Parent-bias

Updated Pre-analysis plan.

By Guilherme Lichand*, Juliette Thibaud†

This document is an update to the study pre-registered with the AEA RCT Registry with ID AEARCTR-0003535. In a new wave of data collection who will start in June 2019, we will conduct a series of experimental games to: 1) assess whether parent-bias remains widespread in our sample when we allow respondents to chose an equal split of resources, 2) measure the correlation between our experimental measure of parent-bias and the take-up of commitment devices when making investment decisions, 3) contrast willingness-to-pay for commitment to stick to one's plans to invest in one's child and in another person's child and 4) estimate whether parent-biased respondents have a higher willingness-to-pay to open a bank account in their child's name.
The present document outlines the experimental design and the econometric methods we will use to assess those three points.

I. Introduction

We present here the design of experimental games to be included in an additional wave of data collection for our lab-in-the field experiment previously registered with ID: AEARCTR-0003535. Those games have been designed to test the following hypotheses:

1) Does the prevalence of parent-bias shrinks when we allow for an equal split of resources?

2) Do parent-biased respondents have a higher willingness-to-pay to stick to their plans to invest in their children?

3) Do respondents demand less commitment devices to stick to their plans to invest in someone else's child than in their own?

4) Do parent-biased respondents have a higher willingness-to-pay to open a savings' account in their child's name rather than their own?

II. Sample selection

This follow-up to our initial experiment will be conducted with mothers from the same sample of households as our initial experiment (AEA RCT Registry

* Lichand: University of Zurich, Zurich, Switzerland, guilherme.lichand@econ.uzh.ch.
† Thibaud: University of Zurich, Zurich, Switzerland, juliette.thibaud@econ.uzh.ch.

with ID AEARCTR-0003535). The final sample size is 2,411 households from 80 villages of Salima district in Malawi.

III. Design of the experimental games

A. Willingness-to-pay to commit to investments in children

Within this sample, if there is more than one primary-school age child in the household, we randomly select the child who will participate in this part of the experiment. If there is no primary-school age child in the household, those questions are asked hypothetically.

We start by telling respondents that they are entering a lotery in which they can earn 0 or 2,000 kwachas, that they will receive on September 1st, approximately 2 months after the interview. They only learn the outcome of the lotery at the end of the interview. They have the possibility to either receive the lotery price in cash card or to purchase one week (1 hour/day for a week) of tutoring for their child.

We give the parents the possibility to commit to this decision. They are given the choice between having or giving up the possibility to make this choice again just before receiving the money/the tutoring. The flexible option comes accompanied with a bonus. The participants make this decision for different bonus values. At the end of the survey, the participants learn which bonus has been randomly picked and their decision for that amount is executed. This design is a version of the Becker-DeGroot-Marschak mechanism (Becker, Degroot and Marschak, 1964) and ensures that all questions are incentive-compatible.

We measure the parents' willingness-to-pay for investments in children through a series of three to four interdependent binary choices between receiving money or the investment in the child, following a "staircase" procedure (Cornsweet, 1962). The sequence of interdependent questions we ask and the inputed willingness-to-pay for commitment is shown in Figure 1

Attaching a bonus to the flexible option may be signalling to the parents what is the "right decision". In the spirit of Carrera et al. (2019), we also ask the respondent to chose between the flexible or commitment option with a positive bonus attached to the commitment option.

B. Willingness-to-pay to commit to investments in someone else's child

The respondents enter another lotery in which they can earn 0 or 2000 kwachas, that they would receive on September 1st. They are informed that they can chose between receiving that money in cash cards or to instead offer a week of tutoring to another person's child. They are informed that they will not know who this other child is andd that neither the beneficiary child nor her family would be informed of the respondent's identity, irrespective of their choice.

