Perceived returns from early-life investments and maternal investments in children

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Abstract

There exists significant variation in the path at which different children develop, potentially impacting the level of human capital accumulated at the end of childhood. Part of this variation can be explained by the intensity at which parents invest on their children, which in turn can relate to specific characteristics of the population. Drawing on newly-collected data form rural Pakistan we seek to provide insights into the link between parental beliefs on the technology of skills formation, parental preferences over children's developmental outcomes, and parental investment choices. Our results show significant heterogeneity in the expected return from early-life investments, and evidence suggests that beliefs are important determinants of the intensity of breastfeeding and child interaction. On the other hand, we find limited evidence of the existence of heterogeneity in preferences across mothers, suggesting that the observed differences in parental investment are hardly driven by differences in the valuation of children developmental outcomes. Moreover, early-life investments seem to be mostly driven by a perceived increase in child's cognitive development.

1. Introduction

There is an ongoing global learning crisis affecting both the developing world and poor families in developed countries with an estimated 39 percent of the world's children under age five failing to attain their cognitive potential (i.e., the ability to think, learn, remember, relate, and articulate ideas appropriate to age and level of maturity) (e.g., Grantham-McGregor et al. 2007, UNESCO 2014). Gaps in children's intellectual, physical and emotional development by socio-economic status emerge early in childhood, and they are apparent and well measured by the age of three or five in all countries which offer adequate data (World Bank 2015; Ermisch et al. 2012).

Children's developmental outcomes are shaped by a combination of neurological, physiological, and environmental factors; including nutrition, stress, and interactions with parents and other caregivers. In this view, parents and families play a crucial role in influencing the path at which children develop, and ultimately in the stock of human capital they acquire. Notwithstanding, there is ample evidence that parents with a lower social and economic position make fewer investments in their children (Ermisch 2008; Kelly et al. 2011, Cunha 2016). When and why these disparities in parental investments arise? Are there any mechanisms that could help bridge these differences across families? Aside from credit constraints, variation in parental choices could result from differences in parental preferences over aspects of child development and/or from differences in beliefs about the returns of own parenting investments. While disentangling the two is paramount for the design of remedial interventions, it is impossible to credibly do so without data on both parental beliefs and parental investments. The major issue is an identification problem (Manski 2004, Delavande 2008) as many combinations of beliefs and preferences would yield the same level of investments. To tackle down this problem we use newly collected data from Pakistan on maternal investments and subjective beliefs about the perceived benefits of early-life investments. With such information we then aim to investigate the role that maternal beliefs and preferences have on shaping maternal investments during the first stages of a child's life.

Recent literature on direct elicitation of perceived returns of parental investment includes Cunha et. al. 2013 and Cunha 2016, which explore parental subjective expectations regarding the youngest and oldest age at which children achieve certain motor, language, and numeracy milestones by varying levels of investments and initial health endowments for a sample of US families. In these studies, the authors describe low and high levels of investments by the amount of time parents spend talking, playing, reading, etc. to the child, and define low and high endowment levels by the child's health at birth. Similarly, Attanasio, Cunha, and Jervis 2015 use the same form of enquiry to elicit parental beliefs regarding the returns to investments on children in the Colombian context. In the UK, Boneva and Rauh 2015 investigate parental expected earnings of their child at age 30 by varying scenarios of parental investments (low and high levels measured as time spent helping the child with her school work) and the child initial human capital conditions (low and high initial conditions measured as achievement in the national curriculum test children must take at the end of Year 2).

In our paper, we focus on rural areas of a developing country (Pakistan), and elicit probabilistic beliefs about the realization of certain developmental milestones for various maternal investment levels made when the child is 3 months old. We define low and high levels of investments by the intensity of breastfeeding and playing with the child, and assess maternal expected returns in the

health, cognitive, and psycho-social domains. While breastfeeding provides both adequate nutrition and bonding, playing with the child is a form of psychosocial stimulation. In addition, we inspect the role of the psychological costs of engaging in such investments, but abstract from endowment effects and budget constraints.

Focusing on the early period is important because (i) early unfavourable conditions can impair the normal development of the brain; (ii) the plasticity of the brain diminishes with age; and (iii) several studies show large effects of early cognitive ability on education, earnings, health, longevity and other long-run measures of wellbeing (e.g. Aboud and Yousafzai 2016, Almond and Currie 2010, Heckman et al. 2010). In a context not to dissimilar to ours (Bangladesh), Hamadani et al. 2014 show that significant cognitive delays between children of different socio-economic background emerge as early as 7 months old, increases as the children age and are very large by the age of 5. Moreover, there is evidence that interventions aiming at improving developmental outcomes for children experiencing disadvantaged environments have a higher impact when they are targeted at the early years of child development (Heckman and Kautz 2014). This result is partly motivated by the notion of dynamic complementarity introduced in Cunha and Heckman 2007, by which early-life investments make later investments more productive, suggesting that parental investments at a young age are critical for future human capital trajectories.

Our results show: (i) mothers are on average aware that investment will improve children's developmental outcomes; (ii) there is substantial heterogeneity in the expected return from early life investments and in the cost of executing such investments; (iii) beliefs are important determinants of the choice to breastfeed and stimulate; (iv) there is no systematic evidence of heterogeneity in preferences for children's outcomes, and (v) early-life investments seem to be driven mostly by a perceived increase in child's cognitive development.

The paper is structured as follows: Section 2 explores parenting behaviour in Pakistan. Section 3 introduces our model of early life investments. Section 4 describes our data collection framework and our measures on maternal beliefs, costs, and investments. Section 5 specifies the empirical model, discusses the outcome, and provides different angles on the significance of the results. Finally, section 6 offers some final remarks.

2. Parenting decisions in Pakistan

We obtained information from a sample of 20 women in Pakistan with children of ages between 0 and 18 months to understand how mothers view the process of child development. When asked about which are the important aspects of child development at this specific age, the child's health was the most cited dimension. Women not only regard health as having intrinsic value, but also acknowledge the fundamental role that good health in the first months of life plays on all the other aspects of child development. In this manner, health is considered to be the foundational pillar on which all of the other developmental dimensions can be constructed upon. Moreover, a child's education also received special attention in this open ended question. In the same line, that their child had poor health was the most shared worry.

We followed by asking women about the importance given to specific developmental outcomes:

1. *A child being able to sit at age 7 months*
   While the majority of mothers regarded this event as important and as a sign of a child growing healthy, some others considered irrelevant the timing of this outcome with the argument that eventually all children would be able to sit.

2. *A child experiencing diarrhea in infancy*
   Expect for one mother that considered diarrhea as a mechanism by which children can spell germs, the rest of the sample regarded diarrhea as a bad outcome that weakens children and exposes them to suffering other diseases.

3. *A child growing tall and strong*
   All mothers consistently agreed of the importance of growth and strength as an indicator of good health.

4. *A child putting 2-3 words together in speaking by age 2 years*
   All mothers coincide in that the timing of this outcome is appropriate and that they would worry if this was not the case for their children.

5. *A child playing happily with other children when they are around age 3*
   Surprisingly, the majority of women expressed that this outcome was not very important, and many showed concern on their child developing bad habits form playing with other children. However, some mothers acknowledged the importance for their child to play happily with peers for its effect on emotional development as well as being a mechanism for their child to learn to share.

6. *A child being emotionally and cognitively ready for school before they start primary school.*
   While the majority of mothers viewed school readiness as a precondition to be successful at school, some women gave little or relative importance on the basis that children needed not to be prepared since they would learn in school. The few mothers that expressed the latter viewing had no or very little education.

7. *A child doing well in school*
   Although all mothers stated a high importance for their child doing well at school, there were differences in the motivations. The prevailing current of thought linked learning well in school as a precondition for improved future prospects, while a minority of women focused on simple grade progression.

8. *A child getting married*
   All women consistently reported the importance of their child getting married on the basis of being a social norm.

9. *A child's future earnings*
   The answer we obtained in this dimension greatly differed by the gender of the child. Mothers' whose index child was a girl tended to express no importance of their child's future earnings, and even stated a preference for their child not to work. On the other hand,

mothers of boys regarded future earnings of their child as an important instrument that would enable them to have a comfortable life and even the ability to support their parents at an older age.

Following on the importance of developmental achievements, we asked mothers the extent to which they could influence the outcomes previously stated. While 17 out of the 20 mothers conveyed they could influence these outcomes (mostly by providing proper nutritious food and interacting with their child), there was one woman that considered that only some outcomes could be influenced but was unsure about some others, another woman responded she was unsure about the possibility to influence outcomes, and another woman expressed that such a thing was not possible. In addition, we inquired women on their view about the importance of a specific set of parental investments for a child's development. Below are the expressed views:

1. Breastfeeding: good for health, strength, and growth.
2. Exclusively breastfeeding for 6 months: similarly, good for health, strength, growth, and prevention of diseases.
3. Playing with the child frequently to help her learn new things: the general view is that this would help the child learn new things and words, but some mothers consider that playing with their child would not have an effect.
4. Singing to the child: most women consider singing to the child as not important and having no benefits, and regard it as an activity just to spare the time. A few mothers state it is important for a child's ability to learn words.
5. Telling stories to the child: mothers consider this activity can help the child learn new words, improve their understanding and thinking capability, and even learn from the moral of the story.
6. Immunizing the child: important to prevent the child from acquiring diseases.
7. Feeding the child with nutritious food: relevant for the child's health.
8. Washing the child's hands before the meal time: important to keep germs away.
9. Cuddling the child every night before she goes to bed and in the day when they need it: generally important to foster the bond between mother and child, although some mothers considered it would make the child to dependant on them.
10. Comforting the child if she is scared at night: important to make the child feel safe and secure.

After assessing each of the previously stated parental investments mothers were prompted to choose the three investments they considered were the most important for a child's development. All 20 women agreed breastfeeding was one of the three most relevant, followed by immunizing the child, feeding the child with nutritious food, and washing the child's hands before the meal time. Notice that all these four investments relate to nutrition and disease prevention.

3. A simple model of early life maternal investments

In this section we develop a simple static model of early maternal investment. Consider a mother *i* who has just given birth to a child. For simplicity, assume that the new born is the only child in the household. The mother's preference depends on household consumption c_i, and on three

dimensions of her child's human capital at the end of the early childhood (health h_i, cognitive ability a_i and psycho-social development s_i). The mother can engage in two different binary investments (breastfeeding e_{i1} and stimulating her child through structured play e_{i2}) that may be psychologically costly to the mother but may also be productive in terms of child's human capital development. Because we measure investments at a very early age (3 months), we abstract from any monetary investment. Moreover and for tractability, we assume that the utility function is additively separable, linear in the child's human capital component, and logarithmic in consumption.

The mother's utility is thus given by:

$$\mathrm{Ui}(\mathrm{c}_i, h_i, a_i, s_i, e_{i1}, e_{i2}) = \ \alpha \ln(\mathrm{ci}) + u_{hi}(h_i) + u_{ai}(a_i) + u_{si}(s_i) - \mathrm{C}(e_{i1}, e_{i2}) + \varepsilon_{ei}$$

Where α is the utility value of log consumption, $u_{ji}(j)$ is the value associated with the child's human capital outcome j $(j \in \{h_i, a_i, s_i\})$, $\mathrm{C}(e_{i1}, e_{i2})$ is the (psychological) cost of engaging in the investment levels (e_{i1}, e_{i2}) and ε_{ei} a random term which is individual - and investment schedule - specific and unobservable to the econometrician.

