

Pre-Analysis Plan

Stockton Economic Empowerment Demonstration

Stacia Martin-West, PhD, Amy Castro Baker, PhD
Sidhya Balakrishnan, Kapu Rao, and Guan You (Gary) Tan*

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1 Introduction

The Stockton Economic Empowerment Demonstration (SEED) is the country’s first mayor-led guaranteed income (GI) pilot. It is a collaboration between the Office of Mayor Michael Tubbs, the Economic Security Project (ESP), the Reinvent Stockton Foundation (RSF), and the residents of Stockton. In February 2019, SEED began providing 130 Stocktonians with a GI of 500 USD per month for 18 months.¹ The income is distributed monthly through prepaid debit cards that are issued in each recipient’s name. Since the income is “guaranteed,” there are no work requirements or restrictions on how the money can be spent. The purpose of this pre-analysis plan is to outline the intervention, research questions, design, and methods guiding the evaluation.

2 Research Design and Methods

The project relies on a randomized controlled trial with parallel mixed methods design (QUAN + QUAL), containing quantitative and qualitative research strands anchored by participatory action research (PAR), and informed by evidence-based learning agendas (Teddlie and Tashakkori, 2008; Urban Institute, 2018). Data from each strand will be integrated at the conclusion of the

*Martin-West: University of Tennessee, Knoxville, Tennessee, swest11@utk.edu. Castro Baker: University of Pennsylvania, Philadelphia, Pennsylvania, amybaker@sp2.upenn.edu. Balakrishnan, Rao and Tan: Jain Family Institute, New York, New York, sidhya.balakrishnan@jainfamilyinstitute.org. The authors extend a special thanks to Richard Smith, PhD, Terri Friedline, PhD, David Patterson, PhD, Roberta R. Iversen, PhD, and Greg Duncan, PhD, who contributed thoughtful feedback and commentary to this plan. The authors are also grateful to Jacob Bowers, PhD for his guidance on evidence-based learning agendas, and the 2018 Impact Evaluation Design Lab participants at the Center for Advanced Study in the Behavioral Sciences whose feedback enhanced our design.

¹The sample size of 130 includes 5 research participants to account for medical attrition. Medical attrition refers to a participant who is unable to continue participating in the research due to a pre-existing medical condition, terminal illness, unexpected accident, or the onset of a chronic condition.

intervention and will inform the dissemination strategy alongside the purposive political sample (Miles and Huberman, 1994; Teddlie and Tashakkori, 2008). While the quantitative data will inform the PAR strands and qualitative sampling, meta-inferences between strands will not occur until the conclusion of the experiment (Teddlie and Tashakkori, 2008).

2.1 Research Questions

The primary research questions are: (1) How does GI impact volatility? (2) To what degree do changes in income volatility alter financial well-being, psychological distress, and physical functioning? (3) How does GI generate agency over one's future?

2.2 Selection of Participants and Procedures

2.2.1 Stage 1: Address Based Random Sampling

Participant recruitment began with a random sample of households within census tracts at or below Stockton's household AMI of \$46,033, providing a representative sample of Stockton residents within those census tracts. Forty-two census tracts meeting this criteria were selected. Delivery Sequence File (DSF) lists, which contain all active residential USPS addresses, were purchased from a licensed vendor. A percentage of addresses was drawn from each census tract based on the proportion of the population represented in each. An invitation mailer to participate in SEED and its associated research was sent to 4,200 households drawn from this list. The mailer was not addressed to any one person in the residence; rather, the household decided whether to and who may participate. The mailer directed potential participants to a web-based survey that collected household-level baseline data, as well as individual-level data on key outcomes of interest (detailed in section 3 below).

2.2.2 Stage 2: Random Assignment to Groups

Any potential participant not meeting inclusion criteria, e.g. at least 18 years of age at the time of baseline data collection, and a current Stockton mailing address, was removed from the initial pool of potential participants. Individuals were randomly assigned to one of three groups: treatment, active control, and passive control. The treatment group ($n = 130$) is receiving the intervention of 500 USD per month for 18 months, and is participating in qualitative and quantitative data collection activities. The active control group ($n \approx 200$) is not receiving the intervention, and is participating in compensated qualitative and quantitative data collection activities. The passive control group ($n \approx 150$) is not receiving the intervention, and is not participating in primary data collection activities. Secondary administrative data is being collected for all groups. Balance checks were conducted at this stage to ensure balance of sociodemographic characteristics across the treatment and control conditions. The treatment and control groups were balanced on all covariates except housing status and receipt

of some means tested benefits, which will be included as control variables in the analytic model.

A subsample of the treatment and active control groups, ($n = 25$) has voluntarily elected to participate in a purposive political sample (Miles and Huberman, 1994; Teddlie and Tashakkori, 2009) aimed at informing public discourse on deservedness, the benefits cliff, and GI, through media engagement and storytelling activities. Data is being collected on this purposive sample, and will be analyzed separately from the main treatment and control groups. If the sample is not significantly different from the treatment and active control groups, their data will be included in the final analysis. Their experiences will also be triangulated with key findings across all strands.

