

Can mobile money help overcome temptation spending and social pressures among microfinance clients?

Pre-Analysis Plan

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1 Introduction

This study uses a randomized experiment to evaluate the economic effects of providing mobile money accounts to microfinance borrowers in Kampala, Uganda. Between January and June 2017, I baselined and randomised 3,000 female microfinance clients at the individual level equally into three treatment groups:

1. control who receive their microfinance loan as usual as cash
2. treatment group one who receive a mobile money account designated for business spending but the loan still given as cash
3. treatment group two who receive a mobile money account designated for business spending and the microfinance loan given on the mobile money account.

An endline survey will run from October 2017-January 2018.

This experiment will test the behavioural and social hypotheses that the integration of mobile money accounts and microfinance loans increases the economic benefits of the loans by facilitating business investment and saving. By keeping business funds separate from household funds both mentally and physically, mobile money may create behavioural impediments to acting in impulse and thereby facilitate saving, while also serving to hide money from others.

Comparing these 3 groups allows me to test the effects on business outcomes, such as profit, business capital and savings, from a business designated saving account and the additional benefit of receiving the loan on this account. In addition, I carried out behavioural games to determine which women have hyperbolic preferences and are most willing to pay to hide money from their

spouse. This allows me to determine if these women benefit the most from a business mobile money account.

This study will provide evidence on the merits of integrating a prevalent, basic substitute for a bank account, a mobile money account, with an existing popular and widespread financial service, microfinance loans.

2 Overview of the study

2.1 Study location, partner organisation and target population

The partner NGO is BRAC Uganda. BRAC Uganda is one of the largest providers of financial services to the poor in Uganda, providing tools that enable the financial inclusion of thousands of people across the country. They offer financial services to micro, small and medium entrepreneurs and communities that are largely excluded and under-served with financial services through 140 branches. BRAC now serves over 190,000 active borrowers using group and individual lending methodologies with 90% being women.

The study location is Kampala, Uganda which has been chosen since it has both high prevalence of microfinance borrowing and high mobile money penetration, as well as being representative of the poor in developing countries. The study took place in 6 urban BRAC microfinance branches in Kampala.

The subject population are women who are already operating small businesses and who have a mobile phone (over 95% of BRAC microfinance borrowers in Kampala already have a phone). The women are part of a group of up to 30 women, and pay their loans at weekly group meetings. The loans are individual liability for which they must also have an external (to the group) guarantor. While these women are therefore not group liability borrowers (which BRAC stopped offering in summer 2015) they are subject to the weekly group repayment meetings for which microfinance is so famed. This makes these borrowers very representative of microfinance borrowers all over the world and hence the success of the project with this group would be indicative of its success elsewhere across Sub-Saharan Africa, Asia or Latin America where mobile money is quickly spreading.

2.2 Interventions

There are two interventions:

Intervention One

Women seeking a loan from BRAC were randomly offered a mobile money account designated for their business. Women were provided with a new sim card, helped in setting up their mobile money account and trained how to use it. The account was described as specifically for their business but

no formal restrictions were placed on how they use the account nor money paid into the account. Women in this group continued to receive their microfinance loan as cash.

Intervention Two

Women seeking a loan from BRAC were offered the same business mobile money account as in Intervention One but, additionally, their microfinance loan will be paid directly into this account. These loans were paid through a mobile money provider and include an additional amount to cover the fee for withdrawing the money from an agent so as not to disadvantage women receiving the loan this way. An awareness session fully explained this process so as to maximize take-up.

By using these two different interventions, the study will be able to separately determine the impact of the mental accounting effect from keeping business and personal spending independent and the behavioural and social benefits from the loan being paid onto a mobile money account. In both interventions, other features of the BRAC microfinance loan would remain the same including having to go to the BRAC branch on the day the loan is disbursed for final checks and repaying the loans via cash at weekly group meetings.