They are then given the choice between having or giving up the possibility to make this choice again just before receiving the money/the tutoring. The flexible

option comes accompanied with a bonus. The participants make this decision for different bonus values. At the end of the survey, the participants learn which bonus has been randomly picked and their decision for that amount is executed. The sequence of interdependent questions we ask and the inputed willingness-to-pay for commitment according to Figure 1

C. Willingness-to-pay to open a bank account in the child's name

The respondents enter a lotery in which they can earn 0 or 10,000 kwachas. Before learning the lotery outcome, they can choose between 2 options: 1- Receiving the whole money in cash; 2- Opening a savings account at the National bank in their child's name and depositing 5,000 kwachas. Our team will accompany the respondent and the child at the bank and help them with the paper work. The respondent will receive the remaining money in cash.

The respondent are asked this question, with a different "price" associated with each option. If the respondent earns 10,000 kwachas in the lotery, a price will be randomly chosen at the end of the interview and the respondent's decision at that price will be executed.

We measure the parents' willingness-to-pay for the savings' account through a series of three interdependent binary choices. The sequence of interdependent questions we ask and the inputed willingness-to-pay for the savings device is shown in Figure 2. We also elicit the parents' willingness-to-pay to receive the whole money in cash.

Finally, we elicit the parents' relative willingness-to-pay to open a bank account in their name or in their child's name, following the same procedure.

IV. Eliciting time-preferences

A. Parent-bias

Baseline measure:

We define parent-biased respondents as respondents who discount their own consumption to a larger extent than that of their children. We re-elicit parent-bias in this wave of data collection.

To do so, we ask parents to allocate five packs of peanuts between themselves and their child to be consumed two days later ($t = 2$) and a month later ($t = 3$). To help with this decision, the parents are invited to share 5 packets of peanuts between two plates, one entitled "you, in two days", the other one "Your child in two days". The enumerator records this decision. Then the parents are invited to do the same thing for the next allocation. To ensure that all decisions are consequential, the parents are informed that a randomly drawn subset of the respondents will see their decision implemented.

Let s_2 be the share of peanuts that respondents allocate to be consumed by their child at $t = 2$ and s_3 the share of peanuts that respondents allocated to be

consumed by their child at $t = 3$. We define parent-biased respondents as those deciding to allocate a larger share of peanuts to their child at $t = 3$ than $t = 2$: $\mathbb{1}\{\delta_c > \delta_a\} \Leftrightarrow s_2 < s_3$.

Parent-bias when allowing for an equalitarian split: We will study how the distribution of parent-bias changes when we allow respondents to chose an equalitarian split.

To do so, we ask parents to allocate five packs of peanuts between themselves and their child to be consumed two days later ($t = 2$) and a month later ($t = 3$), but we allow them to allocate half packets, so that they can choose a 2.5/2.5 allocation if needed. We still define parent-biased respondents as those deciding to allocate a larger share of peanuts to their child at $t = 3$ than $t = 2$

B. Respondent's discount factor towards their own consumption δ_a

We re-elicit δ_a in this wave of data collection, following the same methodology that we used at baseline, with a traditional inter-temporal decision task. The respondents split the consumption of three packages of peanuts, for their own consumption, between $t = 2$ and $t = 3$. For each package not consumed at $t = 2$, they received r additional packages at $t = 3$. The respondents were asked to make this decision for three interest rates: $r \in \{0.5, 1, 1.5\}$

The respondents' utility maximization problem is given by:

$$\underset{(x_t)_{t=2,3}}{\text{Max}} \ \beta\delta_a u(x_2^1) + \beta\delta_a^2 u(x_3^1)$$
$$\text{s.t.}$$
$$\begin{cases} x_2 + s_2 \leq y_2 \\ x_3 \leq (1+r)s_2 - c \\ y_2 = y \end{cases}$$

The solution to the respondents' maximization problem is given by: $u'(x_2^1)(1 + r) = \delta_a u'(x_3^1)$ Therefore, $\delta_a = \frac{u'(x_2^1)(1+r)}{u'(x_3^1)}$

To ensure that δ_a is defined even when the respondent choose to receive zero at $t = 2$, we assume the following utility function: $u(x_t) = log(x_t + 1)$. Hence, $\delta_a = \frac{(y-x_2^1)(1+r)+1}{(x_2^1+1)(1+r)}$

The respondents have to decide how to allocate consumption between periods two and three for three interest rates: $r \in \{0.5, 1, 1.5\}$. For each interest rate, we impute the value of δ_a associated with the respondents' decision. We use their average as the value of δ_a in our analysis.

