public Assistance Receipt

- Survey responses
- Benefit receipt from RMC data

5 Estimation Methodology / Data Analysis Plan

5.1 Econometric Framework

Following the construction of this study as a randomized control trial, those assigned to treatment and control groups should look equivalent to each other on average. Thus, any difference in outcomes between the groups could be attributed to their treatment status.

We will estimate differences in outcomes using a standard intent-to-treat (ITT) model:

$$Y_i = \beta_0 + \beta_1 * T_i + X_i\Gamma + \epsilon_i \quad (1)$$

where Y_i represents the outcome variable, such as earnings in the time period of interest, and X_i represents a vector of observed characteristics for person i . The dummy variable, T_i equals 1 if the respondent is assigned to treatment. The model includes an error term ϵ_i .

Because we do not anticipate full compliance with treatment, the study will also consider Treatment-on-the-Treated (TOT) effects estimated via an instrumental variable (IV) model, using assignment to treatment as an instrument for participation in services.

The full analysis will present:

- Differences in means
- Regression adjustments

When outcomes are only available for a subset of individuals, the researchers will first model endogenous selection into the group. For example, we will model whether treatment affects the probability of receiving a placement with BubbieCare. If so, we will adjust any estimates of the impact of treatment on length of employment spell or wages to account for non-random availability of data elements. One approach will be to use a multinomial logit approach whereby non-placement is a possible outcome. Another approach will be to conduct propensity score matching or other subgroup analysis that allows treatment and control to be more comparable. Initial data collection will provide data elements that can be used to confirm that randomization to treatment and control was done appropriately. If so, any measured differences between treatment and control in data availability, data quality, or measured outcomes can be attributed to being assigned to the treatment group.

5.2 Subgroup Analysis

A key component of the analysis will be to determine the characteristics of study participants who most benefit from the financial coaching program. Baseline data elements that will be used include:

- Demographics: age, race/ethnicity, gender
- Baseline financial capability (self-reported on survey; Experian and RMC data)
- Burn-out Index (collected at hire by BubbieCare)
- Coaching characteristics:
 - Location (Austin, Dallas, or Houston).

5.3 Study Attrition and Refusal of Treatment

We anticipate that some participants assigned to treatment will not be engaged and may refuse some or all of the program offered. The consent agreement states that individuals will be followed unless explicitly requesting removal from the study. We do not anticipate all study participants will complete the in-take survey. We will conduct an analysis of refusal to participate in the survey (which is conducted prior to the participant knowing their treatment/control status) and item non-response on the survey. This will enable us to make some subgroup comparisons and predictions about which control group participants are most similar to the treatment group participants who comply (or not) with the treatment.