Deferred Wages and Savings Constraints

Analysis Plan Part 7:
Long-Run Impacts of the Savings Scheme

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Abstract:

This document is the seventh portion of the analysis plan for a randomized controlled trial (RCT) evaluation studying the effects of a deferred wage payment option on workers' investments, consumption, well-being and labor supply. The present document specifies our plan for analyzing the long-run impacts of the deferred wages product, approximately 10 months after workers received their savings from the final iteration of the savings scheme. The workers in our sample have been treated three times. From January to May 2017, the Lujeri Tea Estates allowed randomly-selected workers to defer a portion of their bi-weekly wages into a savings account that was paid out at the end of the agricultural season. We then allowed treated workers to sign up for the scheme two additional times, from October 2017 to January 2018 and from January to April 2018. To look at the combined effects of the three rounds of treatment, we will use the fifth high-frequency survey (HFS-5) that we are collecting beginning on February 26th, 2019. The authors posted this document before the first day of data collection began for the HFS-5.

Design of the HFS-5

Our intervention induced a large increase in savings for the treatment group immediately before the disbursement of the deferred lump-sum wages, and corresponding changes in spending. The HFS-5 collects data on financial outcomes 10 months after the final lump-sum disbursement, and is primarily intended to measure changes in asset holdings and home improvements.

Our basic analysis for the HFS-5 will examine outcomes separately from the earlier waves of data collection (HFS-1, HFS-2, HFS-3 and HFS-4). We will also consider specifications that pool outcomes with previous waves of data. As with all the previous waves of data collection, we will examine treatment-control differences in outcomes on the survey by estimating equation 1 from Part 1 of the analysis plan. Specifically, we will regress the outcome variable on a treatment indicator, baseline values of the outcome variable, indicators for stratification cell, and all the individual covariates used in the re-randomization exercise.

The variables we will use for analysis are constructed in the same way as we described in the earlier parts of the analysis plan (unless otherwise noted). Any portion of the earlier parts of the analysis plan not explicitly contradicted in this document still applies. In particular, our plans for winsorizing the variables and our process for conducting multiple comparisons adjustments is unchanged for the HFS-5.

Variables marked by an asterisk (*) will be excluded when applying multiple hypothesis testing adjustments. For further details on our approach to multiple hypothesis testing adjustment, see Part 1 of our pre-analysis plan. Note that variables marked by a dagger (†) are responses for which we sum up individual components related to the main category. For example, the survey asks for expenditures on maize grain, which is one component of storable food expenditures.[1]

Unless otherwise noted, the weights for our principal components analysis (PCA) indices will be constructed using the first principal component for the control group data from the HFS-5.

Data collection and construction

The HFS-5 will collect data on asset ownership and home condition in two stages. First, the enumerators will find the worker and ask them a standard set of survey questions about whether they own each asset (including livestock). Second, the enumerators will attempt to follow up with the worker or another household member at their home for an asset verification survey. If this is successful, then enumerators will conduct a follow up survey that repeats the same questions but asks the respondent to show them each asset, and asks the enumerator if they think the respondent is being truthful. The enumerator will also physically verify the construction materials used in the home and the condition of the home. There is also a field for the enumerator to add other comments about each asset, including their own assessment of the correct answer (if necessary).

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[1] Note that we also ask about the respondent's total expenditures for several of these variables. When there is a large discrepancy between the total expenditures and the sum of components, we prompt the respondent to confirm or provide a revised answer for total expenditures. When respondents supply a revised answer, we replace the total expenditure with the guess instead of using the sum of the individual components.

We will use the data from these different measurements of the asset ownership (including livestock) and home condition variables to construct the most-accurate measurement of asset ownership possible for each worker.

Our main outcome variables will be PCA indices, constructed as follows:

1. Compute the first principal component of the set of variables in question for the control group for the HFS-5.
2. Use the coefficients from step 1 to construct a combined index for all workers, including both control and treatment workers.
3. Standardize the index from step 1 by dividing by subtracting off the control-group mean of the index and dividing by the control-group standard deviation.