V. Empirical analysis

1. Is parent-bias less frequent when we allow for an equalitarian split of the resources?

We test $H_0 : \gamma_0 = 0$ in the following regression:

$$\mathbb{1}\{\delta_{c,ik} > \delta_{a,ik}\} = \alpha + \gamma_0 \mathbb{1}\{Equalsplit\}_k + \lambda X_i + \epsilon_{ik} \tag{1}$$

Where:

- $\mathbb{1}\{\delta_c > \delta_a\} = 1$: if respondent i displays parent-biased time-preferences in decision k;
- $\mathbb{1}\{Equalsplit\}_k = 1$ if the task allows for the equal split of the resources between the parent and the child;
- X_i: Vector of individual characteristics: age and gender of the respondent and the child, measure of credit constraints, religion of the household, order in which the scenarios are presented to the respondents, number of children, education level of the respondent;
- ϵ_{ik}: Standard error clustered at the individual level.

This will enable us to detect a 0.0807 standard deviation difference in the prevalence of parent-bias once we allow respondents to chose an equal split.

2. Do parent-biased respondents have a higher willingness-to-pay to commit to investments in their children?

We test $H_0 : \gamma_0 = 0$ in the following regression equation:

$$WTP_i = \alpha + \gamma_0 \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} + \lambda X_i + \epsilon_i \tag{2}$$

Where:

- WTP_i: i's willingness-to-pay to commit to investments in the child;
- X_i: Vector of individual characteristics: age and gender of the respondent and the child, measure of credit constraints, religion of the household, order in which the scenarios are presented to the respondents, number of children, dummy variable is the question is hypothetical, education level of the respondent;
- $\mathbb{1}\{\delta_c > \delta_a\} = 1$: if respondent i is parent-biased, in our baseline measure;
- ϵ_i: Standard error.

We restrict our sample to those respondents who had say that they would take up the one week of tutoring for their child.

Assuming that 80% of the respondents in our sample take-up the tutoring for their children and that 30% of our sample is parent-biased (in line with our baseline measure without accounting for the price of commitment), this will enable us to detect a 0.1393 standard deviation difference in the willingness-to-pay for commitment to investments in children between parent-biased and non-parent-biased respondents.

We will also account for the fact that the effect of parent-bias can be mitigated by different levels of δ_a, with the following equation:

$$(3) \quad WTP_i = \alpha + \gamma_0 \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} + \gamma_1 \delta_{a,i} + \gamma_2 \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} \times \delta_{a,i} + \lambda X_i + \epsilon_i$$

Where $\delta_{a,i}$ is our experimental measure of the respondent's discount factor as elicited in Scenario A.

Robustness checks

We will conduct a series of checks to ensure the consistency of our results:

- Excluding parents without primary-age school children who had just been asked the question hypothetically,
- Excluding parents who displayed a positive willingness-to-pay for both commitment and flexibility,
- Using our measure of parent-bias when allowing for an equalitarian split.

3. Do respondents have a lower willingness-to-pay to commit to investments in other people's children than their own?

We stack the parents' WTP to commit in their child and another person's child, and restrict our sample to those parents that chose to take up the tutoring for both.

We test $H_0 : \gamma_0 = 0$ in the following regression equation:

$$(4) \quad WTP_{ik} = \alpha + \gamma_0 \mathbb{1}\{Other\}_k + \gamma_1 \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} + \gamma_2 \mathbb{1}\{Other\}_i \times \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} + \lambda X_{ik} + \epsilon_{ik}$$

Where:

- WTP_{ik}: i's willingness-to-pay to commit to investment in child k;
- $\mathbb{1}\{Other\}_k = 1$ if child k is another person's child;

- ϵ_i: Standard error clustered at the individual level.

