Seattle Replication Game

July 1, 2024

1 Notes on Registration and Pre-Analysis Plan

- Trial registered in the AER RCT Registry (AEARCTR-0001836) December 07, 2016. This is before the intervention start date.

  - However, this did NOT include a formal pre-analysis plan yet.
  - It does include an abstract, a description of the three treatments, a broad description of outcomes to be studied, and the experimental design. All of these match the final paper.
  - There are two differences between the registry and the final paper:
    * One difference is "Randomisation will take place weekly in blocks of approximately 400 women determined by the timing of requesting a new loan." In the final paper, the blocks were of approximately 250 women.
    * One other difference is the planned sample size. The original sample size was 3,600, but the final paper had a sample of 3,000.
  - This registration did not include a power analysis (i.e., did not answer "Minimum detectable effect size for main outcomes.")

- The formal pre-analysis plan was posted on December 11, 2017. This was before the endline surveys were completed.

  - Baseline surveys were conducted between January and June 2017, so before the pre-analysis plan.
  - Focus groups in September 2017.
  - Endline survey October 2017 until January 2018.

- Pre-analysis plan

  - Reflects sample size of 3,000.
  - Things from the baseline survey not emphasized in main analysis: business turnover and employment, goals.
  - Hypotheses - Primary outcomes
    1. Hypothesis 1: Mobile money accounts positively affect business performance (Self reported monthly business profits)
    2. Hypothesis 2: Mobile money accounts facilitate saving (Total savings (self-reported))
    3. Hypothesis 3: Mobile money accounts facilitate business investment (Value of assets used in the business)
    4. The hypothesis tests listed in Section 4.2 are as in the paper.
  - Hypotheses - Secondary outcomes – "These outcomes are excluded from multiple hypothesis testing and should be considered exploratory, giving insight into additional effects and mechanisms."
    1. Hypothesis 4: Treatment with the mobile money accounts affects labour investment in the respondent's business (Total hours worked in business (respondent, family members and workers)) - in Appendix Table A.9.
    2. Hypothesis 5: Treatment with the mobile money account affects remittances (Total remittances sent) - Appendix Table A.29.
    3. Hypothesis 6: Treatment with the mobile money account affects female empowerment (female empowerment index) - Appendix Table A.27.
    4. Hypothesis 7: Treatment with the mobile money account affects female well-being (Well-being index) - Appendix Table A.26.
    5. Hypothesis 8: Mobile money accounts affect the entrepreneur's household income (Total household income)
    6. Hypothesis 9: Mobile money accounts affects the entrepreneur's household wealth (Household total wealth (assets, savings, land value))
    7. Hypothesis 10: Mobile money accounts affect the entrepreneur's household consumption (Total household consumption)
    8. Not in pre-analysis plan but in the paper: Appendix Table A.28, record-keeping outcomes; A.30, number of women in group you'd interact with; A.31, loan repayment;
  - Specifications

1. Equation 1 is as in the final paper. Not in the main results: "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"

– Indeces

  ∗ "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.

– Heterogeneity

  ∗ Heterogeneity by all randomization variables. (Four categories.)
    · In actual paper: Heterogeneity by index of self-control, rather than hyperbolic time preference dummy; similarly, index of family pressure rather than dummy for WTP to hide.
    · But Table A.32 uses components (high profits, hide money, current loan (cf first time), hyperbolic), as well as impatient, high risk taking, high saving,
  ∗ Heterogeneity by above median savings dummy, above median business assets dummy, married, above median empowerment dummy, sent a remittance dummy, family request money dummy, main savings goal is business dummy, other HH member has a business dummy.
    · In paper, Table A.22 has presence of spouse (not married or spouse away from home)
    · Table A. 32 includes high inventory, high asset, married, high empower, sent family, family takes, saves for business, spouse or other HH member has a business, and agent nearby.
    · So, all of the reported heterogenetiy dummies, and more.
  ∗ Says q-values will be reported for heterogeneity, adjusted based on there being 3 primary outcomes tested.

– Robustness

  1. Appendix Table A.12 controls for imbalanced variables at baseline (though, it would be worthwhile to ceck in the code that the set of controls used here matches the variables that are imbalanced in Appendix Table A.2).
  2. Appendix Table A.11 shows the three main outcomes under different levels of winsorizing (those reported in the pre-analysis plan, as well as 5% level).
  3. The Kling et al method was only used for the empowerment outcomes index, in Appendix Table A.27. There are other indeces used in the paper, and results using the Kling et al method are not reported.
  4. I could not find where weighted least squares was used to adjust for attrition (**but a closer investigation is needed**).
  5. I could not find estimation of Lee bounds on the treatment coefficients (**but a closer investigation is needed**).
  6. Appendix Table A.12 includes the quadratic time trend.
  7. I could not find use of randomization inference to construct p-values (**but a closer investigation is needed**).

– Adjustment for attrition

  ∗ This section says "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)." I do not kow how to interpret this in light of the imputing many missing values as zeroes in the code.
  ∗ I below note whether steps (1)-(3) were completed; however, the attrition rate was 10%, and the plan says that these steps will only be completed if more than 10% of the sample is missing.
  ∗ Table A.4 compares the fraction of missing data by assigned treatment status as described.
  ∗ Table A.5 regresses the missing data indicator on baseline covariates as described, though based on the table notes I believe a linear probability model is used, rather than a logit model.
  ∗ I could not find a table that matched step (3).
  ∗ Again, I did not find any use of a procedure by Lee, 2009.

– Remaining to-do

  ∗ Confirm that variables are constructed as described in the plan's appendix.

• Pre-Analysis Plan Amendment, July 31, 2018

  – Hypothesis 1 – see Table A.18.
  – Hypothesis 2 – see Figure 2.
  – **To do:** find where LATEs are reported.
  – **To do:** confirm outcomes are constructed as reported in the appendix.

2 Notes on Stratification

- From Pre-Analysis Plans

    - December 11, 2017 - first pre-analysis plan

        * "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."

        * "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)."

    - December 7, 2016 - first registration

        * "Randomisation will take place weekly in blocks of approximately 400 women determined by the timing of requesting a new loan. Loans will be disbursed weekly according to the method determined in the randomisation."

- From the published paper

    - "Randomization took place weekly in batches of 250 women determined by the timing of requesting a new loan. Within each batch, all women accepted for a loan were individually randomized into the treatment or control groups. Randomization continued for approximately 5 months until the sample size of 3,000 was achieved. Lists of treatment assignments from the randomization were sent to the BRAC branches weekly, and only women who had completed the baseline survey and had been assigned a treatment could have a loan disbursed to them." (pg. 1422)

    - "Since assignment to treatment took place over a number of months and women applied for loans on different schedules, within the same group, women would be assigned to different treatment arms at different time points or not be in the study at all" (pg. 1422)

    - I'm not exactly sure what was meant by groups (can every woman in the group separately apply for a loan? what is the function of the groups?), though Footnote 10 is meant to explain some: "On average, groups had 20 members and 5 were in the study. Due to the relatively large number of microfinance groups in the study (476), there are 48 groups that only had 1 study participant."

    - "The randomization was stratified by five variables at baseline: a dummy variable capturing present bias from a multiple price list incentivized game (Harrison et al. 2002), a dummy variable capturing if the woman switched above the median in a willingness to pay to hide money from the spouse game (Almås et al. 2018) (see Section IIIA for more details on the incentivized games), a dummy variable captur- ing if the client is a first-time borrower with BRAC, the microfinance branch, and a dummy variable for above-median business profit." (pg 1422)