Deferring Wages and Labor Supply in Malawi

Analysis Plan Part 6:
Medium-Run Impacts of the Savings Scheme

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Abstract:

This document is the sixth 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. 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. The present document specifies our plan for analyzing the medium-run impacts of the deferred wages product, approximately 3.5 months after workers received their savings. To do this we will use the fourth high-frequency survey (HFS-4) that we are collecting beginning on August 22nd, 2017. The authors posted this document before the first day of data collection began for the HFS-4.

Overview:

This document is the sixth 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 medium-run impacts of deferred wages, approximately 3.5 months after the disbursement of the workers' wages. We will analyze these impacts using the fourth high-frequency survey (HFS-3) that we are collecting beginning on August 22nd, 2017. This document was posted before the first day of data collection began for the HFS-4.

Design of the HFS-4

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-4 collects data on financial outcomes 3.5 months after the lump-sum disbursement, to measure any changes in asset holdings, home improvements, savings, and so forth.

Our basic analysis for the HFS-4 will examine outcomes separately from the earlier waves of data collection (HFS-1, HFS-2, and HFS-3). 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.

List of Outcomes

The following is a list of the outcomes that we will include in our analysis of the medium-run impacts of the deferred wages scheme. These variables 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-4.

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-4.

[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.

Note that we may drop some of the outcomes below from the survey. See details below where we discuss the justification for this and what steps we will take if this occurs.

Also, note that the survey also contains a module designed to elicit demand for various versions of the deferred wages scheme and workers' willingness to pay for these different versions of the product. We do not discuss our plans for analyzing this data here, other than to note that when we compare the preferences of treatment and control workers, our preferred specification is to follow equation 1 from Part 1 of the analysis plan.

School investments

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

- School Attendance
- School Enrollment

Expenditure levels in past 14 days

- Total expenditures †
- Storable food expenditures* †
- Perishable food expenditures* †
- Total food expenditures (=storable plus perishable)†
- Expenditures on large purchases (assets, investments, etc.)*†

Expenditure composition in past 14 days (denominator is the total expenditure variable†)[2]

- Storable food expenditure† as a share of total expenditure*
- Perishable food expenditure† as a share of total expenditure*
- Total food expenditure (=storable plus perishable) † as a share of total expenditure
- Expenditures on large purchases (assets, investments, etc.)* as a share of total expenditure

Large ("Lumpy") Expenditures

- Expenditures on items that cost more than MKW 5,000*
- Bought anything that cost more than MKW 5,000
- Bought anything that cost more than MKW 10,000

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 January 2017
- Participated in any savings groups since May 2017

[2] The denominator for the expenditure share variables is the total expenditure variable, which is defined above as the sum of the individual categories of expenditures. This is replaced with the respondent's revised answer if they provide one when prompted because of a discrepancy between the overall total and the sum of the components. To control prevent shares from exceeding 100%, we will winsorize the data at the X and 1-X percentiles, where X is the fraction of the data with an expenditure share greater than 100%. If X is less than 1%, then we winsorize at the 1st and 99th percentiles instead.

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)

Consumption

- Total value[3] of maize flour & grain consumption†

Food security - number of times consumed nsima (maize porridge) yesterday

- Self
- Other household members above 2 years old

Housing quality

NOTE: for analyses of house quality, we will explore heterogeneous treatment effects by whether the worker initially owned his or her own house.

- Owns own house*
- Number of rooms in house*
- House has electricity*
- House has indoor running water*
- Wall material improved since baseline[4]
- House has cement floor*
- House has iron sheet roof
- Made any improvements since 1 January 2017
- Total value of improvements to current residence since 1 January 2017*
- PCA index of improvements to current residence since 1 January 2017*
- Started building new house since 1 January 2017
- Finished building unfinished house since 1 January 2017*
- Total value of investments in new[5] houses since 1 January 2017*

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

[4] There are four materials on the survey, and we rank them as follows in descending order of quality: Cement>Burnt Brick>Mud Brick>Mud. An improvement means moving up the list at least one step.

[5] 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).

- PCA index of investments in new[6] houses since 1 January 2017*
- Total value of improvements to any residence (existing or new) since 1 January 2017*
- PCA index of improvements to current residence or new houses[7] since 1 January 2017

Asset & livestock ownership

- PCA index of assets & livestock purchased since 1 January 2017
- PCA index of assets & livestock owned*
- Indicator for buying any asset since 1 January 2017

Work and income

- Total distinct income sources in past 3 months

Dropping Variables from the Survey

We are currently considering dropping some of the variables from the HFS-4 to reduce the length of the survey instrument. This decision depends on whether the survey takes too long during the first few days of data collection. If we choose to make this change, we will eliminate selected questions from the survey for the remainder of the sample, and they will be missing for the remainder of the respondents. We will also upload an addendum to the analysis plan indicating which variables we have dropped.

[6] 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).

[7] 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.