Character Development Among Ultra-Poor Filipinos
Pre-Analysis Plan
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This document outlines the pre-analysis plan for the project "Character Development among Ultra-Poor Filipinos." The primary academic purpose of the study is to test whether a religious curriculum implemented by a trained pastor network affects secular measures of development. A secondary purpose of the study is to evaluate the effectiveness of the health and livelihood aspects of the ICM program. Participants were randomly assigned at the community level to one of four experimental conditions:

1. Control – no intervention
2. V – receive curriculum that teaches Christian values only
3. HL – receive curriculum that teaches only health and livelihood skills
4. HLV – receive curriculum that teaches health, livelihood, and Christian values

<u>**Analysis to be conducted while blind to treatment assignment**</u>

Initial analysis and data cleaning will be conducted while the researchers are blind to treatment assignment. We will filter the outcome variables, eliminating those whose variance is too high—indicating that we do not have statistical power to detect plausible effect sizes—as well as those that show very little variation, which is more likely to happen with binary variables. We will drop variables that appear to be poorly measured. Some variables may be dropped if they are redundant with other variables that turn out to be well-behaved. The set of outcome variables we will consider are listed later in this document.

While blind to treatment assignment, we will also identify variables that measure conditions prior to treatment administration and explain some of the variance of the outcome variables. These variables will be added as control variables if they increase statistical precision of our blinded treatment estimates. These blinded treatment estimates will be computed by randomly assigning dummy treatment statuses to individuals and running regressions on the dummy treatment status and the potential additional control variables.

For some of the outcome variables listed below, we have the option of normalizing by household size. Once we begin the analysis, while still working with blinded treatment assignments, we will estimate dummy treatment effects with either normalized or un-normalized outcome variables. If the standard error of the dummy treatment effect divided by the mean of the dependent variable is generally smaller when normalizing by household size, then we will use the normalized variable in the final analysis; otherwise we will not normalize the variable. However, if we discover upon unblinding the data that household size is significantly affected by a treatment, then we will normalize by household size regardless of the standard errors on the dummy treatment effects.

Once we have completed the above steps, we will make another deposit to the pre-analysis plan registry describing the data cleaning steps we have taken, our final set of outcome variables, and our additional control variables.

Regression Specifications and Key Hypotheses

The primary regression specification is $\boldsymbol{Outcome = \alpha + \beta\,HLV + \gamma\,HL + \delta V + \psi X + e}$, i.e., we estimate separate treatment effects for each treatment group for each outcome variable. X is a set of additional control variables that includes the control variables described in the previous section along with any variables measuring conditions prior to treatment administration that we subsequently discover are unbalanced between experimental cells once the treatment assignment are revealed.

We will use a t-test to test the hypothesis $\beta = \gamma$ to assess the marginal value of the religious component when added to the core secular program, and the hypothesis $\delta = 0$ to assess the value of a religious-only curriculum. We will test the ancillary hypothesis $\gamma = 0$ to assess the value of the health and livelihood program.

Then, we will conduct the following tests to determine whether we will include further pooled specifications.

Test 1: If a joint test across all outcome variables fails to reject equality of **HLV** and **HL** outcomes, and a second joint test across all outcome variables fails to reject equality of **V** and control outcomes, then we will pool **HLV** and **HL**, and we will pool **V** and control, in order to have improved efficiency for testing the impact of the health and livelihood curriculum. We thus run the following regression: $\boldsymbol{Outcome = \alpha + \beta(any\,HL) + \psi X + e}$. This will become a primary specification, along with the original specification described in this section. The null hypothesis of interest is $\beta = 0$.

Test 2: If a joint test across all outcome variables fails to reject equality of **HLV** and **V** outcomes, and a second joint test across all outcome variables fails to reject equality of **HL** and control outcomes, then we will pool **HLV** and **V** and pool **HL** and control, in order to improve efficiency for testing the impact of the religious values curriculum. We thus test the following: $\boldsymbol{Outcome = \alpha + \beta(any\,V) + \psi X + e}$. This will become a primary specification, along with the original specification described in this section. The null hypothesis of interest is $\beta = 0$.