Consistent with the lack of well-functioning credit markets in Pakistan, there is no borrowing or lending possible so mother *i* will consume her household earnings w_i.

A key feature of the model is that mother *i* faces uncertainty about the child's human capital outcomes (h_i, a_i, s_i) at the time of choosing the investment levels (e_{i1}, e_{i2}). Although each combination of investment levels (e_{i1}, e_{i2}) entails an objective probability for the realization of (h_i, a_i, s_i), mother *i* possesses individual-specific subjective beliefs $\mathrm{P}_i(j|e_{i1}, e_{i2})$ about the realization of her child's human capital outcome *j* $(j \in \{h_i, a_i, s_i\})$ when engaging in (e_{i1}, e_{i2}). That is, mother *i* has biased beliefs regarding the true technology that maps investments into outcomes.

The mother's problem is therefore to choose investment levels (e_{i1}, e_{i2}) that maximize her subjective expected utility:

$$\mathrm{Max}_{e_{i1}, e_{i2}} \ \alpha \ln(\mathrm{wi}) + \mathrm{P}_i(h_i|e_{i1}, e_{i2}) u_{hi}(h_i) + \mathrm{P}_i(a_i|e_{i1}, e_{i2}) u_{ai}(a_i) + \mathrm{P}_i(s_i|e_{i1}, e_{i2}) u_{si}(s_i) - \mathrm{C}(e_{i1}, e_{i2}) + \varepsilon_{ei}$$

Using data on maternal investments, beliefs, and investment costs, we seek to make inference on the parameters of the mother's utility function to disentangle the source of the variation observed in the investment levels different children receive.

4. Data

4.1 Sample

The data we use in the paper are collected as part of a cluster randomized controlled trial (c-RCT) of a perinatal depression program in rural and peri-urban Pakistan. It is an intervention delivering culturally-adapted cognitive behavioural therapy (CBT) to pregnant women who screen positive for

depression through trained peer counsellors and community health workers.[1] The intervention is a positive thinking therapy focusing on the mother's personal health, her interactions with the child, and with others.[2] A more detailed description of the trial can be found in Sikander, Lazarus et al. 2015, and in Turner, Sikander et al. 2016. The intervention started during the third trimester of pregnancy, and women were followed during the postnatal period.

In total, 1154 pregnant women were recruited in 40 clusters, 578 of whom were participants in the depression trial, with about 280 depressed and 280 undepressed women in each of the intervention and control arms. In this paper, we use baseline data on all women (depressed and not depressed) to study the perceived beliefs about early-life investments and the cost to investments effort. At the time of gathering the baseline data (when mothers were first recruited in the study) they were in their third trimester of pregnancy, were not told of their depression status, and had not received any form of treatment yet. In our baseline data we effectively we have a sample of 1,090 women (1,154 women with a non-response rate of 5.6%).

When analysing maternal investments, we use data from the survey carried out when the child was 3 months old. For this latter analysis, we exclude all mothers receiving the CBT treatment; as we expect this therapy could have a direct effect on women's parenting behaviour. This translates into a sample of 626 women (871 women with a 28.1% non-response rate). The higher non-response rate at month 3 reflects both that 14% of mothers were unable to be located by the interviewing team (as mothers sometimes go to live with other relatives soon after giving birth), and that 8% of mothers suffered a stillbirth/miscarriage.

In addition, given that the trial oversampled women with depression, we are using two different set of weights to account for the regional prevalence of maternal depression (30%). We first re-weight observations to account for the difference between the real prevalence of maternal depression and the share of depressed mothers in our sample, and second, we construct another weight variable to account for the exclusion of mothers receiving the CBT intervention when examining the link between maternal beliefs and investments at 3 months.

Table 1 provides descriptive statistics of the (i) original unweighted sample; (ii) the baseline weighted sample for which we will describe beliefs; and (iii) the 3-month weighted follow-up sample for which we observe maternal investments. Mothers in our sample are 26 years old on average, with an average parity of 2.5 children (including current pregnancy), and about 30% of them are pregnant with their first child. Moreover, they have about 8 years of completed education, with around 33% of them with 5 or less years of education. The major difference between the weighted and unweighted samples is the depression prevalence, since the weights were designed to map the 30% depression prevalence of the area.

[1] Depression assessment was carried out following the Patient Health Questionnaire-9 cut-off score of 10 or greater (Kroenke, Spitzer et al., 2001)

[2] The design of the therapy has been successfully tested in an earlier trial, the largest depression trial in the world, which was different primarily in being delivered without peers (Rahman et al. 2008). It reduced depression symptoms post-partum (23% vs 53%) and children in treated clusters experienced more play time with parents, less diarrhoea and higher rates of immunization.

Table A1 presents some descriptive characteristics of the attriters and non-attriters. Demographic characteristics, beliefs and costs (both described in greater details below) are similar across the two groups.

4.2 Eliciting beliefs about the impact of early life maternal investments

We elicit maternal beliefs using visual aid as is commonly done in developing countries (Delavande and Kohler 2009, Delavande 2014). The interviewer started with the following introductory text:

Now I am going to ask you some questions about your beliefs regarding certain behaviours that a mother in your community could have and its effect on her child.

Before that, let's talk about how I am going to understand your answers better. We will use different sizes of bars to record your answer. I will show you ten bars of different sizes. I would like you to choose one of the bars out of these ten bars over here to express what you think is the chance of a specific event happening. The smaller the bar, the lesser chances are for that specific event to happen. On the other hand, the bigger the bar the higher the chances are for that specific event to happen. In other words, as you increase the size of the bar the chances increase. If you choose zero, it means you are sure that the event will NOT happen. If you choose 1, it means one chance out of 10. If you choose 1 or 2, it means you think the event is not likely to happen but it is still possible. If you pick 5, it means that it is just as likely it happens as it does not happen (fifty-fifty). If you pick 6, it means the event is slightly more likely to happen than not to happen. If you put 10, it means you are sure the event will happen. There is no right or wrong answer, I just want to know what you think.

The score card is shown in Appendix A.

We started with two simple questions to familiarize respondents with the concept of probability by asking the likelihood of a woman in their community going to the market in the next 2 days and in the next 2 weeks. Appendix Figure A1 shows the distribution of answers for these questions. The figure clearly shows a shift of the distribution to the right when the time horizon increases, so that women recognize that the probability of going to the market is higher with a longer time horizon. Only 3.3% of respondents violated the monotonicity property of probabilities by reporting a strictly larger probability for the shorter time horizon, which is similar to what has been found in other developing country contexts and at the lower end compared to other surveys in developed countries (Delavande and Kohler 2009, Delavande et al. 2017). This result suggests that respondents are comfortable reporting probabilistic beliefs using the 10 bars score card.

Following this first introduction, we asked women in their third trimester of pregnancy a series of probabilistic questions aiming at measuring their beliefs about the returns from early life investments. More specifically, we focused on **4 child developmental outcomes**:

- Health: experiencing frequent diarrhoea;
- Cognitive ability: the ability of putting 2-3 words together in speaking by age 2;

- Cognitive ability/Educational outcomes: the child would learn well at school;
- Socio-psychological development: a child would play happily with other children by age 3.

These outcomes were evaluated against **two levels** of **two maternal investments**:

(i) if the mother exclusively breastfeeds for 6 months versus if the mother does not exclusively breastfeed;
(ii) if the mother plays with the child frequently to help her learn new things versus if the mother plays rarely with the child

See appendix B for exact wording of the questions.

Figures 1A and 1B show the raw beliefs in the expected probability that a specific child developmental outcome would occur when the mother makes the investment (breastfeeding exclusively for 6 months and playing frequently with the child), versus if the mothers does not make these investments, while figures 2A and 2B depict the individual differences (or return) for each developmental outcome and investment. Two things are important to note: (i) women associate higher investment levels with higher chances of positive outcomes (e.g., women expect on average that there is a 64% probability of a child having frequent diarrhea if he is not exclusively breastfed during 6 months compared to 25% if he is exclusively breastfed); and (ii) there is substantial heterogeneity in beliefs. See appendix C on the calibration of beliefs.

On average, breastfeeding is expected to have the highest return for the health outcome, while playing is expected to have the highest return for the cognitive outcomes (see table 1). On the other hand, playing is expected to have only limited impact on health (large heaping at zero return in Figure 2B).

However, even if we observe that there exists heterogeneity in beliefs across women and across investment-outcome scenarios, one concern could be that there might not be variation in the expected return for a given women across our investment-outcome combinations. In other words, women could be systematically reporting all investments to have the same return for the different child developmental outcomes considered (which could question the quality of our elicited beliefs). Appendix figures A2a and A2b show the heterogeneity of beliefs regarding how investments map into children developmental outcomes for a given women in our different investment-outcome scenarios. Figure A2a depicts that around 30% of the women in our sample reported the same expected return for 2 out of the 8 possible investment-outcome combinations, and around 40% provided 3 repeated answers. If we exclude those women who believe that investments are not productive (investments are believed to not influence child development), no woman conveyed that all investments have the same return. Figure A2b breaks down the distribution of repeated answers by investment type. Between 83% and 86% of women reported none or only 2 out of 4 repeated returns in a specific investment domain, so we can discard that women were methodically reporting the same expected return for our different measured investments.

Tables 2a and 2b show how the beliefs about the returns of breastfeeding and playing with the child vary by basic demographic characteristics using an OLS specification. There is a clear education gradient, with more educated women believing that their investments are more productive than less

educated women (see also figure 4). There is similarly an SES gradient (see also figure 5).[3] On the other hand, depression seems not to alter the expected return of early-life maternal investments (see also figure 6).

4.3 Eliciting costs of maternal early life investments

Also relevant to maternal decisions regarding early life investments are the (psychological) costs attached to investment efforts. For any given expected return on investments, we should expect higher (lower) levels of maternal investments from mothers that find investments less (more) costly. In this regard, we asked mothers at baseline whether breastfeeding a baby or playing with the child is enjoyable, and whether breastfeeding a baby or playing with the child is tiring. Figure 3 shows the distribution of answers.

We use as investment cost a binary indicator measuring whether the mother reports that a specific investment is sometimes or most of the times tiring. With this definition, 39% of mothers report that breastfeeding is tiring, while 35% of them do so for playing with the child. Table 3 shows that more educated mothers find playing less tiring, and that high-SES mothers find playing and breastfeeding less tiring. On the other hand, depressed women find both breastfeeding and playing with the child more tiring than non-depressed women (see also figures 3 to 6).

4.4 Measuring early life investments

Early life investments are crucial for a child's developmental trajectory. We focus in two early life maternal investments at the time the child is 3 months old: (i) breastfeeding and (ii) playing with the child. More precisely, we focus on whether the mother exclusively breastfed in the last 24 hours prior to the interview, and whether the parent structures child's play.