The study involved 3,000 female micro-entrepreneurs, of which 1,000 act as controls receiving the microfinance loan in the usual way as cash and nothing else, 1,000 were signed up for a business designated mobile money account but still receive their loan as cash and 1,000 were signed up for the business designated mobile money account and receive their loan on that account. These are summarized here:

Control (cash loan only): No mobile money account; loan as cash

Treatment arm 1: mobile money account with loan as cash. Borrowers receive a free sim card, are registered for a mobile money account designated for their business use and receive training on how to use the account; loan as cash

Treatment arm 2: mobile money account with loan as mobile money. Borrowers receive a free sim card, are registered for a mobile money account designated for their business use and receive training on how to use the account; loan as mobile money

All other aspects of the BRAC microfinance loan product will remain the same, including the requirement to be physically present at the branch for the disbursement of the loan and signing of final agreements and the repayment of the loans via weekly group collection meetings within the borrower's community.

2.3 Treatment assignment and data collection

All data collection is in the form of surveys collected as face-to-face interviewers. Data collection began with the baseline survey upon a woman applying for a loan (before randomization and loan disbursement) and occurs again with an endline survey upon the completion of the loan. Baseline surveys took place between January 2017 and June 2017. The baseline survey covered demographic and business characteristics, business outcomes including profit, turnover and employment, consumption, saving behaviour and goals and transfers to family and friends. There is a one-week delay between a woman applying for a loan and receiving it, during which time BRAC carry out their own loan appraisal process. The baseline was carried out alongside this process. All women meeting the condition that they had a mobile phone and were applying for a loan (either for the first time or as a repeat borrower) completed the baseline survey. This was continued until the sample size of 3000 borrowers was met.

In order to test the hypothesis that the women who benefit most from receiving the loan on a mobile money account are those who are most likely to give in to temptation goods or most subject to pressure to transfer money to others, incentivised games were played at baseline to elicit time preferences and willingness to pay to hide money from the spouse. The propensity to pay to hide money from others has been used as a measure of women’s empowerment in the literature (Almas et al., 2015).

Randomisation took place weekly in blocks of 150-200 women determined by the timing of requesting a new loan. Women were individually randomised into the treatment or control groups. This continued for approximately 5 months until the sample size of 3,000 was achieved. The randomisation was stratified by present bias and willingness-to-pay-to-hide-money, first time borrower with BRAC, microfinance branch and also by business profits at baseline (since Fafchamps et al. 2011 showed heterogeneous effects of giving loans to women based on their profitability).

The endline survey will measure business outcomes including profit, turnover and employment, consumption, saving behaviour and goals, transfers to family and friends and questions on decision making power in the household. The behavioural games will also be repeated. Since loan durations are 40 weeks the endline will be approximately 40 weeks after the loan disbursement, from October 2017 until January 2018.

2.4 Take-up

Overall the interventions had high take-up rates. 94% of the individuals assigned to the mobile money account (treatment one) received a mobile money account and 71% of those assigned to receive a mobile money account and their loan on the mobile money account (treatment two) received this. Additionally, 14% of those assigned to receive a mobile money account and their loan

on the mobile money account received only a mobile money account and their loan as cash (they were assigned to receive treatment two and got treatment one). The reasons for those assigned to treatment two getting treatment one were both refusal of treatment two but also problems completing mobile disbursement, such as power cuts or networks outages. Lastly 15% of women assigned to mobile disbursement refused the entire treatment (sim card and mobile disbursement). This is summarized in Table 1 below.

Table 1: Treatment compliance

	mobile account	mobile disburse
Received mobile money account and loan as mobile money	-	71%
Received mobile money account and loan as cash	94%	
Refused mobile disbursement		5%
Technical problem for mobile disbursement		9%
Received no mobile money account (refused)	6%	15%
Total	100%	100%

3 Outcomes

Outcomes are split into primary and secondary outcomes. Primary outcomes are those that the interventions would be expected to affect. Secondary outcomes are those that I have less prior hypothesis about how the interventions will affect them, but are interesting for exploratory and mechanism analysis.

I have further broken down the outcomes into families. For the primary outcomes I have 3 families and for the secondary outcomes 7 families. For each outcome family, I report a summary measure, which is the main focus of analysis, as either an aggregate measure or an index. These are summarised below. I also present for each family a number of alternative measures, which will be used for robustness and mechanism analysis. These are shown in the Appendix. Full details of the construction of all outcomes are detailed in the Appendix.

3.1 Primary outcomes

I am primarily interested in the effect of the mobile money account treatments on business performance, savings and investment outcomes.

