Comments on "An escape from a poverty trap and the role of entrepreneurship: Microfinance lending to the ultra poor in the Northern Bangladesh"

(November 3, 2020, version)

Takashi Kurosaki

Comments are in the order of pages. Below, I first paste the text from the draft. My comments are shown in an indented paragraph. When I have a specific proposal for revision, I write it in blue fonts. For minor editorial changes that require no explanation, I use “track change” function in Word to show my suggested revision. Those comments starting with \* is something need discussion (others are mostly technical).

Throughout the paper, "the Northern Bangladesh"

I think we do not need the definite article and capitalization => "northern Bangladesh"

\*p.1, title "An escape from a poverty trap and the role of entrepreneurship: Microfinance lending to the ultra poor in the Northern Bangladesh"

I see no reason to emphasize “northern” Bangladesh in the title. The adjective would give readers (referees) a wrong impression that this is a case study applicable to only northern Bangladesh. How about "An escape from a poverty trap and the role of entrepreneurship: Microfinance lending to the ultra poor in Bangladesh"?

\*p.1, abstract "Our main findings, a large, upfront disbursement results in faster asset accumulation that is suggestive of an escape from a poverty trap and managerial support programs induce the participation of the ultra poor, are generalisable to other rural areas that are suited to livestock production."

I see no reason to emphasize “livestock” here. This would give readers (referees) a wrong impression that this is a case study applicable to areas where livestock is the main economic activity. How about "Our main findings, a large, upfront disbursement results in faster asset accumulation that is suggestive of an escape from a poverty trap and managerial support programs induce the participation of the ultra poor, are generalisable to other rural areas with liquidity constraints."?

p.7, line 6: "accumulation without affecting the repayment rates by 48.9 to 52.3 percentage points.”

p.7, 4th paragraph "We find that borrowers of the arm with managerial supports have lower cattle holding, 0.22 while borrowers from other arms have .308 (p value = .156), and smaller net asset values BDT 5603 in contrast to BDT 8204 in other arms (p value = .058). The outcomes and repayment rates are no lower than with the other arms, implying the managerial supports had a further outreach without compromising the outcomes. We also find that, relative to the traditional microfinance lending, the upfront liquidity provision increases the narrow net assets by BDT 14478 (CI 6868, 22088) in the second year, BDT 16417 (CI 1700, 31135) by the end of fourth year, and the number of cattle holding by 0.37 (CI 0.12, 0.62) in the second year, and 0.36 (CI -0.32, 1.04) by the end of fourth year. These results hold with other various definitions of assets and cattle rearing experiences.

As this is a preview of results in the introductory section, we do not need to report p-values and CI. Instead, we simply state “statistically significant” if necessary. Furthermore, it does not make sense to show the impact in absolute numbers in BDT or number of cows in the introductory section. We should replace it by relative terms such as “ZZ % of the baseline standard deviations” or “YY % of the baseline means”.

p.8, footnote 5 "Banerjee et al. (2015a) collects six studies of microfinance lending impacts."

\*p.9, 3rd paragraph "Our study is no exception. It comes from a remote and isolated area of the Northern Bangladesh where the single most important production opportunity is livestock production."

This could give readers a wrong impression that our study site is a livestock-based, pastoral economy. It is better to describe ours as a lowland, paddy-based crop economy. "Our study is no exception. It comes from a remote and isolated area of northern Bangladesh where the single most important opportunity to increase income in otherwise subsistence-oriented paddy-producing villages is livestock production."

p.10, footnote 11 "Produce of goats are mostly meat. Cow’s lactation length is 227 days and milk yield is 2.2 kg per day (Rokonuzzaman et al., 2009) while goat milk is seldom marketed. A meat market requires a cluster of relatively high income earners, which takes some efforts to get to from the river islands. Goat meat sales is seasonal and it does not provide a frequent cash flow."

Awkward expression. I suggest something like: "The produce of goats is mostly meat and their milk is seldom marketed. A meat market requires a cluster of relatively high income earners, usually located far from river islands, and the demand is highly seasonal. In contrast, cow milk can be marketed locally with stable demand, the lactation length is 227 days, and milk yield is 2.2 kg per day (Rokonuzzaman et al., 2009)."

p.11, 3rd para "two intersections between the steady state line, one unstable and the other stable equilibria"

p.11, footnote 12 " k2 is an unstable equilibrium that all individuals would deviate from, but we include this point to the region of attraction of C for the sake of simplicity."

p.12, 1st para "In the empirical section, we followed Bandiera et al. (2017) in interpreting the lower repayment rates and smaller cattle holding for a smaller upfront loan size as evidence consistent with a poverty trap with nonconvex production technology."

p.12, 3rd "In each village, we conducted a census of households with their wealth ranking made through a participatory ranking process."