To measure *exclusive breastfeeding* we asked mothers if their baby had either breast milk, ghutti, herbal water, water, tea (chai), formula milk, other animal milk (cow, goat, buffalo), semi solid food, solid food, or any other ailment reported by the mother, in the 24 hours previous to the interview. When mothers respond to only have given their child breast milk we consider that the mother is exclusively breastfeeding. Using this definition, 49% of mothers exclusively breastfeed their 3-month old baby (table 1).

The *playing* dimension is measured as a self-report variable assessing whether parent structures child's play period from the HOME (Home Observation Measurement of the Environment) inventory questionnaire, more specifically from The Infant-Toddler HOME inventory (ages 0 to 3) (Cox and

[3] Our SES variable is an asset-based index constructed using polychoric correlations, more suited for categorical variables than classic correlations. It includes asset variables for which less than or equal to 90% of people owned the asset and less than or equal to 90% of people did not own the item. This ensured enough variability in the items going into the principal components score. The full list of assets meeting this condition was: own or rent a farm, ownership of animals, radio, television, fridge, washing machine, electric water pump, bed, chair, cabinet, clock, sofa, sewing machine, camera, laptop computer, wrist-watch, car/truck, piped natural gas, flush toilet, roof made of reinforced brick cement or concrete cement, wall made of baked bricks or cement blocks, and floor made of bricks/terrazzo or ceramic tiles. We define women as having a high SES if her household falls above the median of the distribution of the asset-based SES index.

Walker 2002). Using this variable, 33% of mothers were structuring play with their 3-month old baby.

Table 4, which presents how investments vary by characteristics using an OLS specification, shows that there is no difference in breastfeeding by education, SES, nor depression status (see also Figures 4, 5, and 6), while we see that more educated and higher SES mother are more likely to structure play with their baby. On the other hand, depressed mothers are less likely to structure play with their child.

However, our model ultimately focuses on maternal joint investments. That is, we explore the four possible combinations of breastfeeding and playing mothers can make: both exclusively breastfeeding and playing with the child, only making one of the investments (either only breastfeeding or only playing), and not making any investment at all. In our data, 36% of mothers do none of the investments, 32% breastfeed but do not structure playtime, 15% do not breastfeed but structure playtime and 18% do both of them (table 1).

We observe an education, SES, and depression gradient in joint investments (Figure 7). While 29% (resp. 38%) of the high education (resp. low education) do neither of the investments, 21% (resp. 17%) do both. By SES, 33% (resp. 39%) of the high SES (resp. low SES) do neither while 20% (resp. 15%) do both. Similarly and by depression status, 41% (resp. 34%) of the depressed mothers (resp. non-depressed mothers) do neither of the investments, while 11% (resp. 20%) do both. Table A7 shows how joint investments vary by characteristics using an OLS specification. Although some of these differences become weaker when controlling for other dimensions, SES is still a good predictor of mothers making both investments, and depression a good predictor for mothers not making any.

5. Empirical Results

5.1 Model specification and identification

To make inference in the parameters of the utility function described in Section 3 we use: i) our data on maternal beliefs about the effectiveness of early life investments, ii) the reported cost of effort of carrying out the investments, and iii) information on the actual investments mothers' made on their children. As seen in Section 3, the mother chooses the investment levels (e_{i1}, e_{i2}) that maximizes her subjective expected utility:

$$\begin{aligned}\text{Max}_{\,e_{i1},e_{i2}}\ \ & \text{EU}(\text{wi}, h_i, a_i, s_i, e_{i1}, e_{i2}) \\ &= \alpha \ln(\text{wi}) \\ &+ \text{P}_i(h_i|e_{i1}, e_{i2})u_{hi}(h_i) + \text{P}_i(a_i|e_{i1}, e_{i2})u_{ai}(a_i) + \text{P}_i(s_i|e_{i1}, e_{i2})u_{si}(s_i) \\ &- \text{C}(e_{i1}, e_{i2}) + \varepsilon_{\,ei}\end{aligned}$$

So the probability that mother *i* chooses investment levels $(e_{i1} = j_1, e_{i2} = j_2)$ is given by:

$$\begin{aligned}&\Pr(e_{i1} = j_1, e_{i2} = j_2) \\ &\quad = \Pr[\text{EU}(\text{wi}, h_i, a_i, s_i, j_1, j_2) > \text{EU}(\text{wi}, h_i, a_i, s_i, t_1, t_2), \forall\ (t_1, t_2) \neq\ (j_1, j_2)]\end{aligned}$$

We make further assumptions for identification purposes:

1. $u_{aj}(a_j) = \omega_j I[a_j > \bar{a_j}]$, where $\bar{a_j}$ is a certain level of the outcomes considered. In particular, we use the outcomes we asked beliefs questions about (not experiencing diarrhea frequently, the ability of putting 2-3 words together in speaking by age 2, the chances to play happily by other children at age 3, and the ability to learn well at school). So for example, we assume that the mother gets utility ω_a if her child can put 2-3 words together by age 2.

2. The random terms ε_{ei} are independent for every individual *i* and investment level $e = (e_{i1}, e_{i2})$, and that they have a Type I extreme value distribution.

3. $\mathrm{C}(e_{i1}, e_{i2}) = \delta_1 I(e_{i1} = 1, e_{i2} = 0) \times$
$I(i\ reports\ e1\ is\ tiring\ sometimes\ or\ most\ of\ the\ times\ ) + \delta_2 I(e_{i1} = 0, e_{i2} = 1) \times$
$I(i\ reports\ e2\ is\ tiring\ sometimes\ or\ most\ of\ the\ times\ ) + \delta_3 (I(e_{i1} = 1, e_{i2} = 1) \times \max[I(i\ reports\ e1\ is\ tiring\ sometimes\ or\ most\ of\ the\ times\ ),$
$(i\ reports\ e2\ is\ tiring\ sometimes\ or\ most\ of\ the\ times\ )] + \beta_{e1,e2} X_i$

   In this fashion, we allow for the cost parameter to differ by investment type, and we include an interaction term reflecting that when a mother finds at least one of the two investments tiring, then necessarily she should find doing both investments tiring too. Moreover, X_i are individual characteristics that include the mother's age, the square of the mother's age, the mother's education level, the husband's education, parity, SES, and whether the woman was diagnosed as depressed at baseline.

4. We assume that the investments have non-negative expected returns, i.e. $\mathrm{P}_i(a_i|e_{it} = 1) \geq \mathrm{P}_i(a_i|e_{it} = 0)$, t=1,2. In this sense, we replace $\mathrm{P}_i(a_i|e_{it} = 0)$ with $\mathrm{P}_i(a_i|e_{it} = 1)$ when this is violated.[4] In other words, we assume that the expected return of not investing cannot be higher than the expected return of making the investment. When this assumption is violated, we replace the return of not investing to be the same to the return of making the investment. This is the same as considering that for women who violate this condition, investments have no added value (or no returns) in terms of child developmental outcomes.

5. We do not observe $\mathrm{P}_i(a_i|e_{i1}, e_{i2})$ but rather $\mathrm{P}_i(a_i|e_{i1})$ and $\mathrm{P}_i(a_i|e_{i2})$. We surveyed women about the expected returns from investments separately, and for this sample of women we have no information on the returns from joint investments. Our baseline specification assumes that there is no complementarity between the investments, i.e. $\mathrm{P}_i(a_i|e_{i1}, e_{i2}) = \max(\mathrm{P}_i(a_i|e_{i1}), \mathrm{P}_i(a_i|e_{i2}))$. In addition, we also make alternative assumptions to evaluate how sensitive our results are to this supposition. In particular:

   5.1. $\mathrm{P}_i(a_i|e_{i1}, e_{i2}) = min(1, max(\mathrm{P}_i(a_i|e_{i1}), \mathrm{P}_i(a_i|e_{i2})) +$
   $0.5 min(\mathrm{P}_i(a_i|e_{i1}), \mathrm{P}_i(a_i|e_{i2}))$ when $\mathrm{P}_i(a_i|e_{i1} = 1, e_{i2} = 1)$.

   5.2. $\mathrm{P}_i(a_i|e_{i1}, e_{i2}) = min\left(1, max(P_i(a_i|e_{i1}), P_i(a_i|e_{i2})) + 0.25 min(P_i(a_i|e_{i1}), P_i(a_i|e_{i2}))\right)$ when $\mathrm{P}_i(a_i|e_{i1} = 1, e_{i2} = 1)$.

[4] This affects 7 to 11% of the sample, depending on the outcomes and investments. One exception is experiencing diarrhoea with the playing investments, where this affects 24% of the sample.

Condition 5.1 allows for a 50% complementarity between investments when mothers make both investments, while condition 5.2 assumes a 25% complementarity. See appendix D for a test of our assumption using a similar sample of women that was asked about returns of joint investments.

Under these 5 assumptions we estimate a multinomial logit model where the 4 choices mothers can make are: 1) neither breastfeed nor play with the child, 2) breastfeed but not play, 3) play but not breastfeed, and 4) both breastfeed and play. Using the expected return mothers have for each of these combinations of investments, and the cost each combination entails for them, we make inference on the preference parameters $\omega_j, \delta_j, \beta_{e1,e2}$. Note that the preference parameters $\omega_j$are identified off of the variation in expectations across mothers while the cost parameters δ_j are identified off the variation in reported cost for engaging in the various investments. Figure 6 shows the distribution of beliefs for each of the 4 possible choices when using assumptions A4 and A5. Moreover, the fact that we use beliefs elicited in pregnancy mitigates the concern of endogeneity of beliefs.[5]

5.2 Baseline estimates

Table 5 shows the estimates of the multinomial logit model specified above. Columns (1) to (2c) of table 5a focus on the health outcome only, with and without covariates in the cost function. The preference parameter ω_h (i.e. the coefficient associated with the beliefs about returns on health) is positive and statistically significantly different from zero at 5%, suggesting that mothers act on their beliefs regarding child's health outcomes when deciding to invest, and that they care about health in particular. The estimate of δ_2 is negative and statistically significantly different from zero, suggesting that mothers who find playing more costly are less likely to engage in this particular investment. The estimate of δ_1 is not statistically different from zero, suggesting that the cost of breastfeeding is not a deterrent form making this investment when the baby is 3 months of age in Pakistan. Controlling for other covariates does not change the magnitude or precision of those coefficients. In fact, other characteristics explain little of the variation in investments. Higher SES women are more likely to be both breastfeeding and playing, as opposed to not making any investment. On the other hand, women that were diagnosed with depression are less likely to be doing both investments. Furthermore, women who have already at least two other children (and may be more time-constrained) are less likely to play and not breastfeed than to not play and not breastfeed.

Columns (3) to (8c) of Table 5a and table 5b show the estimates when we consider each of the other child's outcomes. They clearly present a similar picture. The preference parameter ω_j is always positive and statistically significant for each of the outcomes considered (mothers also care about their child's cognitive and psycho-social development, while δ_2 is negative and statistically significant.