3.1.1 Outcome family 1: Business performance

Hypothesis 1: Mobile money accounts positively affect business performance

Summary measure: Self reported monthly business profits

3.1.2 Outcome family 2: Savings

Hypothesis 2: Mobile money accounts facilitate saving

Summary measure: Total savings (self-reported)

3.1.3 Outcome family 3: Business assets

Hypothesis 3: Mobile money accounts facilitate business investment

Summary measure: Value of assets used in the business

3.2 Secondary outcomes

The treatment with a mobile money account may have effects on other aspects of the respondent's business, personal and household life via the primary outcomes. These outcomes are excluded from multiple hypothesis testing and should be considered exploratory, giving insight into additional effects and mechanisms.

3.2.1 Outcome family 4: Business labour inputs

Hypothesis 4: Treatment with the mobile money accounts affects labour investment in the respondent's business

Summary measure: Total hours worked in business (respondent, family members and workers)

3.2.2 Outcome family 5: Remittances

Hypothesis 5: Treatment with the mobile money account affects remittances

Summary measure: Total remittances sent

3.2.3 Outcome family 6: Female empowerment

Hypothesis 6: Treatment with the mobile money account affects female empowerment

Summary measure: female empowerment index

3.2.4 Outcome family 7: Well-being

Hypothesis 6: Treatment with the mobile money account affects female well-being

Summary measure: Well-being index

3.2.5 Outcome family 8: Household income

Hypothesis 7: Mobile money accounts affect the entrepreneur's household income

Summary measure: Total household income

3.2.6 Outcome family 9: Household wealth

Hypothesis 9: Mobile money accounts affects the entrepreneur's household wealth

Summary measure: Household total wealth (assets, savings, land value)

3.2.7 Outcome family 10: Household consumption

Hypothesis 10: Mobile money accounts affect the entrepreneur's household consumption

Summary measure: Total household consumption

4 Analysis

4.1 Estimation methodology

McKenzie (2012) showed that in the case of a single baseline and follow-up with an autocorrelation less than 0.5 (as is the case for business profits, saving and spending), power is highest when regressing an outcome measure at endline on baseline covariates, the treatment measure and the baseline value of the outcome measure. There are large power gains from using ANCOVA rather than a difference-in-difference specification. The study will therefore be analysed using an OLS regression of the form:

$$Y_{i1} = \alpha_0 + \alpha_1 T_{1i} + \alpha_2 T_{2i} + \alpha_X X_{i0} + Y_{i0} + \epsilon_{i1} \quad (1)$$

Where Y_1 is the outcome of interest, T_1 the mobile money account only treatment dummy, T_2 the mobile money account and loan on the mobile money account dummy, X a set of randomization strata dummies (Bruhn and McKenzie, 2009), Y_0 is the baseline value of the outcome (if measured at baseline, otherwise excluded) and ϵ random error for individual i .

OLS estimation of the above regression will return the unbiased estimate of the Intent to Treat (ITT) effects, α_1 and α_2 . To estimate the local average treatment effect, the above equation will be estimated where assignment to treatment is replaced with actual take-up, which is instrument by assignment, giving the two-stage least squares estimator.

4.2 Hypothesis testing

For each outcome listed, I will test the following hypotheses:

1. whether a mobile money account alone has any effect (H0: $\alpha_1 = 0$)
2. whether the mobile money account and loan as mobile money has any effect (H0: $\alpha_2 = 0$)
3. whether these differ (H0: $\alpha_1 = \alpha_2$).

4.3 Multiple test correction

Because I am considering three primary outcome summary measures (profit, saving and business assets), I adjust the p-values of the coefficients of interest for multiple statistical inference by calculating sharpened q-values that control for the false discovery rate (FDR). These q-values correct for the fact that I conduct 3 tests across the 3 primary outcomes. Rather than pre-specifying a single q, I report the minimum q-value at which each hypothesis is rejected, following Anderson (2008) and Benjamini et al. (2006).

When looking at secondary outcomes I do not correct for multiple testing as this analysis is informative for exploratory analysis of additional impacts and mechanisms analysis, not the main impact.

When looking at additional outcomes I do not correct for multiple testing as this analysis is informative for robustness checks and understanding which components are aggregate and indexes might be driving any impacts.