\*p.12, 3rd-4th para "we asked the least wealthy households in terms of asset ownership. We then asked to form a member committee of 10 households, of which 6 are ultra poor and 4 are moderately poor. As we admitted households on a first come, first served basis, these 10 households are the first to join the membership of microfinance in respective poverty classes. After receiving acceptance for study participation (‘pre-acceptance’ in Figure 3), baseline data was collected in 2012 prior to the debt contract type randomization."

This is not precise. As our JDS paper has already been published, we should explain that there are 20 members per samity. Another correction is that the ratio of ultra poor and moderately poor was 7:3, not 6:4. Furthermore, I prefer to clarify here the nature of our baseline sample of 800 (776) members for our evaluation rather than later in footnote 18. So my suggested revision is: "we asked the least wealthy households in terms of asset ownership. We then asked to form a member committee of 20 households, of which 14 are ultra poor and six are moderately poor. As we admitted households on a first come, first served basis, these 20 households are the first to join the membership of microfinance in respective poverty classes. After receiving acceptance for study participation (‘pre-acceptance’ in Figure 3) from 80 groups comprising 1,600 members, baseline data was collected in 2012 prior to the debt contract type randomization. In each group, 10 out of 20 members were randomly offered the credit and the remaining members were kept as pure control groups who did not receive a loan until 1 or 2 years later into the program. Due to a concern for within group spill overs, we do not use the subsample of these control members in this paper. We thus have 800 members for the impact evaluation of this article, who were surveyed in the baseline and offered one of the four credit products. From these 800 members, we exclude 24 members whose intervention did not strictly follow the experimental design explained below." After this sentence, a new paragraph with “After offering the each type of debt contract,…” will start.

p.14, Figure 2 "16,800 BDT (approximately USD 145) (T2 and T3)

p.15, footnote 17 "It is almost the same as the finance lease, but it is difficult to distinguish it from a debt with the purchased asset set as a collateral. Under a finance lease, asset ownership belongs to the lessor, while under a collateralised debt, the asset ownership moves to the borrower. Heifer ownership was never explicitly agreed upon, and it is generally understood by the borrowers that they own the heifer, which gives similarity to a collateralised debt."

The structure of sentences makes it difficult to get the message. Suggestion: "Heifer ownership was never explicitly agreed upon, but it was generally understood by the borrowers that they owned the heifer. T4 is thus more similar to a debt contract with the purchased asset as collateral than to a finance lease under which the asset ownership belongs to the lessor."

p.15, footnote 18 "Each arms have pure control groups who did not receive a loan until 1, 2 years later into the program. Due to a concern for within group spill overs, we do not use them here."

Delete this footnote, as it is already explained in the main text under my revision suggestion (p.12, 3rd-4th para).

p.17, Figure 3, a block "2 loans (*n* = 24)”

It is difficult to understand the caption. Instead of “2 loans”, it is better “Not receiving the 3rd loan”, and add a note to the figure that these 24 observations were excluded from the analysis because their treatment did not follow the experimental design of T1 with 3 conventional loans.

\*p.17, the para before VIII Results: equations (1) and (2), and "For the traditional arm, the conditional mean of outcome given covariates and baseline outcome variable is provided by *b*10 + *bt*0. For the non-traditional arms, the deviation of conditional mean, given covariates and the baseline outcome variable, from traditional arm outcome in period *t* is provided by ***b***1 + ***b****t* with ***b****t* = 0 for *t* = 2. Cumulative impacts are time-series sums of each impacts. In the Section VIII, we will plot and focus on the cumulative conditional mean deviations of each non-traditional arms in each period."