Table 5c fits more closely the theoretical model presented in Section 3 by considering the health, cognitive, and psycho-emotional outcomes for the child jointly into the decision-making process. In this case, only the preference parameter ω_a measuring how much a mother values her child

[5] Although we specifically asked mothers questions about the technology of skills formation (the return to investments done by a general mother in their community) as opposed to questions on the returns to own investments, observed own child's endowment at birth could have potentially affected mothers' responses.

learning well at school is statistically significantly different from zero at 5%. This result suggests that a mother values the cognitive ability of her child above the child experiencing diarrhea and playing well, and that improving the cognitive ability of her child is the driver of her investments. Given that we also asked mothers how important they think the outcomes considered are for a child's development, we can compare the results on the preference parameter of our model with the mothers' stated preferences. As it can be seen in Table 1, 80% of mothers responded that the ability of their child learning well is very important for a child's development, which contrasts with the share of women that considered as very important the rest of the outcomes (from 64 to 67% depending on the outcome).

5.3 Elasticities of investments to changes in beliefs

Once we have established that beliefs matter for investment decisions we seek to quantify how relevant they are. Table 6 shows the elasticities of investments when the return of a specific investment is increased by 10 percentage points. The elements in the diagonal depict the own elasticity of each investment alternative, while the off-diagonal elements represent the cross-elasticities. For example, the first entry in the health dimension box of 0.012 shows that the percentage of women choosing not breastfeeding and not playing would increase by 1.2 ppt when the subjective belief of not experiencing diarrhea when not breastfeeding and not playing increases by 10 ppt. This in turn will come at the expense of a reduction in the share of women that do both investments (-0.3), the women that only breastfeed (-0.6), and the women who only play (-0.3). This result conveys that if a mother believes that her child has low chances of experiencing frequent diarrhea in the absence of high investment levels, the probability of the mother choosing low investment levels increases.

A similar result can be observed for the rest of the child developmental outcomes considered, and overall, there is a pattern that prevails across all of the outcomes. In summary: (i) an increase in the expected return from a specific investment option increases the choice of that investment alternative and therefore, reduces that of the others. However, the elasticities are relatively small; (ii) an increase in the expected return from making no investments tends to have a stronger effect than an increase in the expected returns from making both investments. This is due for the need to compensate for the cost to effort of making the high level investments; and (iii) changes in the beliefs about the technology that maps investments into cognitive development (measured as the ability to learn well) have the largest impact on investment decisions.

5.4 Benchmarking the preference parameters ω_j with income

In this section we seek to measure how much parents' value developmental outcomes monetarily. With this aim, we first replace the SES asset-based index with the log of the household income in our baseline estimation.[6] Table A2 shows the results of the model with this new specification. The preference and cost parameters are similar to table 5. Specifically, we evaluate how much additional income g a mother needs in order to keep her utility level constant when the probability of her child's outcome *j* decreases from π_1 to π_2, i.e.

[6] Figure A3 shows the association between the SES asset-based index and household income.

$$\beta \ln(\text{wi}) + \pi_1 u_{ji}(\text{j}) = \beta \ln(\text{wi} + \text{g}) + \pi_2 u_{ji}(j)$$

Table 7 displays the results when we take π_1=1 and π_2=0. We take the average of the three coefficients associated with income, and evaluate income at the sample mean and median. Based on this calculation, we see that the developmental outcome mothers value the most is the ability of their child to learn well at school: mothers would be willing to forgo slightly more than half of the household's monthly income to increase the probability that their child experiences the outcome from 0 to 1 (making sure the child learns well at school when the child wouldn't learn well at school). They would be willing to forego between 33 to 39% of household monthly income to increase the likelihood of the 3 other outcomes again from 0 to 1. If we consider all developmental outcomes jointly, mothers would be willing to pay 84% of the household monthly income to ensure that their child performs well in all developmental outcomes measured.

5.5 Heterogeneity in preferences for child's outcomes

So far, we have assumed that all mother have the same preference parameters ω_j. We now relax this assumption in four ways:

(1) We estimate a mixed logit model where the parameters $\omega_j$are assumed to have a normal distribution (table 8).[7]
(2) We interact beliefs with education, allowing ω_j to be different for high and low education mothers (table 9)
(3) We interact beliefs with SES, allowing ω_j to be different for high and low SES mothers (table 10)
(4) We interact beliefs with depression, allowing ω_j to be different for depressed and non-depressed mothers (table 11)

The results are somewhat mixed but suggest that there is limited heterogeneity in preferences. The results from the mixed logit model are not consistent with the idea of heterogeneity in preferences as we reject the hypothesis that the variance of the normal distribution of ω_j is different from zero in all specifications. In some specifications for table 9, the estimated preference parameters for low education women is statistically significantly different than the high education women, but these results are sensitive to how we define low and high education, and to whether controls are included or not. However, in tables 10, and 11, the preference parameter for the health outcome is larger and significantly different for the high SES and non-depressed mothers, and this result holds even when estimating all preference parameters jointly (columns 9 to 12c).

5.6 Robustness checks

We first start by supressing the assumption A4 of non-negative expected returns from investments when estimating our multinomial logit model. Results are depicted in Table A3. As it can be seen, the results are similar, except for the preference parameter for the health outcome, which is less precisely estimated.

[7] When estimating the mixed logit model we have to drop the interaction term in the cost function, and replace our categorical variables of education and parity with their continuous version in order to achieve convergence.

We also relax assumption A5, and allow for complementarities among the investments. Table A4 uses assumption A51 which allows for complementarities at the 50% level; while Table A5 uses assumption A52 (25% level of complementarities). Again, results are very similar. Moreover, in appendix D we use a different sample of similar women for whom we additionally asked beliefs on the returns to joint investments to investigate the relation between expected returns to investments when these are elicited jointly and separately. Evidence suggests that assumption A5 does not compromise our results, and that our estimates of the elasticities of investments to changes in beliefs could possibly be regarded as lower bounds.

Finally, we challenge the Independence of Irrelevant Alternatives (IIA) assumption of the multinomial logit model. Table A6 shows the results when we estimate our model with a nested logit specification where mothers' first decision is whether to exclusively breastfeed their child, and in the lower level, whether to play with the child. Although results are similar, they are less precisely estimated. Nevertheless, the IIA assumption in the multinomial logit specification is not rejected with a Hausman test.

6. Conclusion

The empirical findings presented in this study reinforce the argument that differences in parental beliefs regarding the technology of skills formation can partly explain for the variation observed in parental investment levels across families. More specifically, we observe that the expected return to early-life investments are important determinants of the choice to breastfeed and stimulate, and that early-life investments seem to be driven mostly by a perceived increase in child's cognitive development. In addition, we provide evidence that the costs associated to different investment alternatives also influence the type of investments parents choose to make.

Moreover, we find limited evidence of systematic heterogeneity in preferences, suggesting that families value early-life developmental outcomes similarly. However, we do not assess in this study whether there exists variation in preferences for human capital outcomes later in life. In addition, our one-period model considers human capital accumulated early in life as a consumption or final good. A more comprehensive model should take into account the possibility that some parents might regard human capital accumulated at the end of childhood as an intermediate good. While we do not address this nuance in our model, disentangling these two scenarios could prove important for the design of policy interventions.

While our evidence points towards the already established link between socio-economic status, beliefs, and investments, we are also able to shed some light into the mechanisms that drive mothers suffering with depression to devote fewer resources to the development of their children. The study of how maternal depression affects maternal investment decisions is not trivial. Depression is the single most important contributor of years lived with disability, threatening to aggravate the inter-generational transmission of poverty through poorer developmental trajectories of those children born to depressed mothers. Furthermore, although maternal depression is interrelated with poverty, the higher incidence of maternal depression in poorer countries could pose limits to the reduction in the human capital gap across children in different countries even in the presence of reductions in income dispersion. Although we see no differences in beliefs regarding

the technology of human capital production or in the valuation of children developmental outcomes by depression status, we observe that depressed mothers find it more difficult to act upon their beliefs (given that for similar beliefs they make fewer investments). Although this higher difficulty is partly explained by the fact that depression places a higher burden to investment costs, depression could also affect mothers' self-valuation in regards to their ability of using the technology of skills production. Another plausible explanation could arise from depressed mothers giving birth to children with poorer health (or from having pessimistic views about their child's health), which could affect the productivity of maternal investments or the investing decisions trough an endowment effect (real or psychological).

The results presented in this study are important since higher parental investments are likely to translate in higher human capital levels accumulated at the end of childhood, potentially influencing future human capital trajectories. Moreover, because we observe that families with a lower-socio economic status hold lower expectations from investing in children, gaps in children developmental outcomes are likely to continue to persist in the absence of remedial interventions. In addition, treating the mental health of mothers suffering with depression could not only have a direct impact on mothers' wellbeing, but also result in positive implications for their children in terms of higher parental investment.

References

Aboud and Yousafzai (2016): “Very Early Childhood Development,” in Black RE, Laxminarayan R, Temmerman M, et al., editors. Washington (DC): The International Bank for Reconstruction and Development / The World Bank.

Almond, D., and Currie, J. (2010): “Human Capital Development before Age Five,”, Handbook of Labor Economics, vol 4. Ashenfelter, O., and Card, D., editors, Ch 15, 1315-1486.

Attanasio, O., Cunha, F., and Jervis, P. (2015): “Parental Beliefs and Investments in Human Capital,’”Mimeo UCL.

Boneva T. and Rauh C. (2015): “Parental Beliefs about Returns to Educational Investments: The Later the Better?,” Human Capital and Economic Opportunity Global Working Group, Working Paper 2015-019

Cunha, F., I. Elo, and J. Culhane (2013): “Eliciting maternal expectations about the technology of cognitive skill formation,” Working Paper 19144, National Bureau of Economic Research.

Cunha, F. and J. J. Heckman (2007): “The technology of skill formation,”. Amer. Econ. Rev. 97(2), 31–47.

Cunha F. (2016): “Gaps in Early Investments in Children,” Working Paper.

Delavande A. (2008): “Pill, Patch or Shot? Subjective Expectations and Birth Control Choice,” International Economic Review, 49, 3, 999-1042.

Delavande A. (2014): “Probabilistic Expectations in Developing Countries,” Annual Review of Economics, 6: 1-20.

Delavande A and Kohler, H-P. (2009): “Subjective Expectations in the Context of HIV/AIDS in Malawi,” with Hans-Peter Kohler, Demographic Research, Vol 20, 31.

Delavande, A., Lee, J. & Menon, S. (2017): “Eliciting Survival Expectations of the Elderly in Low-Income Countries: Evidence From India,” Demography 54: 673.

Ermisch J. (2008): “Origins of Social Immobility and Inequality: Parenting and Early Child Development,” National Institute Economic Review 205: 62-71.

Ermisch J, Markus Jäntti and Timothy Smeeding (eds.), From Parents to Children: The Intergenerational Transmission of Advantage, 2012, Russell Sage Foundation: New York.

Grantham-McGregor S M, Cheung Y, Cueto S, Glewwe P, Richter L., and others (2007): “Developmental Potential in the First 5 Years for Children in Developing Countries,” The Lancet 369 (9555): 60–70.

Hamadani, J., F. Tofail, S. Huda, D. Alam, D. Ridout, and O. Attanasio (2014): “Cognitive deficit and poverty in the first 5 years of childhood in Bangladesh,” Pediatrics 134 (4).