4.4 Index construction

For some summary measures of outcome families, I will group several related variables into index variables following Anderson (2008). I will construct the indices in three steps. First, I will re-code all contributing outcomes so that higher values correspond to treatment effects in the same direction (“better” outcomes). Second, I will standardize the individual outcomes using the baseline mean and standard deviation for that outcome. Third, I will calculate the average of the standardized constituent outcomes, weighted by the inverse covariance matrix. Where an outcome value is missing for a respondent, I will omit this outcome from the index construction.

4.5 Heterogeneous effects

I will test whether the impact of the treatment varies by pre-determined characteristics of the borrowers as measured at baseline by augmenting equation (1) with the baseline measure of interest and the interaction between the treatment indicators and the baseline measure of interest. I will

examine heterogeneous effects by the following measures:

The stratification variables:

1. An indicator variable equal to one if the respondent's businesses profits were above the sample median
2. An indicator variable equal to one if the respondent switched above the median score on the hiding money from the spouse game
3. An indicator variable equal to one if the respondent displayed hyperbolic time preferences
4. An indicator variable equal to one if the respondent had taken a loan previously with BRAC

Other variables of interest

1. An indicator variable equal to one if the woman had savings above the median savings
2. An indicator variable equal to one if the woman had business assets valued at above the median value
3. An indicator variable equal to one if the respondent was married
4. An indicator variable equal to one if the woman was above the median value of the empowerment index
5. An indicator variable equal to one if the respondent sent money to her family in the past month
6. An indicator equal to one if the respondent agreed that when she has money on hand, her spouse and/or family request it
7. An indicator equal to one if the respondent's main saving goal was the business
8. An indicator equal to one if other household members had a business

For heterogeneous effects, I will correct p-values on my interaction terms for multiple testing using FDR-adjusted q-values. I report standard p-values and sharpened q-values that control the false discovery rate (FDR), adjusted based on the 3 primary outcomes tested. Rather than pre-specifying a single q, I report the minimum q-value at which each hypothesis is rejected, following (Anderson, 2008) and (Benjamini et al., 2006). These are calculated across the number of outcomes per interaction term*, as this is most relevant for determining whether heterogeneous effects are statistically significantly different than zero.

*here the 3 primary outcomes

5 Robustness and attrition

5.1 Robustness

I will perform the following robustness checks:

1. If any covariate was found to be unbalanced at baseline I will rerun equation (1) including that variable as a control.
2. I will confirm my results are robust to winsorizing at the 0.5, 1 and 2% level.
3. I will construct all index variables using the method described in Kling et al. (2007).
4. I will re-estimate equation (1) using weighted least squares to account for attrition (as described in Section 5.2)
5. I will estimate Lee bounds on the treatment coefficients (as described in Section 5.2)
6. I will estimate equation (1) with a linear and quadratic time trend of the number of days between loan disbursement and endline
7. I will construct p-values using a permutation test based on a randomization inference approach.

5.2 Adjusting for missing data in follow-up surveys

The main results will be presented without adjustment for attrition (i.e. households not surveyed in the follow-up) or unit non-response (i.e. individual questions not answered in the follow-up). If any one outcome is missing for more than 10% of the sample, I will implement three analyses to characterize the missing data:

1. I will compare the fraction of missing data by assigned treatment status. I do this by estimating equation (1) using an indicator for attrition as an outcome (and omitting Y_{0i}) and testing if the coefficients on the treatment dummies equal zero:
2. I will regress a missing data indicator on a vector of baseline covariates using a logit model, report the marginal effects, and test if the marginal effects are individually or jointly significantly different to zero.
3. I will regress a vector of baseline covariates on treatment indicators for the sample of individuals who attrited.

For any specific outcome where responses are missing for more than 10% of the sample, I will use the following analysis to assess the sensitivity of my results to missing data:

1. I will construct bounds on parameters using the trimming procedure described in (Lee, 2009)

If more than 15% of the baseline sample is missing I will:

1. use the estimates from the previous analysis to construct the predicted probability of missing data for each observation and estimate equation (1) using inverse probability weights.

6 Appendix - Outcome measures

The tables below provide details on how the outcome measures are constructed, and their source in the survey questionnaire. The outcome in bold is the primary summary measure for that family. Non-bold outcomes are for secondary mechanism analysis and robustness checks.