Test 3: We will jointly test across all outcome variables whether the marginal treatment effect of **HLV** relative to control is equal to the sum of the marginal treatment effect of **HL** versus control and the marginal treatment effect of **V** versus control. Here we are asking whether the religion curriculum and the health and livelihood curriculum are complements or substitutes. If this hypothesis fails to be rejected, then we can improve efficiency by running the regression: $\boldsymbol{Outcome = \alpha + \beta(any\,HL) + \gamma(any\,V) + \psi X + e}$. This will become a primary

specification, along with the original specification described in this section. The primary null hypothesis of interest is $\gamma = 0$. An ancillary null hypothesis of interest is $\beta = 0$.

The outcome variables that we will consider for our final analysis are listed below. We classify them into *primary outcomes of interest, mechanisms* and *secondary outcomes of interest*. Within the primary outcomes of interest, the religious outcomes will be considered "first stage" outcomes, which we will test to confirm that the religious values curriculum is having the intended impact on religiosity. The economic and mental health outcomes will be considered "second stage" outcomes that we hypothesize are affected by religiosity. We will apply a multiple hypothesis test correction within the religious variables we examine, and a separate multiple hypothesis test correction within the economic and mental health outcomes we examine. We will not apply multiple hypothesis test corrections for the variables that represent potential mechanisms and secondary outcomes of interest, since these are more exploratory analyses.

We may decide, before seeing the treatment assignments, to combine multiple variables into a single index to reduce the number of hypotheses tested and potentially increase our statistical power. Some of these indices may be composites of multiple indices that already exist in the literature. We will specify in our second deposit to the registry how these indices will be constructed before we reveal the treatment assignments.

Primary outcomes of interest

Religious outcomes:

- **Religion**: religious orientation intrinsic index, religious orientation extrinsic index, other religion variables listed in appendix.

Economic outcomes and mental health:

- **Consumption**: Total consumption; food consumption; non-food consumption; celebration spending (see appendix for list of consumption goods).
- **Food security**: Binary indicator of whether household members went to bed hungry because there were not enough resources for food; number of days that a household member has gone to bed hungry.
- **Income generating activities:** Number/proportion of members of the household who worked outside in the last 7 days; time spent working outside the household in the last 7 days (agriculture, livestock, business, and paid work); earnings from working outside the household in the last 30 days; binary indicator for households with at least one income generating activity, other than employment; total sales, total profit and total spending (inputs, investment, labor and others) from microenterprise; total household income.
- **Life satisfaction/current hedonic state/mental health**: Satisfaction with life (Cantril's ladder); current hedonic state; experienced enjoyment, happiness, worry or sadness yesterday; Kessler Psychological Distress Scale (see indices section for details).
- **Economic status**: Relative economic status in community (Cantril's ladder); number of people in the household that report migrating because they "had to" due to economic necessity.

Primary mechanisms

- **Social capital**: Trust in others index; likelihood that respondent could access 40Php from outside the household in case of emergency; likelihood that respondent could access 1000Php from outside the household in case of emergency; respondent attended any village leaders meeting in past 6 months; respondent's participation in communities activities; binary indicator for respondents that discuss personal issues with anyone outside close family (and frequency); binary indicators of whether members of the household received or gave meals to other members of the community.
- **Locus of control**: Internality index; powerful others index; personal view on fate vs. people shape their life; perceived stress index; indicator for having a plan on how to move up the economic status ladder in the next 5 years.
- **Optimism**: Life orientation test index; optimism-pessimism scale; anticipated life satisfaction in 5 years (Cantril's ladder); perception of ability to improve position in the ladder: anticipated relative economic status in community in 5 years (Cantril's ladder); general optimism; general pessimism.
- **Grit and self-control**: Grit index and self-control index