Assuming that 50% of the respondents in our sample take-up the tutoring for their children and that 30% of our sample is parent-biased (in line with our baseline measure without accounting for the price of commitment), this will enable us to detect a 0.1144 standard deviation difference in the willingness-to-pay for commitment to investments in someone else's child, and a 0.1548 standard deviation difference for parent-biased respondents.

Robustness checks
We will conduct a series of checks to ensure the consistency of our results:

- Excluding parents without primary-age school children who had just been asked the question hypothetically,
- Excluding parents who displayed a positive willingness-to-pay for both commitment and flexibility in either scenario,
- Using our measure of parent-bias when allowing for an equalitarian split.

4. Do parent-biased respondents have a higher willingness-to-pay to open a bank account in their child's name

We test $H_0 : \gamma_0 = 0$ in the following regression equation:

$$WTP_i = \alpha + \gamma_0 \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} + \lambda X_{ik} + \epsilon_{ik} \tag{5}$$

We will run this regression with two versions of the outcome variable:

- WTP to open a bank account in the child's name;
- WTP to open a bank account in the child's name instead of a bank account in the respondent's name.

Assuming that 30% of our sample is parent-biased, this will enable us to detect a 0.1246 standard deviation difference in the willingness-to-pay.

We will also account for the fact that the effect of parent-bias can be mitigated by different levels of δ_a, with the following equation:

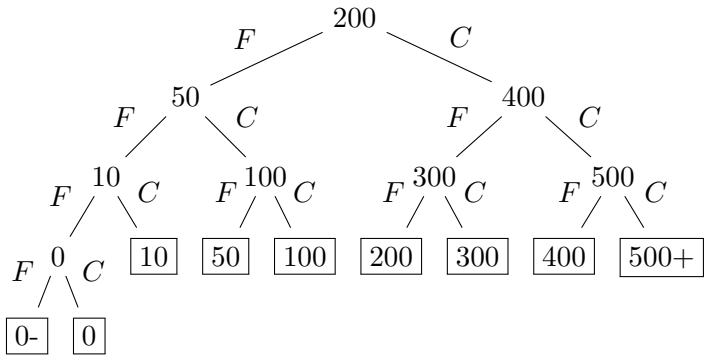
$$WTP_i = \alpha + \gamma_0 \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} + \gamma_1 \delta_{a,i} + \gamma_2 \mathbb{1}\{\delta_{c,i} > \delta_{a,i}\} \times \delta_{a,i} + \lambda X_i + \epsilon_i \tag{6}$$

Robustness checks
We will conduct a series of checks to ensure the consistency of our results:

- Excluding parents who displayed a positive willingness-to-pay for both options,
- Using our measure of parent-bias when allowing for an equalitarian split.

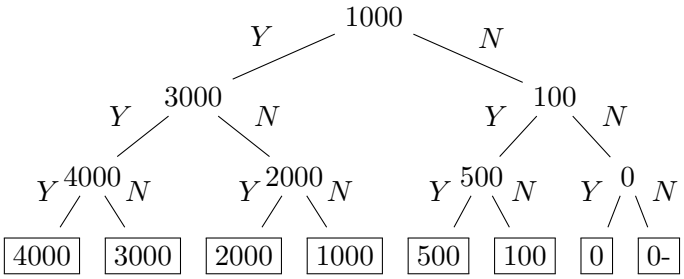
VI. Figures

Figure 1. : Tree price: willingness-to-pay for commitment "Would you commit or choose the flexible option if the flexible option came with a bonus of X?"



Notes: F-branches correspond to parents choosing the flexible option. C-branches correspond to parents choosing commitment. The framed value at the end of the decision tree represents the willingness-to-pay for commitment implied by the respondents' sequential decisions.

Figure 2. : Tree price: willingness-to-pay for a savings' account "Would you open a savings' account in your child's name if it cost X MK?"



Notes: Y-branches correspond to parents choosing the savings account. N-branches correspond to parents choosing to receive the whole money in cash cards. The framed value at the end of the decision tree represents the willingness-to-pay for the savings account implied by the respondents' sequential decisions.

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