Primary outcomes

Outcome family 1: Business Performance

Variable	Definition	Survey source
Summary variable: Self-reported monthly business profit	Self reported monthly profit from business	earn_business
Monthly sales	Monthly sales for the business	t_sales
Weekly sales	Weekly sales for the business	sales
Monthly profit	Monthly sales - monthly expen- ditures	t_sales - t_expenditures
Weekly profit	Weekly sales - weekly expendi- ture	sales-expenditure
Inventory value	Inventory value today	inventory_value

Outcome family 2: Savings

Variable	Definition	Survey source
Summary variable: Total savings reported	Self reported total savings	much_saved
Total savings calculated	Sum of amount saved in each method of savings	$\sum saving_amount_r$ where r represents different methods of saving listed in use_saving
Net savings month	Saved last month - withdraw from savings in past month	saving_month - saving_withdrewmonth
Saves mobile money	Dummy if saves on a mobile money account	use_saving=mobile money
Saves mobile money amount	Amount saved on a mobile money account	use_saving=mobile money, saving_amount
Saving goal business	Reports business as the main saving goal	main_goal

Outcome family 3: Business assets

Variable	Definition	Survey source
Summary variable: Value of business assets	Total value of assets reported as used in the business	$\sum asset_value_i * asset_business_i$ where asset_value is the value of asset i and asset_business is a dummy for whether or not asset i is used in the respondent's business
PCA of business assets	First principal component of assets used in the respondent's business	asset_business_i

Secondary Outcomes

Outcome family 4: Business labour inputs

Variable	Definition	Survey source
Summary variable: Total hours worked	Sum of respondent, household and hired labour hours worked in the respondent's business in a week	$\sum hh_work_i + hours_{week} + employee_{hours}$ where i indexes household member
Hours respondent	Hours worked by the respondent in her business in a week	hours_week
Hours adults	Hours worked by adult household members in the woman's business in a week	$\sum hh_work_i$ if household member i is older than 18
Hours children	Hours worked by child household members in the woman's business in a week	$\sum hh_work_i$ if household member i is less than 18
Hours hired	Hours worked by hired workers in the woman's business in a week	employee_hours
Hired workers	Number of non-household member employees	non_hhemployee

Outcome family 5: Remittances[†]

Variable	Definition	Survey source
Summary variable: Total remittances sent	Total remittances sent by respondent in past 12 month	remittance_samount
Total remittances received	Total remittances received by respondent in past 12 month	remittance_ramount
Net remittances received	Remittances received in the past 12 months - remittances sent in the past 12 months	remittance_ramount - remittance_samount
Remittance mobile money	Dummy if sent or received remittances using mobile money during past 12 months	remittance_rhow and/or remittance_show = using mobile money
Remittances sent	Dummy if sent remittances in past 12 month	sent_remittance
Remittances received	Dummy if received remittances in past 12 month	receive_remittance

[†]Note these outcomes were only collected at endline

Outcome family 6: Female empowerment

Variable	Definition	Survey source
Summary variable: Female empowerment index §	Standardized index	constructed from below items
Hides money switch	Question (1-7) upon which the woman switched in the incentivised hiding money game from preferring to receive money herself to preferring her spouse to receive it. Women who never switch are coded as 8	emp1, emp2, emp3, emp4, emp5, emp6, emp7 = spouse
Number of decisions made alone	Sum of decision areas (out of 14) that the woman decides alone	cloth_decision, food_decision, health_decision, own_health, child_educ, small_purchase, other_purchase, large_purchase, run_biz, your_educ, number_child, visit_friend, credit_save, hh_save,
Number of decisions made jointly with spouse	Sum of decision areas (out of 14) that the woman decides jointly with the spouse	cloth_decision, food_decision, health_decision, own_health, child_educ, small_purchase, other_purchase, large_purchase, run_biz, your_educ, number_child, visit_friend, credit_save, hh_save,
Spend money	Agrees able to spend the money she earns the way she wants	spend_money
Remittance share	Proportion of remittances sent in the past month that go to the respondent's blood family	$\frac{\text{sent_family}}{\text{sent_family} + \text{sent_sfamily}}$
Income share	Proportion of total household monthly income earned by the woman	$\frac{(\text{other_work_earning} + \text{earn_bus})}{[\sum(\text{hh_earn}_i + \text{hh_bus_earn}_i) + \text{other_work_earning} + \text{earn_bus}]}$ where i indexes household member

