The Effect of Changes in Absolute and Relative Wealth due to Unconditional Cash Transfers on Psychological Wellbeing: Pre-Analysis Plan

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Abstract

This document describes analyses to be conducted on data generated by a randomized controlled trial (RCT) evaluating the Unconditional Cash Transfer (UCT) of GiveDirectly, Inc. in Western Kenya. Between June 2011 and January 2013, GiveDirectly distributed unconditional cash transfers to 500 randomly selected poor rural households in Western Kenya. Although the RCT and initial analysis have been completed, we foundsignificant variation in the villages and households selected for treatment that we believe will allow us to identify the effect of absolute wealth, relative wealth and inequality on various measures of psychological wellbeing and neurobiological measures of stress. The present document outlines our proposed econometric approach to answering these questions.

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1   Introduction

Standard economic theory suggests that individual utility should respond only to changes in absolute wealth levels. While theoretical, empirical and experimental evidence point to the importance of relative wealth in determining individual psychological wellbeing (Ball et al. 2008; Card et al. 2012; Clark et al. 2008, Diener et al. 2008; Luttmer 2005), rigorous tests of the effects of relative vs. absolute wealth levels on psychological wellbeing remain rare (cf. Godoy et al., 2006). Using data collected from a recently concluded RCT evaluating the Unconditional Cash Transfer (UCT) program of GiveDirectly, Inc., between June 2011 and January 2013 to 500 randomly selected poor rural households in Western Kenya, we will examine the differential effects of absolute wealth, relative wealth, and inequality on measures of individual psychological wellbeing. Although the initial analysis of the data generated by this RCT has been completed, the analysis revealed significant variation in the villages and households selected for treatment that we believe will allow us to measure these effects. The current document outlines the econometric methods we will use to do so.[1]

2   Evaluation Questions

We will use several different approaches to determine the effects of absolute wealth, relative wealth, and within-village inequality on individual psychological outcomes. We leverage randomly induced variation in absolute wealth generated through the assignment of treatment, as well as randomly induced variation in relative wealth and village-level inequality due to differences between villages in the average amount of the transfers and in the baseline wealth level of the households thhat received transfer.

3   Econometric Specifications

3.1   Measuring Inequality

3.1.1   Gini Coefficient

As a gauge of the dispersion of wealth at the village level, we measure endline Gini Coefficients using total household nondurable assets adjusted for PPP. Following Sen (1997) we estimate village-level Gini using the following formula:

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[1]The original pre-analysis plan is available at `https://www.socialscienceregistry.org/trials/19/history/122`, and the results of the analysis may be accessed at `http://www.princeton.edu/~joha/`.

$$G_{vt} = \frac{1}{H^2} \frac{\sum_{j=1}^{H} \sum_{i=1}^{H} |Y_{ivt} - Y_{jvt}|}{2\bar{Y}_{vt}} \tag{1}$$

where G_{vt} is the Gini Coefficient for village v before transfers ($t = 0$) or after transfers ($t = 1$). N is the total number of surveyed households in village v. Y_{ivt} and Y_{jvt} are measures of either assets or consumption for household $i = 1...N$, $j = 1...N$ in village v before transfers ($t = 0$) or after transfers ($t = 1$). $\bar{Y}_{vt}$ is the village mean of assets or consumption of village v before transfers ($t = 0$) or after transfers ($t = 1$).

3.1.2 Coefficient of Variation

To check for robustness, we will use the coefficient of variation as an alternate measure of inequality:

$$C_{vt} = \frac{1}{H} \frac{\sqrt{\sum_{i=1}^{H} \bar{Y}_{vt} - Y_{ivt}}}{\bar{Y}_{vt}} \tag{2}$$

where C_{vt} is the coefficient of variation for village v before transfers ($t = 0$) or after transfers ($t = 1$). H is the total number of surveyed households in village v. Y_{it} and Y_{jt} are measures of either assets or consumption for household $i = 1...H$, $j = 1...H$ in village v before transfers ($t = 0$) or after transfers ($t = 1$). $\bar{Y}_{vt}$ is the village mean of assets or consumption of village v before transfers ($t = 0$) or after transfers ($t = 1$).

3.2 Regression Specifications

Our regression specification uses the amount of the transfer as a proxy for absolute wealth and the average amount of treatment recieved in a village as a proxy for average village wealth:

$$\Psi_{ihvE} = \beta_0 + \beta_1 T_{hv} + \beta_2 \bar{T}_v + \beta_3 \triangle G_v + \varepsilon_{ihvE} \tag{3}$$

Here, Ψ_{ihvE} is the outcome of interest measured at the level of the individual respondent i in household h in village v measured at endline ($t = E$). T_{hv} is the amount of the transfer recieved by household h in village v. $\bar{T}_v$ is the average transfer amount per household for village v calculate as $\bar{T}_v = \frac{\sum_{i=1}^{N} T_{hv}}{H}$. $\triangle G_v$ is the change in the Gini Coefficient (or coefficient of variation) due to the treatment. It is calculated as $\triangle G_v = G_{v1} - G_{v0}$. This ensures that all variation in this measure is exogenously induced through treatment. ε_{ihv} is an idiosyncratic error term. To account for possible correlation in outcomes, the error term is clustered at the village level.

Thus, β_1 identifies the treatment effect for treated households relative to control households per dollar PPP of transfer. β_2 is the effect of a change in the average wealth level of a village due to treatment. β_3 identifies the effect of a change in the overall dispersion of wealth in a village due to treatment.

Although the random selection of households and villages ensures the regressors in 3 are exogenous, we include a second specification controlling for various household level and village level covariates:

$$\Psi_{ihvE} = \beta_0 + \beta_1 T_{hv} + \beta_2 \bar{T}_v + \beta_3 \triangle G_v + \beta_4 X_{ihv} + \beta_5 X_v + \varepsilon_{ihvE} \tag{4}$$

where X_{ihv} is a vector of covariates of the individual respondent i in household h in village v. X_v is a vector of covariates common to village v.

4 Outcome variables

4.1 Individual Psychological Outcome Variables

1. Depression (CESD)

2. Stress (Cohen)

3. Happiness (WVS)

4. Life satisfaction (WVS)

5. Cortisol levels

Indicies: weighted standardized averages of variables of 1–4 and $1-5$.

4.2 Measures of Individual Preference

1. Impatience

2. Risk aversion

3. Other-regarding preferences

4.3 Measures of Consumption

We will also evaluate the effect of changes in absolute and relative wealth and inequality on spending on various categories of consumption.

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