Heckman, J., Moon, S., Pinto, P., Savelyev, P., Yavitz, A., et al (2010): “Analyzing Social Experiments as Implemented: A Reexamination of the Evidence from the High Scope Perry Preschool Program,” Quantitative Economics, 1:1, 1-46.

Heckman, J. J. and T. Kautz (2014): “Fostering and measuring skills interventions that improve character and cognition”. In J. J. Heckman, J. E. Humphries, and T. Kautz (Eds.), The GED Myth: Education, Achievement Tests, and the Role of Character in American Life, Chapter 9. Chicago, IL: University of Chicago Press.

Kelly, Y., Sacker, A., Del Bono, E., Francesconi, M. and M. Marmot (2011): “What role for the home learning environment and parenting in reducing the socioeconomic gradient in child development? Findings from the Millennium Cohort Study,” Archives of Disease in Childhood, 96: 832-837.

Kroenke, K., Spitzer, R. L. and Williams, J. B. W. (2001): The PHQ-9. Journal of General Internal Medicine, 16: 606–613.

Manski (2004): “Measuring Expectations,” Econometrica.

Rahman Atif, Malik Abid, Sikander Siham, Roberts Christopher, and Creed Franci (2008): “Cognitive behaviour therapy-based intervention by community health workers for mothers with depression and their infants in rural Pakistan: a cluster-randomised controlled trial”. The Lancet.

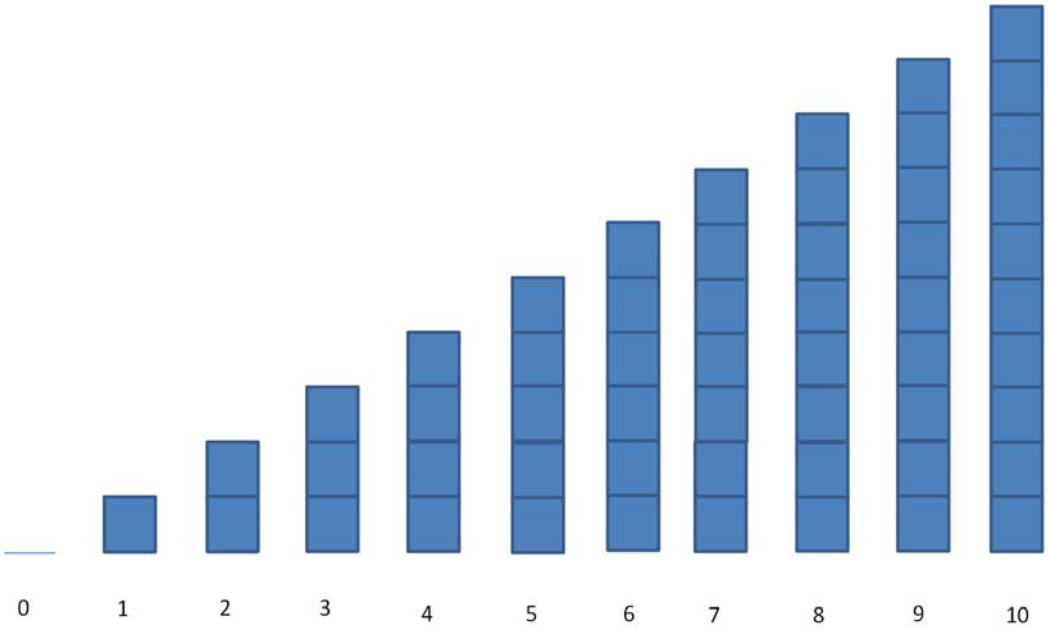
Sikander S, Lazarus A, Bangash O, et al. (2015): “The effectiveness and cost-effectiveness of the peer-delivered Thinking Healthy Programme for perinatal depression in Pakistan and India: the SHARE study protocol for randomised controlled trials,”. Trials. 2015;16:534.

Turner EL, Sikander S, Bangash O, et al. (2016): “The effectiveness of the peer-delivered Thinking Healthy PLUS (THPP+) Program for maternal depression and child socioemotional development in Pakistan: study protocol for a randomized controlled trial,” Trials. 2016;17(1):442.

UNESCO (2014) "Teaching and learning: Achieving quality for all," UNESCO Global Monitoring Report 2013/4.

World Bank (2015). “Mind, Society and Behaviour,” World Development Report 2015, World Bank Group.

Appendix A: Bar card



Appendix B: Questionnaire

Now I am going to ask you some questions about your beliefs regarding certain behaviours that a mother in your community could have and its effect on her child.

Before that, let's talk about how I am going to understand your answers better. We will use different sizes of bars to record your answer. I will show you ten bars of different sizes. I would like you to choose one of the bars out of these ten bars over here to express what you think is the chance of a specific event happening. The smaller the bar, the lesser chances are for that specific event to happen. On the other hand, the bigger the bar the higher the chances are for that specific event to happen. In other words, as you increase the size of the bar the chances increase. If you choose zero, it means you are sure that the event will NOT happen. If you choose 1, it means one chance out of 10. If you choose 1 or 2, it means you think the event is not likely to happen but it is still possible. If you pick 5, it means that it is just as likely it happens as it does not happen (fifty-fifty). If you pick 6, it means the event is slightly more likely to happen than not to happen. If you put 10, it means you are sure the event will happen. There is no right or wrong answer, I just want to know what you think.

Let me ask you a couple of questions to make sure you understand how to answer using the bars.

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Pick the size of the bar that reflects how likely the following event can happen… (*Training questions)*

a) A woman in your community will go to the market at least once <u>within the next 2 days</u>?
b) A woman in your community will go to the market at least once <u>within the next 2 weeks</u>?

Within your community, the maternal behaviors that we are interested in are a) breastfeeding and b) playing with the child. We are interested in whether you think these might influence the health and growth of children (including getting ill, doing well at school, being able to speak and engage with others)

Some people think these behaviors affect their children and some people don't think they make a difference. Among people who think they make a difference, some think they make a big difference and others think they make only a small difference. There is no right or wrong answer, we just want to know what you think. When answering the questions please think of another mother like you.

First I am going to ask you questions regarding breastfeeding and its influence on the health and growth of children.

Please provide your answers to the questions that I will ask you with the help of the bars.

1. In your view, what is the likelihood of a child/infant in your community to frequently have diarrhea?	
(a) If the mother exclusively breastfeeds for 6 months.	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
(b) If the mother does not exclusively breastfeed for 6 months.	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
2. In your view, what is the likelihood of a child to put 2-3 words together in speaking by age 2 years of his/her life:	
(a) If the mother exclusively breastfeeds for 6 months.	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
(b) If the mother does not exclusively	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

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breastfeed for 6 months.	

3. In your view, what is the likelihood that a child will happily play with other children by age 3:	
(a) If the mother in your community exclusively breastfeeds for 6 months.	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
(b) If the mother in your community does not exclusively breastfeed for 6 months.	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
4. In your view, what is the likelihood that a child in your community will learn well at school?	
(a) If the mother in your community exclusively breastfeed for 6 months.	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
(b) If the mother in your community does not exclusively breastfeed for 6 months.	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

Now we are going to ask the same questions that we asked earlier but this time we will relate them to someone who plays with the child instead of to breastfeeding behavior. Again, there is no right or wrong answer, we just want to know what you think.

Please provide your answers to the questions that I will ask you with the help of the bars.

1. In your view, what is the likelihood of a child/infant in your community to frequently have diarrhea?	
(a) If the mother plays with the child frequently to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
(b) If the mother plays with the child rarely to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
2. In your view, what is the likelihood of a child to put 2-3 words together in speaking by age 2 years of his/her life:	
(a) If the mother plays with the child frequently to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

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(b) If the mother plays with the child rarely to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
3. In your view, what is the likelihood that a child will happily play with other children by age 3:	
(a) If the mother plays with the child frequently to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
(b) If the mother plays with the child rarely to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

4. In your view, what is the likelihood that a child in your community will learn well at school?	
(a) If the mother plays with the child frequently to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.
(b) If the mother/father plays with the child rarely to help them learn new things	0. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

Appendix C

In order to assess the extent to which our beliefs are well calibrated we can compare the expected likelihood that women in our sample have of children experiencing diarrhea with the real incidence of diarrhea in Pakistan measured from the 2012-2013 Demographic Health Survey (DHS). The upper right corner of Table C1 shows that in Pakistan, the proportion of children that experienced diarrhea in the two weeks prior to the interview ranged from around 25 to 33%. As we see in the upper left corner of the table, the beliefs women have in respect to this domain are very similar for the scenario in which mothers invest in their child. Moreover, according to Cunha 2016, 80% of children

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in a US sample speak partial sentences by age 2. In the lower left corner of the table we see that women in our sample belief the likelihood of this outcome is between 70 and 74% when mothers make the high level investments.

Table C1: Calibration of beliefs

In sample expected likelihood of frequent diarrhea episodes	
a) If the mother exclusively breastfeeds for 6 months	0.25
(b) If the mother does not exclusively breastfeed for 6 months	0.64
a) If the mother plays with the child frequently	0.34
(b) If the mother plays with the child rarely	0.5

Proportion of children with diarrhea in the last 2 weeks according to 2012-2013 Pakistan DHS	%
<6 months	25.8
6-11 months	35.3
12-23 months	32.9

In sample expected likelihood of putting 2-3 words together by age 2	
a) If the mother exclusively breastfeeds for 6 months	0.7
(b) If the mother does not exclusively breastfeed for 6 months	0.39
a) If the mother plays with the child frequently	0.74
(b) If the mother plays with the child rarely	0.41

Percentage of children that speak partial sentence by age 2 in the US according to Cunha (2016)	80%

Appendix D

We collected information from an additional sample of 20 similar women in Pakistan to assess the extent to which mothers consider breastfeeding and playing with the child as complementary investments. For this purpose, these new sample of women were specifically asked about probabilistic beliefs in regards to returns from joint investments.[8] Moreover, we presented women with our original set of questions used to elicit beliefs on returns when investments are presented individually. Using these two set questions we are able to test our Assumption 5.

Figure D1 plots the elicited jointly likelihood of children achieving each of our measured developmental outcomes in our different investment scenarios against the likelihood constructed

[8] The likelihood of a specific developmental outcome occurring when the mothers does not play and does not breastfeed, when the mother breastfeeds but does not play, when the mother does not breastfeed but plays, and when the mother both breastfeeds and play.