2.2.3 Stage 3: Participant Notification and On-boarding

Members of the treatment group were notified of their inclusion in the treatment group by phone call, voice message, and text message. During the phone call, the SEED staff invited the participants to attend an one-on-one onboarding appointment. The onboarding appointment included informed consent and benefits counseling, introduction to key SEED and research staff, and enrollment with the pre-paid debit card provider. The purpose of benefits counseling was to ensure that the participants were fully aware of any risks associated with the disbursements potentially interacting with their health insurance or other benefits. Members of the active control were notified of their status in the active control group by telephone, and invited to continue participation in all data collection activities. Members of the passive control group did not receive notification of their group status.

At this stage, several participants in the treatment group decided not to participate in the study and a refresher sample of participants was selected from the administrative control group into the treatment group. Similarly, a refresher sample of participants from the administrative control group was assigned to the control group. We note similar balance across the treatment and control group after including the refresher samples. Housing status and CalWorks/TANF income are not balanced across the two groups, and will be included as covariates in the analytical model, along with a dummy variable for the refresher sample.

2.3 Data Collection

2.3.1 Parallel (Quantitative and Qualitative)

Baseline quantitative data was collected three months prior to disbursement and will be collected at four six-month intervals for a total of 24 observation months, or five total observation points. While the intervention will last for 18 months, we will continue to collect data over a two-year period. In December 2018, all individuals completed a baseline survey, and are responding to confidential online surveys, entering data for demographic and household composition; the

primary outcomes of income volatility, psychological distress, and physical functioning; and the secondary outcomes of family dynamics and parenting, food security, material hardship, and perceived stress and well-being. All members of the treatment and active control groups also receive a text-based prompt to enter monthly income data for each month beginning in March 2019 and ending in December 2020. In collaboration with a partner specializing in data linkage and tracking, we will collect retrospective and prospective data from government agencies for treatment and control in order to track participant outcomes through integrated data systems beyond the study time limitations.

2.3.2 Sequential (Participatory Action Research)

The PAR strand will focus on the translational nature of GI as a city-led policy through the use of a community-facing dashboard, and focus groups with stakeholders not enrolled in the intervention. Strand III will begin with a community led process of discovery based on developing an evidence-based policy-making learning agenda (Urban Institute, 2018). Stocktonians will co-construct a learning agenda focused on what they believe a municipality should know about income volatility and the benefits of a GI. The PAR group will engage in a community narrative process to unearth shared constructs, and inform data construction for the community dashboard. The learning questions, learning activities, and practice-based activities in the agenda will inform the National League of Cities Basic Income Toolkit. The aim is to anchor constituent voices in policy development surrounding GI to inform other municipalities, mayors, and policymakers interested in replicating the intervention. At the conclusion of disbursements, these findings will be triangulated into meta-inferences with the other strands of research (Teddlie and Tashakkori, 2008). The shared group will also generate their own research questions to inform future hypothesis generation surrounding GI.

3 Measures

3.1 Primary Outcomes

The overall aim of this research is to determine the effect of treatment (GI) on the primary outcomes, which include changes in financial well-being, psychological distress, and physical functioning. These outcomes were chosen for three reasons. First, from prior research on income volatility, we anticipate the GI intervention to produce detectable effects on the primary outcomes with the given sample size. Second, we are committed to providing rigorous and early results to inform other GI experiments currently underway, including Y Combinator’s Basic Income Study and the Income and the Developing Brain Study. Both the primary and secondary outcomes presented herein are similarly conceptualized and measured in other experiments, ensuring appropriate cross-study comparisons. Third, these outcomes are critically important to the broader so-

cial science community and to laying the foundation for policy proposals aimed at evolving the social safety net.

3.1.1 Income Volatility

We hypothesize that the GI intervention will lead to reductions in monthly income volatility and provide greater income sufficiency, which will in turn lead to reduced psychological stress and improved physical functioning. We hypothesize that income volatility alone has direct pathways to stress and anxiety, physical functioning, and depression. Moreover, income volatility functions through other measured covariates – including insufficient income, consumption, savings, and unsecured debt – to produce effects on the primary outcomes. Income volatility data will be measured monthly through self-reporting and calculated by the coefficient of variation, similar to the method used by the U.S. Financial Diaries study. To determine the coefficient of variance, we will divide the standard deviation of monthly income by the mean of monthly income (Morduch and Siwicky, 2017). Household income volatility will be measured at 24 points across the duration of the study through monthly text-based prompts and online surveys every six months. Use of the coefficient of variance will allow for comparisons of volatility of both higher and lower income households.

3.1.2 Psychological Distress and Physical Functioning

The health indicators of physical functioning and psychological distress will be collected quantitatively via the SF-36 and the Kessler 10 (RAND Corporation, 2018; Kessler, et al., 2002) within a longitudinal survey and through in-depth qualitative interviews. This outcome was chosen because of empirical evidence that involuntary job loss, inadequate or insecure employment, and other proxies of income volatility are related to greater risk and severity of depressive symptoms (Catalano, et al., 2010; Rohde, et al., 2016) as well as qualitative evidence indicating some association of income volatility proxies to accounts of substantial anxiety (Morduch and Schneider, 2017; Halpern-Meekin, et al., 2015).