Very difficult to understand. Better to revise the explanation with Figure 4 and Appendix Table D1 in mind. As we use rd 2, rd3, rd4 with the baseline as rd1 implicitly, it is better to use this as time numbering. Finding subscript 1 on the period 2 impact appears a little bit awkward. My suggestion (assuming I understand the exercise correctly) is the followings:

*yit* = *b*0 + *b*1*yi*1 + ***b***’**d***i* + *eit*, *t* = 2, 3, 4 (1)

where, for member *i* in period *t* (*t* refers to the survey round with *t*=1 as the baseline), *yit* is an outcome measure, **d***i* is a vector of three indicator variables in non-traditional arms or functional attributes that *i* receives, …

As we are interested in the time course of impacts, we extend equation (1) as

*yit* = *b*1*yi*1 + *b*2 + ***b***2’**d***i* + *b*3 *c*3*t* +***b***3’**d***i* *c*3*t* + *b*4 *c*4*t*+***b***4’**d***i* *c*4*t* + *eit*, *t* = 2, 3, 4 (2)

where *c*3*t* is a dummy variable for *t*=3 and *c*4*t* is a dummy variable for *t*=4. Our main interest is on the cumulative deviation of impacts of a non-traditional arm (use subscript *k* for this) from impacts of the traditional arm. In equation (2), this is captured by ***b***2*k* for period 2, ***b***2*k* + ***b***3*k* for period 3, and ***b***2*k* + ***b***4*k* for period 4. We thus plot these estimates for cumulative impacts in main figures in the next section. In some specifications, equation (2) is further extended to include controls of other baseline characteristics and their interactions with treatment dummies to allow heterogeneous impacts."

p.20, 1st para "The survey resulted in the attrition (including flood victims) of a moderate rate, 11.9%."

p.20, Figure 4, notes: " All points show the relative difference from concurrent traditional levels. Large and Upfront are the same values. Other column panels are grouped either by arm or by attribute. Row panels show different outcomes. Bars show 95% confidence intervals using cluster robust standard errors. Narrow net assets = Narrow assets + net saving - debt to GUK - debts to relatives and money lenders, where Narrow assets use only items observed for all 4 rounds for household assets. "

p.20, 2nd para "Figure 4 summarises the cumulative impact estimates on assets in time-varying specification of (2). See Appendix D for full estimation results. "

p.21, 3rd para "Secondly, it is the Upfront functional attribute that shows positive impacts in both outcomes. This is consistent with the nonconvex production technology of a larger investment under a liquidity constraint, coupled with an inferior, smaller investment technology. Tables D1 and D5 in the Appendix (specification (2)) show that, relative to the traditional microfinance lending, the upfront liquidity provision increases the narrow net assets by BDT 14478 (CI 6868, 22088) in the second year, BDT 16417 (CI 1700, 31135) by the end of fourth year, and the number of cattle holding by 0.37 (CI 0.12, 0.62) in the second year, and 0.36 (CI -0.32, 1.04) by the end of fourth year. These results hold when other various definitions of assets are adopted or cattle rearing experiences are controlled.

In addition to the discussion of impacts in absolute terms, it is better to add information in relative terms such as “ZZ % of the baseline standard deviations” or “YY % of the baseline means”. Such information can be pasted into the introduction, which I already pointed out.

p.21, 5th para "The NumCows row in Figure 4 shows the number of cattle owned.. "

p.22, Figure 5.

Names of rows need to be revised to be read properly.

p.22, Figure 5, note "HolderRates is the ratio of cattle owners in each arm,"

p.23, Figure 6, caption of the top row as “3”

Does this mean that we have no borrower with 4 or 5 IGAs? Or did we ask only up to 3 out of 5? If the former, the caption should be “3 or more”. If the latter, this information needs to be added in the note.

p.23-24 "Figure 8 shows impacts on consumption and labour incomes. Style and placement of panels follow Figure 4. Consumption is not measured at the baseline, so we do not use it to understand the welfare impacts. Instead, using period 2 consumption as the reference point, we can understand how the members have dealt with the loan repayment through consumption choices. Given randomisation, one can still identify impacts on repayment efforts in terms of consumption suppression relative to the traditional arm. The upper row of Figure 8 thus plots ANCOVA estimates, conditional on period 2 consumption. This can be problematic as period 2 consumption is correlated with arm assignment. But the results do not change if we estimate without period 2 consumption as a covariate in specification 1. "

p.24-25, Figures 8 and 9, row captions and notes

The name of the variable should be the same between captions and notes, and between Figure 8 and Figure 9. I am suggesting using “Per capita consumption” and “Labour income”.

p.24, Figure 8, notes "The upper panel shows cumulative impacts of respective arm or attributes relative to the traditional arm in period 2. The lower panel shos cumulative impacts relative to the traditional arm in period 1 as in Figure 4. Bars show 95% confidence intervals using cluster robust standard errors. Per capita consumption is a total of food, hygiene, social, and energy expenditure divided by the number of household members, annualized value in BDT."