Secondary outcomes of interest

- **Assets**: Total assets, productive assets and household assets, count and value (see appendix for list of assets); households with money set aside for savings; respondents with a mobile money account; respondents with sole or joint bank account; respondents that have made deposits in financial institutions in the last 6 months; respondent's savings amount.
- **Health**: Average number of check-ups in past six months for children in household (ages 4 and under); number/proportion of children in household with up-to-date vaccinations (ages 16 and under); number of times a member of the household had a serious health event (absolute or per capita); binary indicator for households with members who received medical assistance or visited a medical center in past 30 days; binary indicator for households with members who suffered an accident or illness that has kept them from working in the past 30 days; number/proportion of working-age household members that suffered an accident or illness that has kept them from working in the past 30 days; number of days of work missed due to accident or illness in the past 30 days per working-age household member.
- **Hygiene**: Binary indicators for respondents that wash hands after going to bathroom; for households that have soap; for households that treat their water; for animals having separate stables; for households that own primary latrine; and for men/women/children in the household practicing open defecation. Frequency that respondent washes hands with ash or soap after using the latrine; frequency that members of the household wash their hands with ash or soap after using the latrine.
- **Home**: Number of rooms in the house (absolute number/per adult); binary indicators for households with concrete roofs, roofs that leak, houses that can be safely locked and houses with access to electricity for lighting.

- **Migration**: Time spent away from the household for migration; remittances sent and money brought to the household.
- **Discord, psychological abuse, and domestic violence**: Binary indicator reflecting if someone in household is experiencing physical abuse; treatment of women index; discord index.

We have used list randomization techniques to elicit agreement with the following statements, and we will estimate treatment effects on these outcomes accordingly:

- I treat my water before drinking it, for example by using solar disinfection, boiling it, or using a water filter
- Someone in my household is experiencing physical abuse
- I have made a personal commitment to Jesus Christ that is still important to me today
- I wash my hands after going to the bathroom
- I have read or listened to the Bible in the past week

Indices:

For the construction of indices, we will use the methodology detailed in by Kling, Liebman, and Katz (2007), unless the index is a specific index in the academic literature, in which case we will use the method employed in that literature to compute the index.

For those concepts without a preconceived index formula, our methodology consists in first signing all variables consistently such that higher is telling a consistent story for the index. Then, we standardize the individual components of the index, by subtracting the comparison group mean and dividing by its standard deviation. Then, we take the average of the components into a single measure, and then again finally standardize the average (again to the comparison group mean and standard deviation). Because we only have a baseline on a subset of our population, we will use the endline control group for the standardization.

Religious orientation scale[1]

Intrinsic index:

- I enjoy thinking about my religion
- It doesn't much matter what I believe so long as I am good*
- It is important to me to spend time in private thought and prayer
- I have often had a strong sense of God's presence
- I try hard to live all my life according to my religious beliefs
- Although I am religious, I don't let it affect my daily life*
- My whole approach to life is based on religion
- Although I believe in my religion, many other things are more important in life*

Extrinsic index:

- I go to religious services because it helps me to make friends

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[1] Adapted from: Gorsuch, R.L. and S.E. McPherson. (1989).

- I pray mainly to gain relief and protection
- What religion offers me most is comfort in times of trouble and sorrow
- Prayer is for peace and happiness
- I go to religious services mostly to spend time with my friends
- I go to religious services mainly because I enjoy seeing people there

Possible responses to the statements above: "Strongly disagree", "Slightly disagree", "Neither agree nor disagree", "Slightly agree" and "Strongly agree".

Mental health:

Kessler Psychological Distress Scale:

- About how often during the past 30 days did you feel nervous?
- About how often during the past 30 days did you feel hopeless?
- About how often during the past 30 days did you feel restless or fidgety?
- About how often during the past 30 days did you feel so depressed that nothing could you cheer you up?
- About how often during the past 30 days did you feel that everything was difficult?
- About how often during the past 30 days did you feel worthless?

Possible responses to the statements above: "All of the time", "Most of the time", "some of the time", "A little of the time" and "None of the time".

Trust in others:
- In general, would you say that most people can be trusted or that most people cannot be trusted?
- Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?
- Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?

Possible responses to the statements above: not trusting response, trusting response.

Locus of control[2]:

Internality Subscale:
- Whether or not I am successful depends mostly on my ability..
- Whether or not I have an accident and hurt myself physically depends mostly on how careful I am on a daily basis.
- When I make plans, I am almost certain to make them work
- How many friends I have depends on how nice a person I am.

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[2] Adapted from Levenson, H. (1981).