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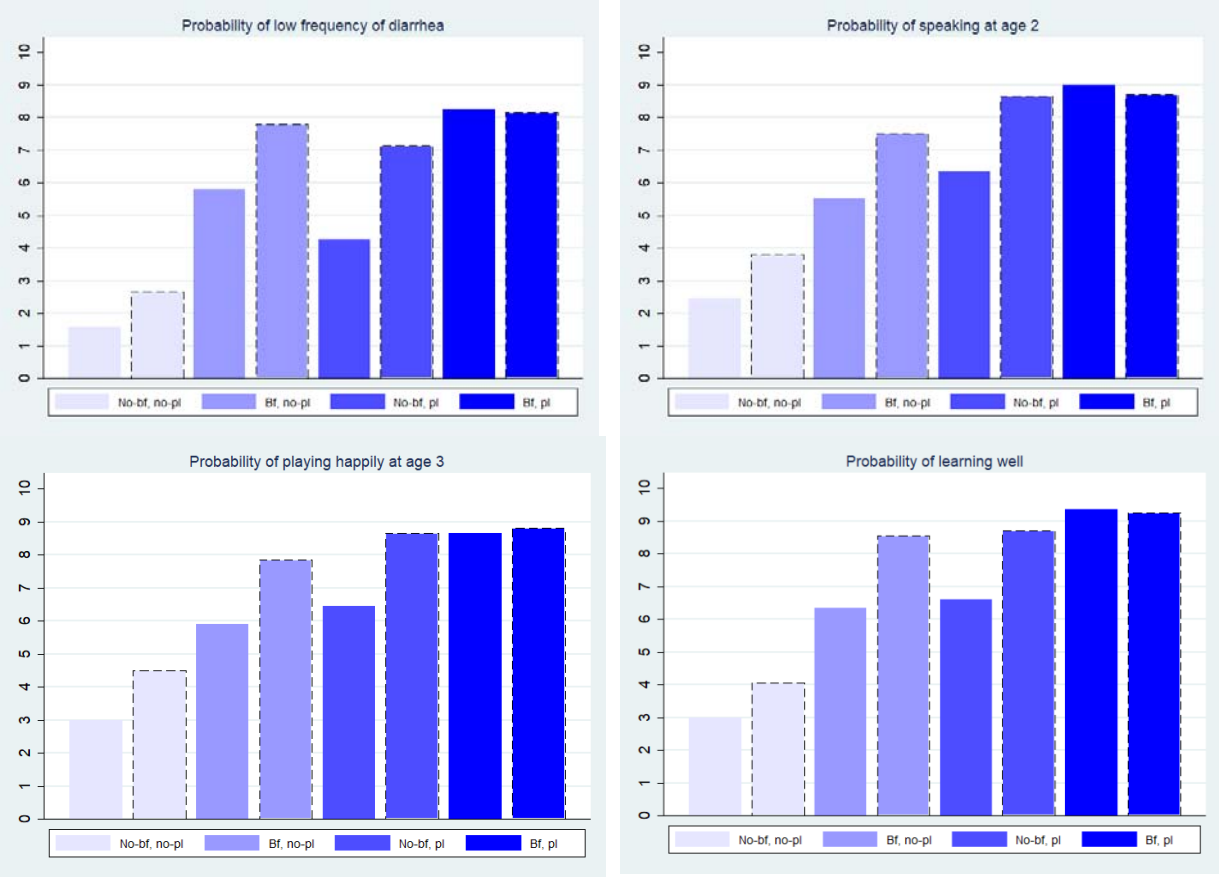
using Assumption 5 (black dashed line). As expected, using elicited joint beliefs mothers also expect a higher likelihood of children achieving a specific developmental threshold as they make higher investments on children. Surprisingly, our constructed likelihood in the scenario of mothers both breastfeeding and playing (Bf, pl) is very similar to the elicited joint probability. On the other hand, we tend to overestimate substantially the expected likelihood mothers have on children reaching our measured developmental milestones when making no investments, and when making only one of the two investments (only breastfeeding or only playing).

Figure D1: Elicited beliefs on likelihood from joint investments vs. constructed joint likelihood



Notice however that in terms of the expected return of joint investments evaluated against the base scenario of no investments, the differences between the elicited joint returns and our constructed returns are considerably more similar (except maybe for the health outcome) (Figure D2). In addition, it is possible to observe how our construct underestimates the expected return in the scenario in which mothers make both investments (in which case assumption A5.1 and A5.2 would prove relevant).

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Table D2: Elicited returns from joint investments vs. constructed joint returns

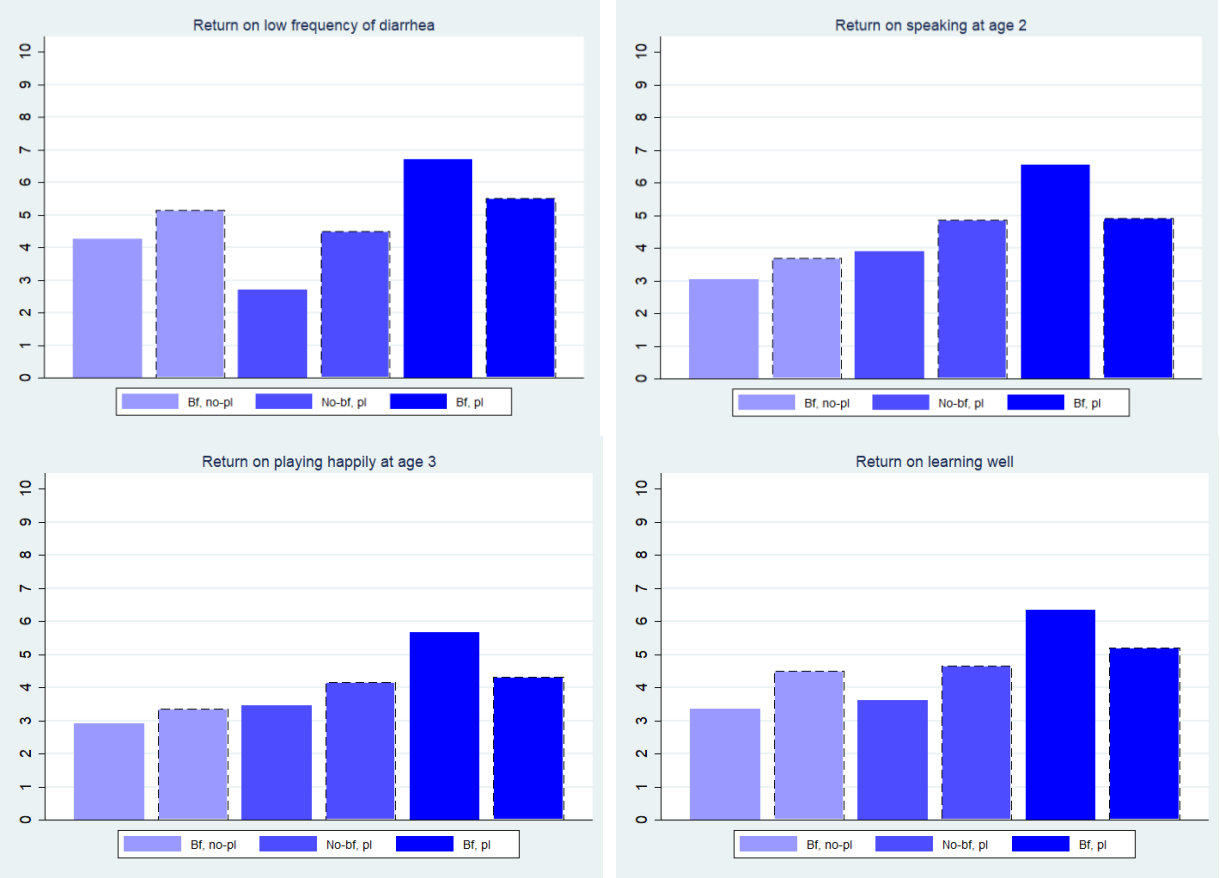

Figure D3 below helps understand the origin of the differences observed in Figure D1. It plots the expected likelihood of the occurrence of children developmental outcomes when the investments are presented to the women jointly and when investments are presented independently. We see that although the relative importance of a specific investment is maintained in the two different forms of eliciting beliefs, women expect higher probabilities of the outcomes taking place when these are asked independently for each investment. Table A8 shows the results of our model when we make an exercise consisting on rescaling our constructed joint beliefs in our main estimation sample using the elicitation bias observed in Figure D1. The results we obtain are very similar. If anything, the coefficient on the preference for health becomes more imprecise, and the rest of coefficients become slightly larger, pointing towards a higher elasticity of investments to changes in beliefs than our baseline estimates.

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Figure D3: Beliefs on returns from joint investments vs. beliefs on returns from individual investments

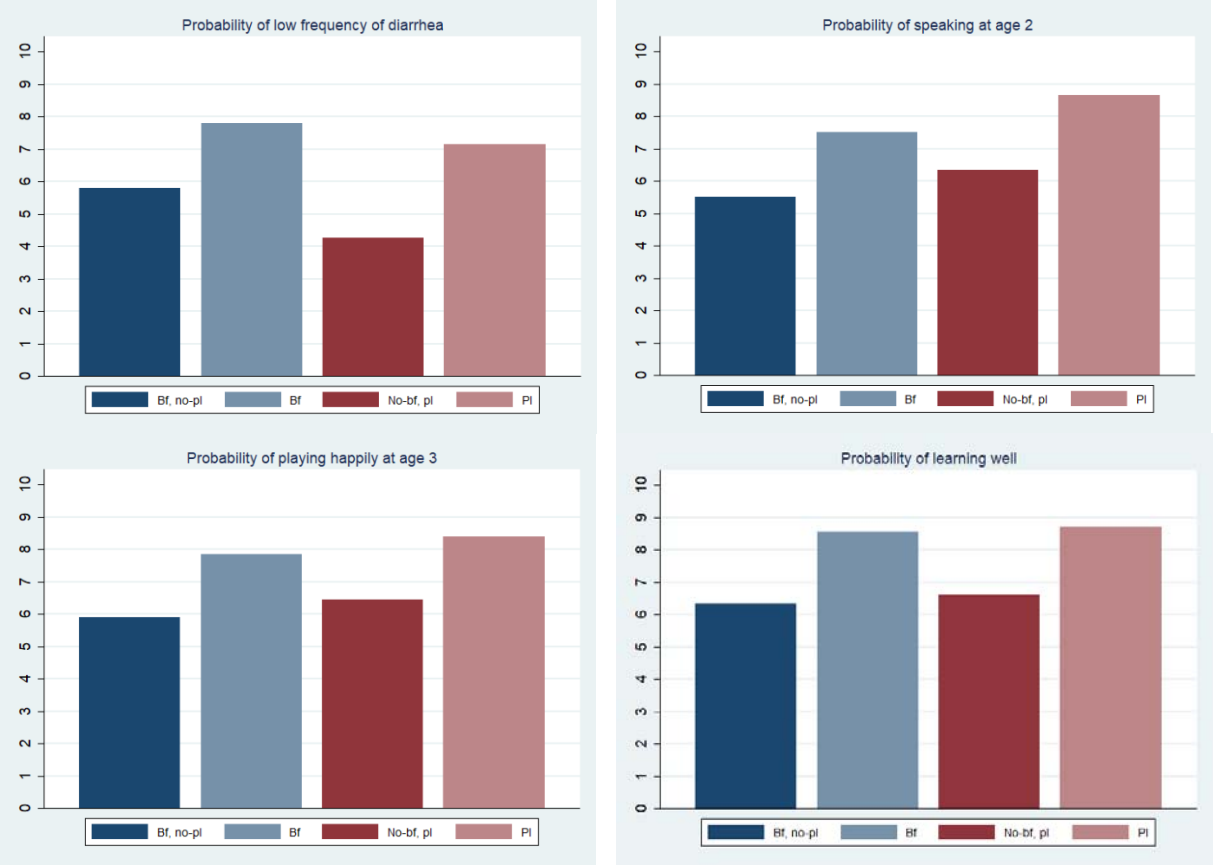

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Figure 1A: Likelihood of developmental outcomes by breastfeeding investment level