\*p.26, 2nd para and pp.56-57, repayment shortfall regression “Figure 10 depicts both moderately poor and ultra poor in different colours. It is impossible to distinguish between them with eyeballs, and ANCOVA estimates also confirm this (see Appendix D, Table D17, D18 for details).”

Figure 10 is easy to understand. Regression results in Table D17-18 are not. What is LY2 and LY3? (I think it is short for “Loan Year” but it needs to be defined.) In Figure 10, we have 37 to 48 months, which could be LY4 in regressions? Unlike all other regressions and figures, the data are weekly. There is no *b*1*yi*1 term in the regression results. The regression model for the weekly repayment shortfall needs to be stated explicitly, preferably in a separate appendix section.

p.26, 2nd para “We also observe that impacts on all outcome measures are not statistically different between the poverty classes (results are available from the authors on request).”

I cannot find them in Appendix D. So I have made the revision above. Instead, we can add more columns or tables in Appendix D.

\*p.26, 4th para; p.27, Figure 11, row captions; Appendix Tables D11-D16: Terms for education stages

We divide the level of education stages into those for ages 05-12, ages 13-15, and ages 16-18. The last category is called “college” but it is a short for “intermediate college”, which is regarded as the upper secondary education, not the tertiary education. After finishing this level, Bangladesh students enter universities or “degree colleges” for bachelor degrees. Therefore, we need to replace terms for the three education stages as “primary, “lower secondary”, and “upper secondary”, and need to refrain from using “college education” or “tertiary education”, if the impact is shown for these levels. However, the things are more complicated than this, because we use the baseline education stages for classification. At Round 4, age 17 or 18 at the baseline should be at the tertiary education if they are enrolled. However, at Round 2, age 16 or 17 at the baseline should be still at the upper secondary education if they are enrolled. So it is very difficult to decide about the terminology. I would like to know Abu-san’s comments on this issue.

p.27, Figure 11, and its explanation on p.26, 4th para “Unlike the previous figures, we show per period impacts relative to the concurrent traditional arm values. Using parameters in equation (2), what we display in Figure 11 are per period impacts (***b***3*k* for period 3 and ***b***4*k* for period 4), not the cumulative impacts (***b***2*k* + ***b***3*k* for period 3 and ***b***2*k* + ***b***4*k* for period 4). We chose to show per period impacts because annual enrollment status matters in schooling.”

This strategy makes sense. However, then why do we need to add the left most column for the estimated coefficient on the traditional arm? At first, I thought the left most column shows the unconditional means under traditional arms. However, the plots are from specification (5) and (6), which includes various controls from baselines. Then the interpretation of the left most column is complicated. In all other figures in this paper, we do not include the estimated coefficient on the traditional arm. This is our strategy to focus on differential impact of non-traditional arms, relative to the traditional arms. For education, I agree with the idea that it better to show, using my notations, ***b***2*k* for period 2, ***b***3*k* for period 3(not ***b***2*k* + ***b***3*k*), and ***b***4*k* for period 4 (not ***b***2*k* + ***b***4*k*). But it does not make much sense to me add a column for the traditional arm.

p.26, 4th para “Women at the college level were found from about 5.9% of the whole sample, so the effective sample size of each cell is about 11-12 (=776\*.059/4),…”

p.28, 1st para "We showed, under the rural setting, experiences or entrepreneurship seem to matter for participation."

p.28, 3rd para "While we did not observe additional impacts of managerial supports,"

p.28, 5th para "However, the key lesson from the study is the presence of fixed inputs in scaling the herd size."

p.29, 1st para "On the other hand, the necessity of codifiable knowledge in participation even for a simple production process and the scope for escaping the poverty trap with large, frontloaded lending may be more generalisable to other rural areas with liquidity constraints."

p.31, B Rejection, 1st para "Among 776 observations, there are 40 whose villages are washed away and 70 who by group rejected the assigned arms (traditional, large, large grace with 40, 20, 10 individuals, respectively)."

pp.32-35, Tables B1-B12, notes "Attrited and Nonattrited columns show means of each group."

No table has this comparison. Each table has slightly different column names, e.g., NonRejected and Rejcted in Tables B1-B3 but then different names. To save energy, it can be replaced by "The second and third columns show means of each group".

pp.32-35, Tables B2-B12, notes "For Arm, proportions of non-traditional arm are given"

This should be deleted from Tables B2, B3, B4, B6, B7, B8, B10, B11, and B12.

pp.32-35, Tables B1-B12, notes "Standard errors are clustered at group (village) level."