Outcome family 7: Female well-being

Variable	Definition	Survey source
Summary variable: Well-being index	Standardized index	constructed from below items
Happiness scale	1-5 scale where 1 is unhappy and 5 is very happy	happiness
Life satisfaction scale	1-10 scale where 1 is completely dissatisfied and 10 is completely satisfied	life_satisfaction
Worry money	1-5 scale where 1 is completely disagree and 5 is completely agree that "I've worried about money in the past month"	worry_money

Outcome family 8: Household income

Variable	Definition	Survey source
Summary variable: Total household income	Monthly income of the household from businesses and wages	$\sum (hh_earn_i + hh_bus_earn_i) + other_work_earning + earn_bus$ where i indexes household member
Respondent wage income	Monthly income of the respondent from wage work	other_work_earning
Spouse business income	Monthly income of the respondent's spouse from their business	hh_bus_earn.i where i is the spouse
Spouse wage income	Monthly income of the respondent's spouse from wage work	hh_earn.i where i is the spouse
Other household member business income	Monthly income of the respondent's non-spouse household members from their businesses	hh_bus_earn.i where i is not the spouse
Other household member wage income	Monthly income of the respondent's non-spouse household members from wage work	hh_earn.i where i is not the spouse

Outcome family 9: Household wealth

Variable	Definition	Survey source
Summary variable: Total household wealth	Wealth in the form of assets, savings and land value	$\sum asset_value_i$ much_saved + sell_land + sell_otherland where i indexes asset
PCA of asset and housing characteristics	First principal component of asset and housing characteristics dummy variables	asset_selected_i, construction_material2, construction_walls2, rooms, lighting_source2, toilet_type2, electrical_items2
Poverty score	BRAC poverty scorecard	hh_size, hh_still_school_i, education_level, construction_material2, construction_walls2, lighting_source2, toilet_type2, electrical_items2, clothes2, shoes2

Outcome family 10: Household consumption

Variable	Definition	Survey source
Summary variable: Total household consumption	Monthly household consumption	Aggregate of food, temptation and non-food consumption
Food consumption	Weekly food consumption	staples, pulse milk, vegetable, fruit, eggs, other_food, meals,
Temptation consumption	Weekly temptation good spending	alcohol, tobacco
Non-food consumption	Monthly non-food consumption	fuel, cloth_women, cloth_men, girls, boys, water, credit, recreat, washing, transport, rent, sch_fees, schl_fees, sch_supplies, shl_supplies, medical_women, medical_men, medical_girl, medical_boy, maintanance, sent_family, sent_sfamilly, sent_other, gifts,
Clothing for women	Monthly clothing expenditure on women	cloth_women,
Clothing for men	Monthly clothing expenditure on men	cloth_men,
Clothing for girls	Monthly clothing expenditure on girls	girls,
Clothing for boys	Monthly clothing expenditure on boys	boys
Education	Monthly education expenditure	sch_fees, schl_fees, sch_supplies, shl_supplies,
Healthcare	Monthly healthcare expenditure	medical_women, medical_men, medical_girl, medical_boy,

References

- Almas, I., Carneiro, P., Attanasio, O., Armand, A., Attanasio, O., and Carneiro, P. (2015). Measuring and Changing Control : Women’s Empowerment and Targeted Transfers. *Working paper*.
- Anderson, M. L. (2008). Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects. *Journal of the American Statistical Association*.
- Benjamini, Y., Krieger, A. M., and Yekutieli, D. (2006). Adaptive linear step-up procedures that control the false discovery rate. *Biometrika*, 93(3):491–507.
- Bruhn, M. and McKenzie, D. (2009). In Pursuit of Balance: Randomization in Praction in Development Field Experiments. *American Economic Journal: Applied Economics*, 1(4):200–232.
- Kling, J. R., Liebman, J. B., and Katz, L. F. (2007). Experimental analysis of neighborhood effects. *Econometrica*, 75(1):83–119.
- Lee, D. S. (2009). Training, Wages, and Sample Selection: Estimating Sharp Bounds on Treatment Effects. *Review of Economic Studies*, 76:1071–1102.
- McKenzie, D. (2012). Beyond baseline and follow-up: the case for more T in experiments. *Journal of Development Economics*, 99(2):210–221.