3.2 Secondary Outcomes

While there is more limited theoretical or empirical evidence for these secondary outcomes, they were selected because of their importance in providing insight into the well-being of Stocktonians, their representation in the literature, and potential for detectable effects. Family dynamics and parenting will be measured via the Confusion, Hubbub, and Order Scale (Matheny, 1995). Food security will be measured through the Household Food Insecurity Access Scale (Coates, Swindale, Bilinsky, 2007). Material hardship will be measured via selected questions from the Survey of Income and Program Participation (SIPP, 2008). Agency will be measured through the Hope Scale (Snyder et. al., 1991). Perceived stress and well-being will be measured by the Perceived Stress Scale

(Cohen, Kamark, Mermelstein, 1994) and the Mattering Index (Elliot, Kao, Grant, 2004). Additional secondary outcomes related to the use of public benefits, healthcare utilization, and interactions with the child welfare system will be assessed via administrative data collection in partnership with the Children’s Data Network at the University of Southern California (USC) School of Social Work.

3.3 Additional Measures

Other quantitative measures include age, gender, education, employment status, and housing cost, quality, and stability. Surveys will also include space for qualitative responses to network strain, and the degree to which participants considered how disbursements may interfere with safety net benefits, such as food stamps, health insurance, or Supplemental Security Income. Care will be taken to preserve the confidentiality of all participants’ identity in the study, deterring excludability (SUTVA) violations. All study participants will be advised of the social network risks associated with disclosing participation in the study. Specifically, trained staff will talk through the risk of family and friends knowing about a person being in the treatment group and then requesting access to the resources of the treatment participant. However, aside from these precautions and because of the “unconditional” and thus, non-intrusive, nature of this study, no further measures will be taken to place restrictions on individuals self-reporting their treatment statuses. Due to the small number of experimental subjects compared to the vast populace of Stockton, it is unlikely that there will be interference between treatment and control group participants. However, it is possible that a treated subject will affect individuals within their own “network” of family and friends. These network individuals may be considered non-experimental units, and we will collect data from the recipient about the extent to which they are supporting friends and family with the GI.

4 Analytic Plan

The analysis of the effect of the GI will be examined using two different econometric models. The first is a conventional Ordinary Least Squares (OLS) model used to estimate the effects of the treatment on the outcomes. We use an ANCOVA approach in that we condition on baseline outcomes Y_{iB} to maximize power (McKenzie, 2012):

$$Y_{iE} = \beta_1 T_i + \beta_2 Y_{iB} + \alpha R_i + \gamma X_i + \epsilon_i \tag{1}$$

in which Y_{iE} represents the outcome of interest for subject i measured at endline, T_i represents the treatment status of subject i , Y_{iB} represents the outcome of interest for subject i measured at the baseline, R_i is a dummy variable that represents whether the participant was in the refresher sample and X_i is the set

of all other baseline characteristics requisite for covariate adjustment for subject i ; lastly, ϵ_i is the error term.

To further investigate the GI intervention on the treatment group, a second model using Hierarchical Linear Modeling (HLM) with repeated observations and unconditional growth will be used. Level 1 of the model will test individual growth curves, or within-subject variation along the primary outcomes, and Level 2 will determine difference in treatment response, or between-subject variation (Lininger, Spybrook, Cheatham, 2015; Spybrook, et al., 2011). The model then appears as:

$$Y_{t,i} = \pi_{0,i} + \pi_{1,i}T_i + \alpha_{t,i}X_i + e_{t,i} \quad (2)$$

where

$$\pi_{0,i} \sim N(\beta_{0,0}, \tau_{0,0})$$

$$\pi_{1,i} \sim N(\beta_{1,0}, \tau_{1,i})$$

where t, i is time within individuals, π represents coefficients, α represents coefficients on control variables with $\alpha_{t,i}$ representing time between observations, and e represents residuals. For Level 2, $\beta_{1,0}$ represents the average treatment effect and $\tau_{1,i}$ represents the variability among treatment individuals.

5 Attrition Concerns

Study participants will be compensated for each survey that they complete. This payment scheme hopes to incentivize the completion of the questionnaires across the length of the study. Some degree of attrition, nonetheless, is still inevitable. We will assess the severity of attrition between baseline and endline. We will test whether attrition is correlated with treatment, whether attriters differ from non-attriters by testing whether attrition status can be predicted from baseline outcomes, and we will test whether baseline characteristics of attriters in the treatment group are different from those of attriters in the control group by restricting the sample to attriters and regression baseline outcomes on treatment assignment. If we find worrying levels of attrition, we will use the approach proposed by Lee (2009) to bound our treatment effect estimates (replacing them with Horowitz-Manski bounds if there is reason to believe that the monotonicity assumption is violated).

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