No asterisk is given in these tables. So the first sentence needs to be deleted. Then a note should be added to interpret the difference between three columns of “p-value.lower”, “p-value.mid”, and “p-value.upper”.

p.36, Table B13.

Nowhere in the appendix (and text), this table is discussed. This needs to be deleted.

p.36, all paras

Looking at three values in “p-value.lower”, “p-value.mid”, and “p-value.upper”, I interpret that a variable is not correlated with rejection if all three p-values are larger than 0.05 (the conventional level of statistical significance). However, those with p-values around 0.1 (or larger) are often discussed as the covariates of rejection, e.g., Tables B1 and B5 for HeadLiteracy; Table B2 for FloodInRd1; Tables B10 and B11 for household size, etc. In general, what is the criteria for discussion here? As this is an appendix to discuss potential bias due to non-random rejection, it is better to emphasize the lack of correlates, I think. Then we should use p-value of 0.05 as the cut-off.

p.39, para 1 "Table C1 shows results from tests of independence between attriters and non-attriters. We see the moderate rate of attrition is not correlated with household level characteristics at the conventional p value level. Table C2 shows attrition in the traditional arm. Household heads of attriters are relatively less literate than nonattriters. Table C3 compares attriters and non-attriters in the non-traditional arm. Unlike traditional arm attriters, non-traditional arm attriters have more literate household heads, have a larger household size, and have larger productive assets."

Same comment as above. The deleted portions are those I found p-values much larger than 0.05.

\*p.39, para 2 "Table C5 picks up only program surviving members (nonattrited and loan recepients) have greater asset values than non-survivors."

This paragraph and Tables C5-C7 need introductory sentences before discussing the correlates. Tables B1-B12 discuss correlates of rejection, whereas Tables C1-C4 discuss correlates of attrition. In contrast, Tables C5-C7 discuss the intersection of both. Why we need to discuss the intersection? First, motivating sentences are needed. Second, after showing Table C5, we compare CowArm with others. This appears ad hoc and arbitrary. However, I like the interpretations of Tables C6-C7. So I prefer to keep this subsection in the appendix. Then we need some justification of the comparison. Furthermore, I feel it odd to call the intersection of non-attritors and loan recipients as “survivors”. Is it common? Can we find a better term? I would appreciate much if Seiro-san will add something to address these issues.

p.40, title of the section "D Estimated results"

“D Estimation results” appears better. My preference to have “D Estimation results for the impact” for ANCOVA impact tables. Regarding the last table on correlates of repayment shortfall, I feel it better to put it in a separate section in the appendix, as the nature of the data and the regression specification are completely different.

p.40, introduction of the section "D Estimated results"

It is easy for readers to understand tables if a paragraph or two are added before showing the tables. What is lacking is the explanation of different columns in each table. It is necessary to state that specification (2) in tables corresponds to equation (2) in the text, and specification (1) in table is an OLS regression without the baseline outcome, which is intended to provide a reference for ANCOVA estimates.

As most of notes are the same and lengthy, I prefer to move common notes to these introductory paragraphs before tables. Regarding typical notes (from Table D1), the information lacking is how to understand T=2, T=3, T=4, and N. (I received from Seiro-san that “We annotate the number of periods that a household is observed with "T". The total number of households is shown for each values of T. T=4 indicates the number of households with complete panel information, T=3 indicates number of households observed three times, T=2 indicates the number of households observed twice.” This type of information needs to be shown. But not necessarily in all tables. We can avoid repetition by moving common notes into the introduction of this section. In the current note, “Sample comprises of (1) continuing members, and (2) replacing members of early rejecters who received a loan prior to Janunary, 2015” is wrong. So it should be deleted. In each table, if some notes are required for that particular table only, they should be put there.

pp.40-55, N for ANCOVA impact tables

Based on Seiro-san’s explanation, I understood that "N" = "T=2"\*1 + "T=3"\*2 + "T=4"\*3. This is satisfied for Tables D1-D4 and Tables D7-D8. But not satisfied for other tables. Something is missing? Or the reported numbers are wrong and need correction?

pp.50-57, table numbering

Tables D11-D13 (D14-16, D17-18) are one table spread over multiple pages. We should use only one table number for each table. Therefore, instead of 18 tables in Appendix Section D, we actually have 13 tables.

p.58, Figure D1

This should be deleted because we do not discuss it in the paper. In any case, the patterns shown in NarrowNetAssets and NetAssets are qualitatively very similar.