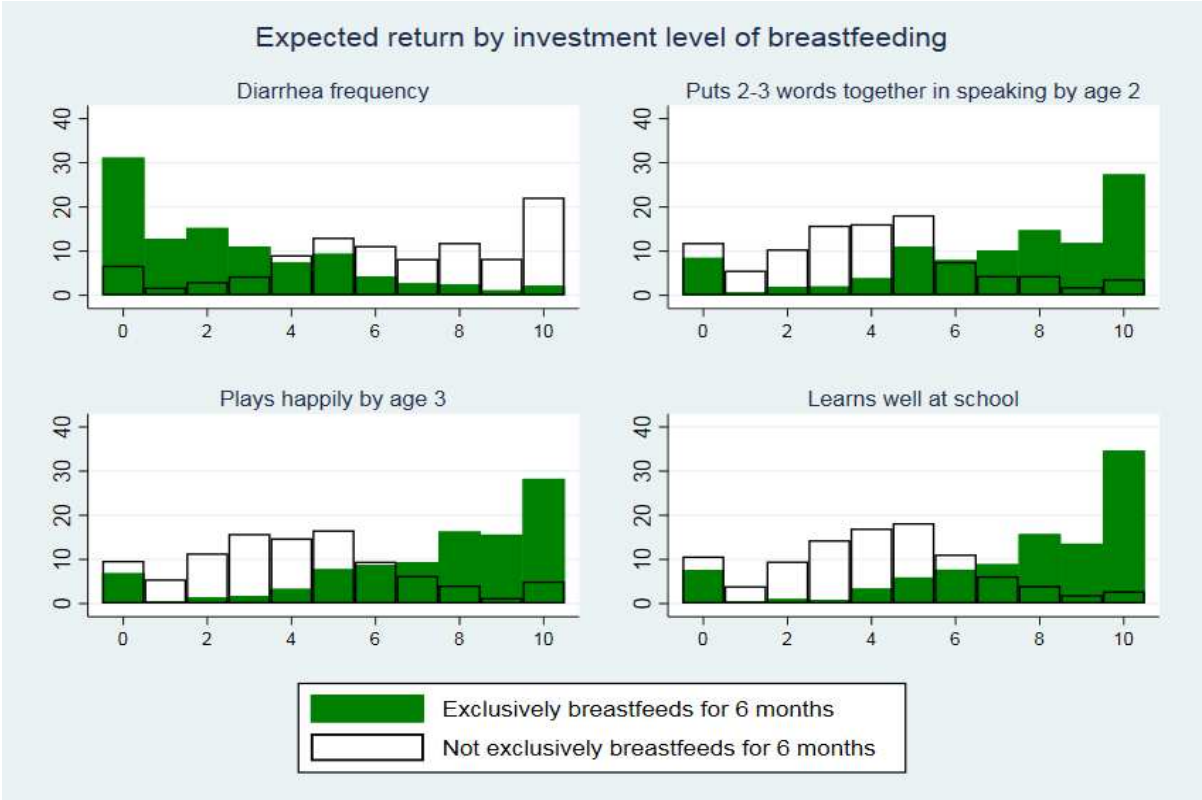

Figure 1B: Likelihood of developmental outcomes by playing investment level

Figure 2A: Expected return from breastfeeding

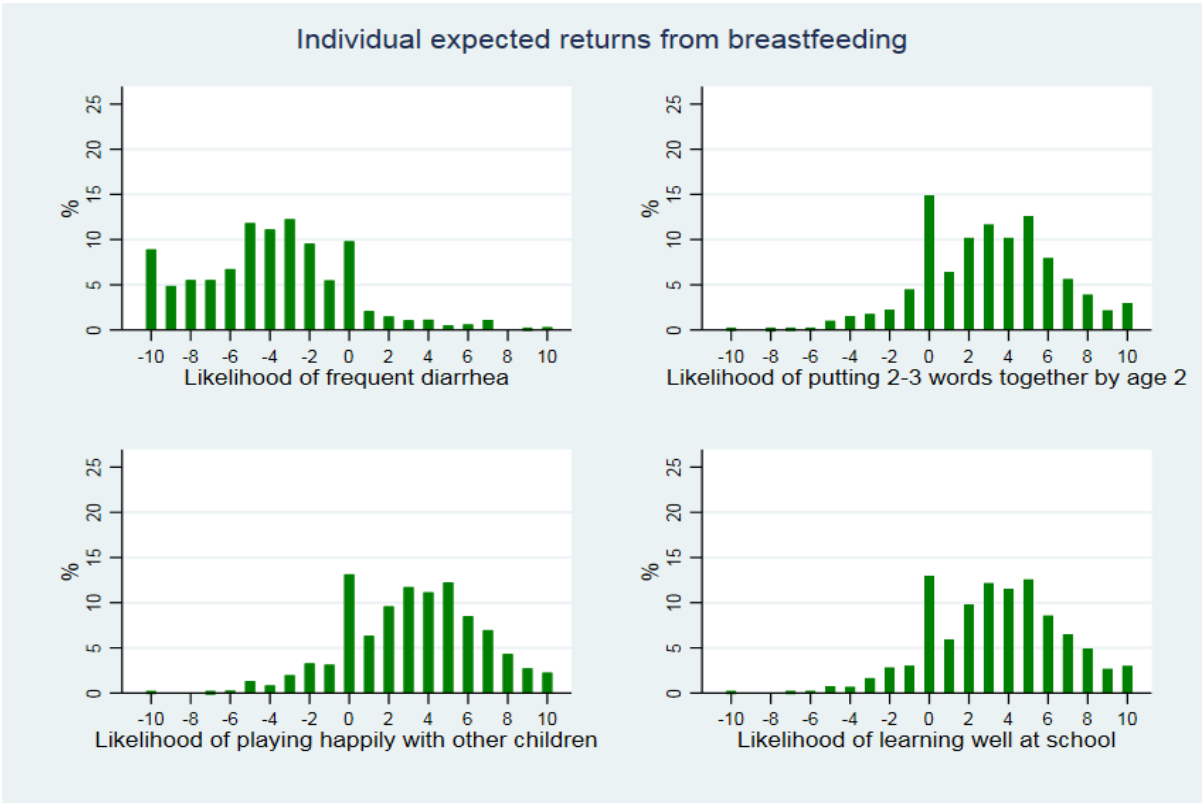

Figure 2B: Expected return from playing with the child

Figure 3: Distribution of investments' effort cost

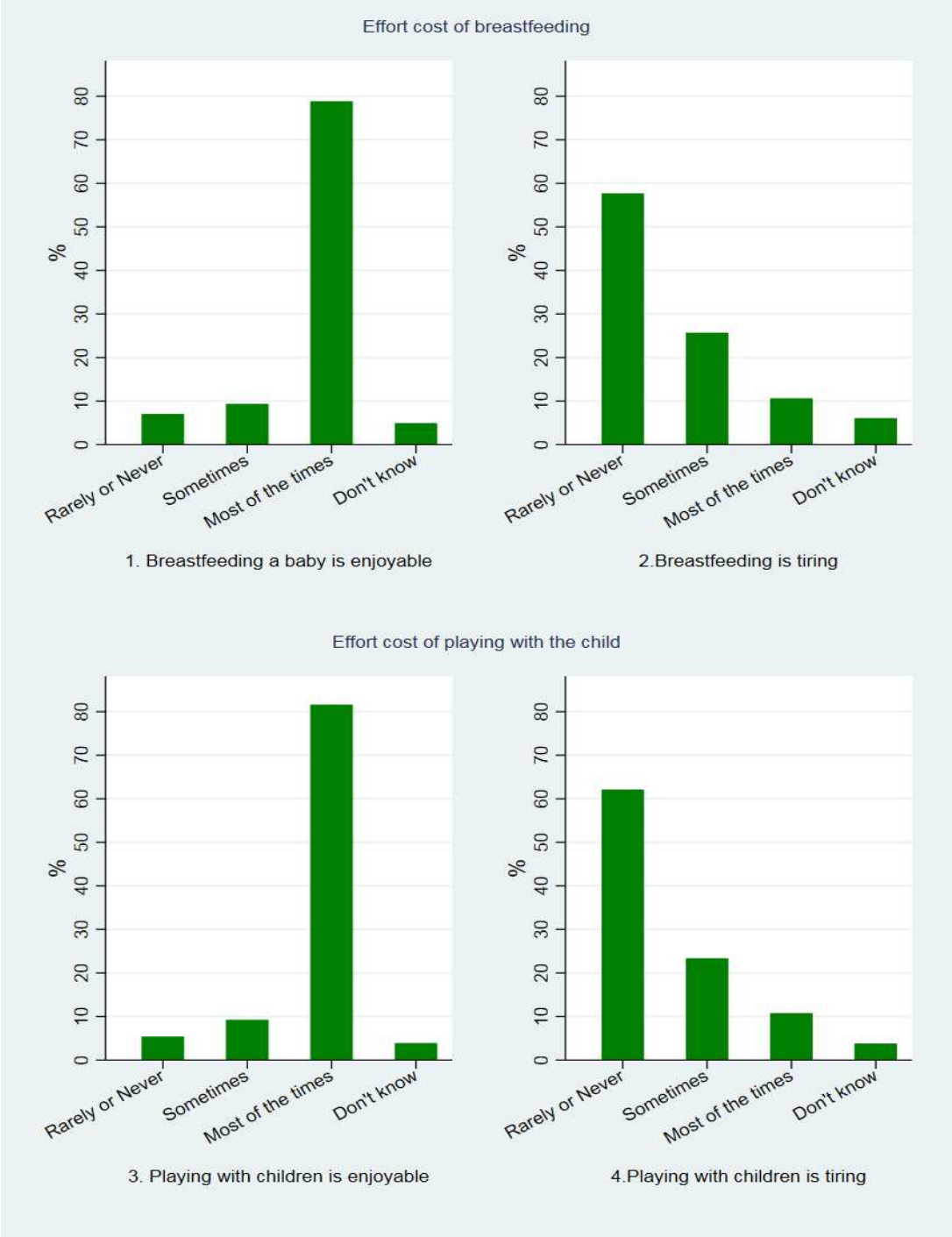

Figure 4: Association of beliefs, cost to effort, and investments, with education