Primary Outcome

Our primary outcome of interest is a PCA index of the number of each asset and livestock owned. We will also present results that use the total value (in Kwacha) of the assets and livestock, in order to give readers a better sense of the magnitude of the results. As these are the exact same outcome measured in slightly different ways there will be no multiple comparisons tests for these two outcomes.

Secondary Outcomes

We also will present results for the following outcomes. We will adjust for multiple comparisons only within the main categories of results. Note that among the variables marked with an asterisk (*) that are excluded multiple comparisons adjustments are the valuations variables. We do this because they are substantively equivalent to other variables.

Home improvements
NOTE: for analyses of house quality, we will explore heterogeneous treatment effects by whether the worker initially owned his or her own house.
1. Assets used for home improvements (PCA Index)
      a. Value of home improvement assets (in Kwacha)*
2. Started building new house since 1 January 2017 (Indicator variable)
3. Improvements to current residence or new houses[2] since 1 January 2017 (PCA Index)
4. Improvements to current residence since 1 January 2017 (PCA Index)*
5. Investments in new[3] houses since 1 January 2017 (PCA Index)*

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[2] This index will be based on new variables that combine the variables from the current residence and new houses modules. For example, if a worker replaced the thatching on a new house but not his current house, "replaced thatching" would be set to 1. In cases where an improvement is recorded numerically (e.g. number of doors) we will compute the total number.

[3] This includes both new houses begun since 1 January 2017, and other houses besides the respondent's main residence (that might have been started prior to 1 January 2017).

Asset Purchases
1. Purchases of assets since January 1, 2017 (PCA Index)
    a. Value of asset purchases (in Kwacha)*
2. Purchases of assets used for home improvements since January 1, 2017 (PCA Index)
    a. Value of home improvement asset purchases (in Kwacha)*

Robustness checks
1. Number of assets and livestock owned, using only initial survey responses on the first survey with the worker during the HFS-5 (PCA Index).
    a. Value of assets measured in the same way (in Kwacha)*
2. Number of assets and livestock owned, using only survey responses from the follow up survey at the worker's home, and not correcting them using physical verification/enumerator judgement/enumerator comments (PCA Index).
    a. Value of assets measured in the same way (in Kwacha)*

Tertiary Outcomes

The outcomes will be available in our dataset, but we believe that treatment effects on these outcomes are unlikely. We will therefore not be including them in any multiple comparisons adjustments. If we do conduct any multiple comparisons adjustments for these outcomes, we will do them strictly within the categories below.

Progress out of Poverty Index (PPI)
• Overall PPI

School investments
NOTE: for analyses of school investments, we will explore heterogeneous treatment effects by child gender.
• School Attendance
• School Enrollment

Financial Outcomes – Savings Flows
• Total number of withdrawals from formal savings in past 30 days
• Total number of deposits to formal savings in past 30 days
• Participated in any savings groups since June 2018

Financial Outcomes – Savings Stocks
• Total value of stored food
• Total value of stored maize
• Total balance of all formal savings
• Total balance of all informal financial savings
• Total balance held in savings groups
• Total value of all informal savings (financial + stored food + business inventory)
• Total value of all savings (formal + informal)

Financial Outcomes - Loans
- Total value of outstanding loans
- Total value of loans owed by others
- Net outstanding loans (outstanding – owed)
- Net liabilities (savings balance – net value of loans)
- Possibility of raising MK12,000 within one week
- Difficulty of raising MK12,000 within one week

Consumption
- Total value[4] of maize flour & grain consumption†

Food security - number of times consumed nsima (maize porridge) yesterday
- Self
- Other household members above 2 years old

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[4] Consumption will be valued at sample median prices based on the sale value of the food from the food storage module.