- o I can pretty much determine what will happen in my life.
- o I am usually able to protect my personal interests.
- o When I get what I want, it's usually because I worked hard for it.
- o My life is determined by my own actions.

Powerful Others Subscale:

- o I feel like what happens in my life is mostly determined by God
- o Although I might have good ability, I will not be given leadership responsibility without appealing to God
- o My life is chiefly controlled by God.
- o Getting what I want requires pleasing God.
- o Whether or not I have an accident and hurt myself physically depends mostly on God.
- o In order to have my plans work, I make sure that they fit in with God's plan for me

Chance Subscale:
- o To a great extent my life is controlled by accidental happenings.
- o Often there is no chance of protecting my personal interests from bad luck happenings.
- o When I get what I want, it's usually because I'm lucky.
- o I have often found that what is going to happen will happen.
- o Whether or not I get into an accident and hurt myself physically is mostly a matter of luck.
- o It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.
- o Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time
- o It's chiefly a matter of fate whether or not I have a few friends or many friends.

Possible responses to the statements above: "Strongly disagree", "Slightly disagree", "Neither agree nor disagree", "Slightly agree" and "Strongly agree".

Perceived stress scale[3]:

- o How often have you felt that you were unable to control the important things in your life?
- o How often have you felt confident about your ability to handle your personal problems?
- o How often have you felt that things were going your way?
- o How often have you felt difficulties were piling up so high that you could not overcome them?

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[3] Adapted from Cohen, S., Kamarck, T., Mermelstein, R. (1983).

Possible responses to the statements above: "Very often", "Quite often", "Occasionally", "Very rarely", "Never", "Don't understand", "Don't know", and "Refusal".

Optimism

Life Orientation Test-Revised[4]:

- o In uncertain times, I usually expect the best.
- o If something can go wrong for me, it will.
- o I'm always optimistic about my future.
- o I hardly ever expect things to go my way.
- o I rarely count on good things happening to me.
- o Overall, I expect more good things to happen to me than bad.

Possible responses to the statements above: "I agree a lot", "I agree a little", "I neither agree nor disagree", "I disagree a little", and "I disagree a lot".

Grit and self-control

Grit Index:

- o New ideas and projects sometimes distract me from previous ones
- o Setbacks don't discourage me.
- o I have been obsessed with a certain idea or project for a short time but later lost interest.
- o I am a very hard worker.
- o I often set a goal but later choose to pursue a different one.
- o I have difficulty maintaining my focus on projects that take more than a few months to complete.
- o I finish whatever I begin.
- o I am diligent.

Possible responses to the statements above: "Very much like me", "Mostly like me", "Somewhat like me", "Not much like me", and "Not at all like me".

Self-control index[5]:

- o I have a hard time breaking bad habits
- o I get distracted easily
- o I say inappropriate things
- o I refuse things that are bad for me, even if they are fun.
- o I'm good at resisting temptation
- o People would say that I have very strong self-discipline
- o Pleasure and fun sometimes keep me from getting work done
- o I do things that feel good in the moment but regret later on
- o Sometimes I can't stop myself from doing something, even if I know it's wrong

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[4] Adapted from: Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994).
[5] Adapted from http://www.sas.upenn.edu/~duckwort/images/upperdarbypd/01092013_briefscc.pdf.

- I often act without thinking through all the alternatives

Possible responses to the statements above: "Not at all like me", "A little like me", "Somewhat like me", "Mostly like me", and "Very much like me".

Discord, psychological abuse, and domestic violence

Discord index[6]:

- During the last 1 month, did you have any major arguments with your spouse or partner over spending on major household items or assets?
- Saving decisions?
- The behavior and disciplining of children?
- Interactions with relatives?
- Alcohol consumption?
- Any other issues?

Possible responses to the questions are "Yes", "No", and "Refusal".

Treatment of women index[7]:

- He was jealous or angry if you talked to other men (past month; binary)
- He accused you of being unfaithful (past month; binary)
- He did not permit you to meet your female friends (past month; binary)
- He tried to limit your contact with your family (past month; binary)
- He did not trust you with any money (past month; binary)

Possible responses to the questions are "Yes", "No", "Refusal", and "No spouse/partner".

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[6] Questions adapted from Bernard T., Dercon S., Orkin K. & Taffesse A. S. (2014)
[7] Questions adapted from: https://www.idhsdata.org/idhsaction/variables/DVCJOB/ajax_enum_text

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https://www.idhsdata.org/idhsaction/variables/DVCJOB/ajax_enum_text

Appendix: ([click to return to main text](#))

Consumption:

Total consumption (past 7 days, per capita)

- o Viand (meat/poultry/fish)
- o Rice/corn/beans/etc.
- o Bananas/cassava/potatoes/yams/starches/etc.
- o Fruits/vegetables
- o Milk/eggs
- o Non-alcoholic beverages
- o Alcoholic beverages
- o Cigarettes
- o Phone credit
- o Transportation
- o Clothing/shoes
- o Soaps/cosmetics/etc.
- o Gifts

Total food consumption (past 7 days, per capita)

- o Viand (meat/poultry/fish)
- o Rice/corn/beans/etc.
- o Bananas/cassava/potatoes/yams/starches/etc.
- o Fruits/vegetables
- o Milk/eggs
- o Non-alcoholic beverages

Total Non-food consumption (past 7 days, per capita)

- o Cigarettes
- o Alcoholic beverages
- o Phone credit
- o Transportation
- o Clothing/shoes
- o Soaps/cosmetics/etc.
- o Gifts

Celebration spending index (past 6 months, per capita)

- o Weddings (including gifts and clothing for others)
- o Funerals
- o Festivals, anniversaries, birthdays

Assets:

Productive assets:

- o Tractor or Power Tiller
- o Farm tools
- o Sewing Machine

Household assets:

- o TV
- o VTR/VHS/VCD/DVD player
- o Radio / Transistor / Stereo
- o Electric Fan
- o Refrigerator/Freezer
- o Telephone / Mobile Phone
- o Sala set
- o Bicycle or Pedicab
- o Motorcab or Motorcycle
- o Boat
- o Washing Machine
- o Chair / Stool
- o Bed or Cot
- o Table
- o Watch or Clock
- o Jewelry
- o Gas Stove

Other religion variables:

- **I have made a personal commitment to Jesus Christ that is still important to me today**

- **I have read or listened to the Bible in the past week**

- **To what extent do you consider yourself a religious person?**
  Possible responses: Very religious, Moderately religious, Slightly religious, Not religious at all

- **How satisfied are you with your spiritual life right now?**
  Possible responses: Very satisfied, Somewhat satisfied, Neither satisfied nor dissatisfied, Somewhat dissatisfied, Not at all satisfied

- **In the past 7 days, how many times did you read or listen to the Bible, the Koran, or other religious literature?**

- **How much do you agree with this statement: "I have made a personal commitment to Jesus Christ that is still important to me today"**
  Possible responses: Strongly agree, Agree, Slightly agree, Slightly disagree, Disagree, Strongly disagree, Don't know, Refusal

- **Which of the following best describes your belief about what happens after death?**
  Possible responses: There is no life after death; I will go to heaven because I tried my best to be a good person and to live a good life; I will go to heaven because I tried to be involved in my religion, pray, and live the way I think God wants me to; I will go to heaven because I have accepted Jesus Christ as my personal savior; I will go to hell; I'm not sure if I will go to heaven or hell; I will be reincarnated; My belief is not well-described by any of these choices

- **In the last month, have you tried to convince anyone else to change the way they think about God?**
  Possible responses: Yes, No

- **In the last month, how many people did you try to convince to change the way they think about God?**

- **In how many of the past 7 days did you pray privately in places other than at a place of worship?**

  o **If I am good enough, God will cleanse me of my sins**
  o **I follow God's laws so that I can go to heaven**
  o **The Bible is accurate in all that it teaches**
  o **I believe the Bible has decisive authority over what I say and do**
  o **I believe the Christian God—Father, Son, and Holy Spirit—is the only true God**
  o **Satan exists**

Possible responses to the questions above: Strongly agree, Slightly agree, Neither agree nor disagree, Slightly disagree, Strongly disagree