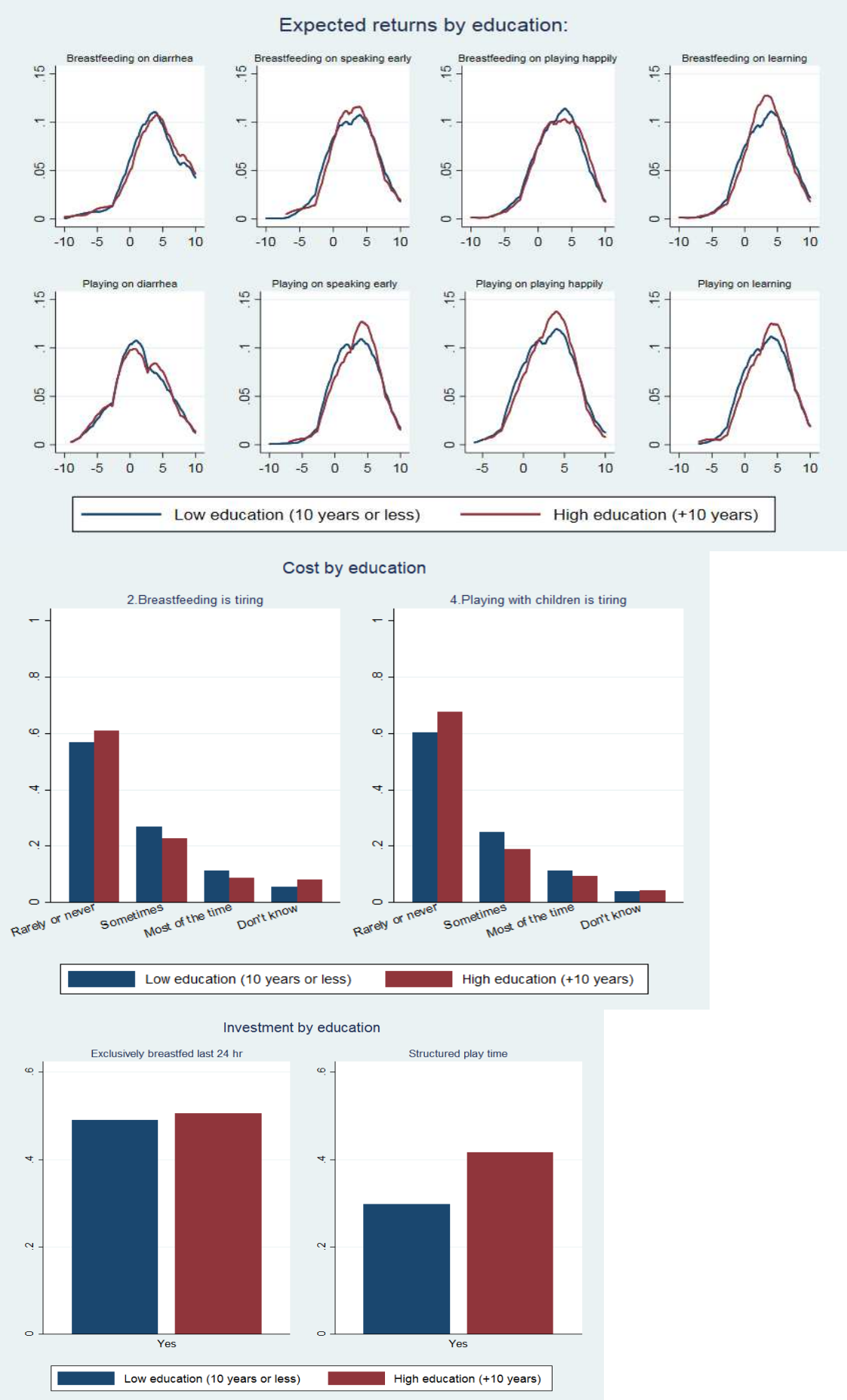

Figure 5: Association of beliefs, cost to effort, and investments, with SES

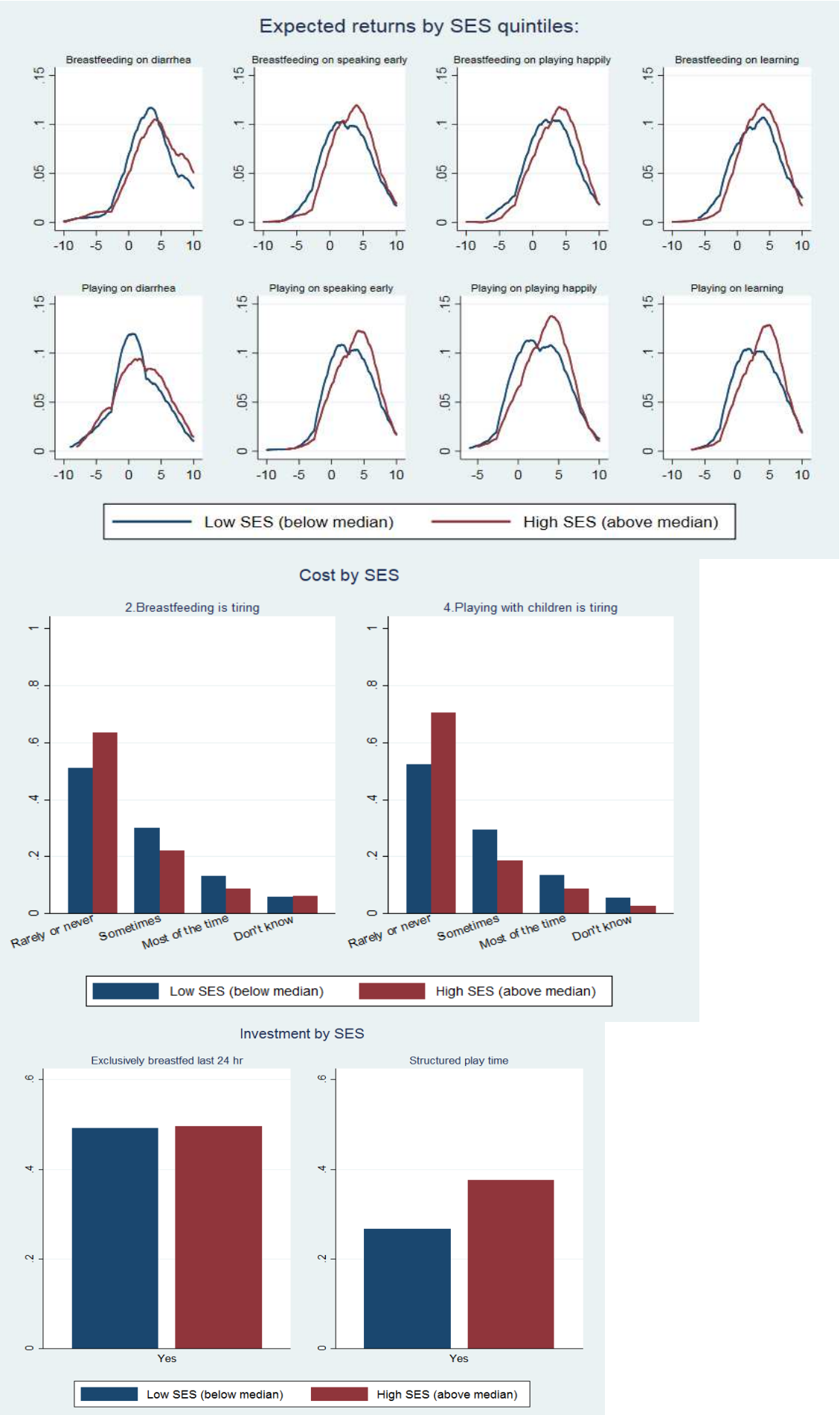

Figure 6: Association of beliefs, cost to effort, and investments, with depression

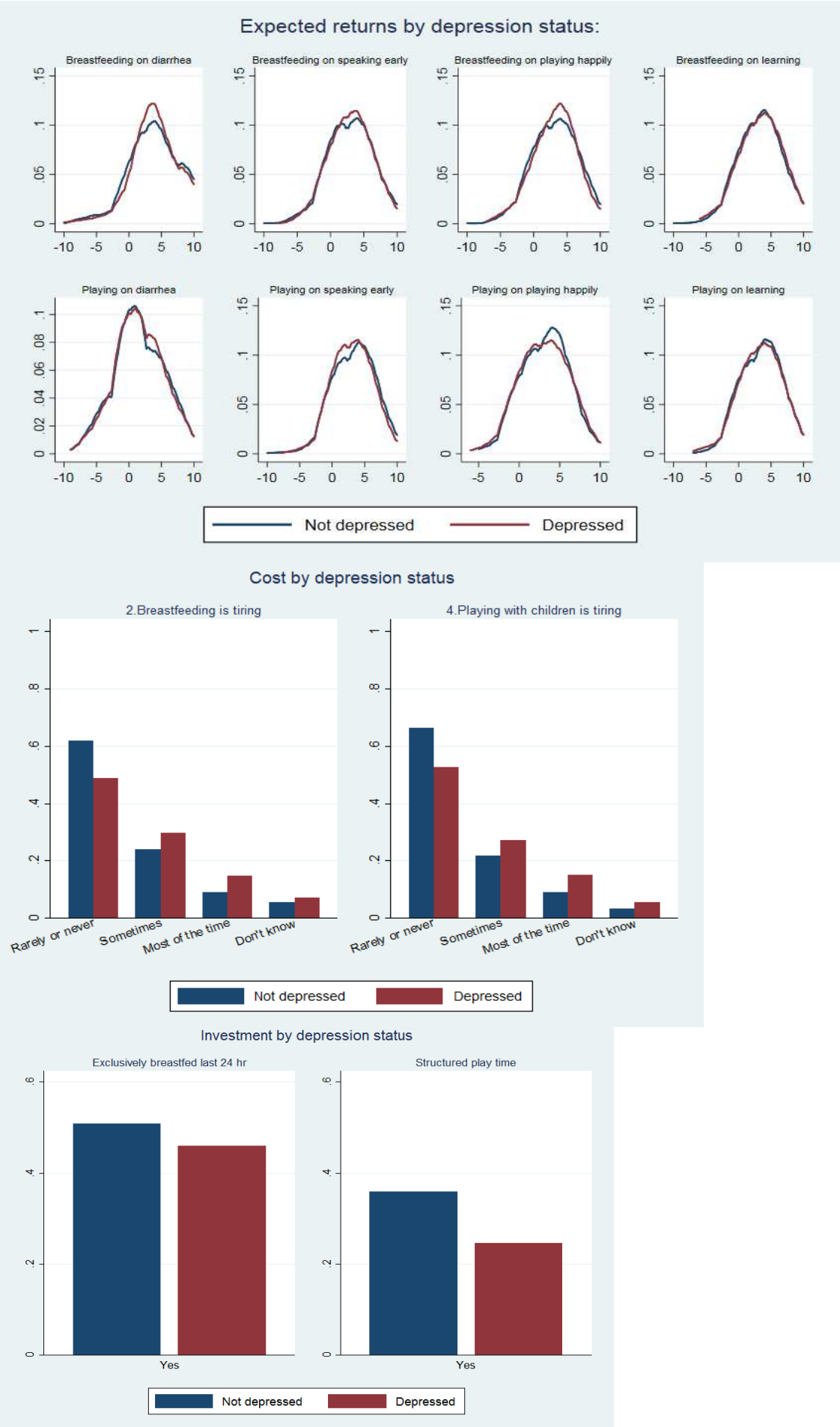

Figure 7: Distribution of joint investments by characteristics

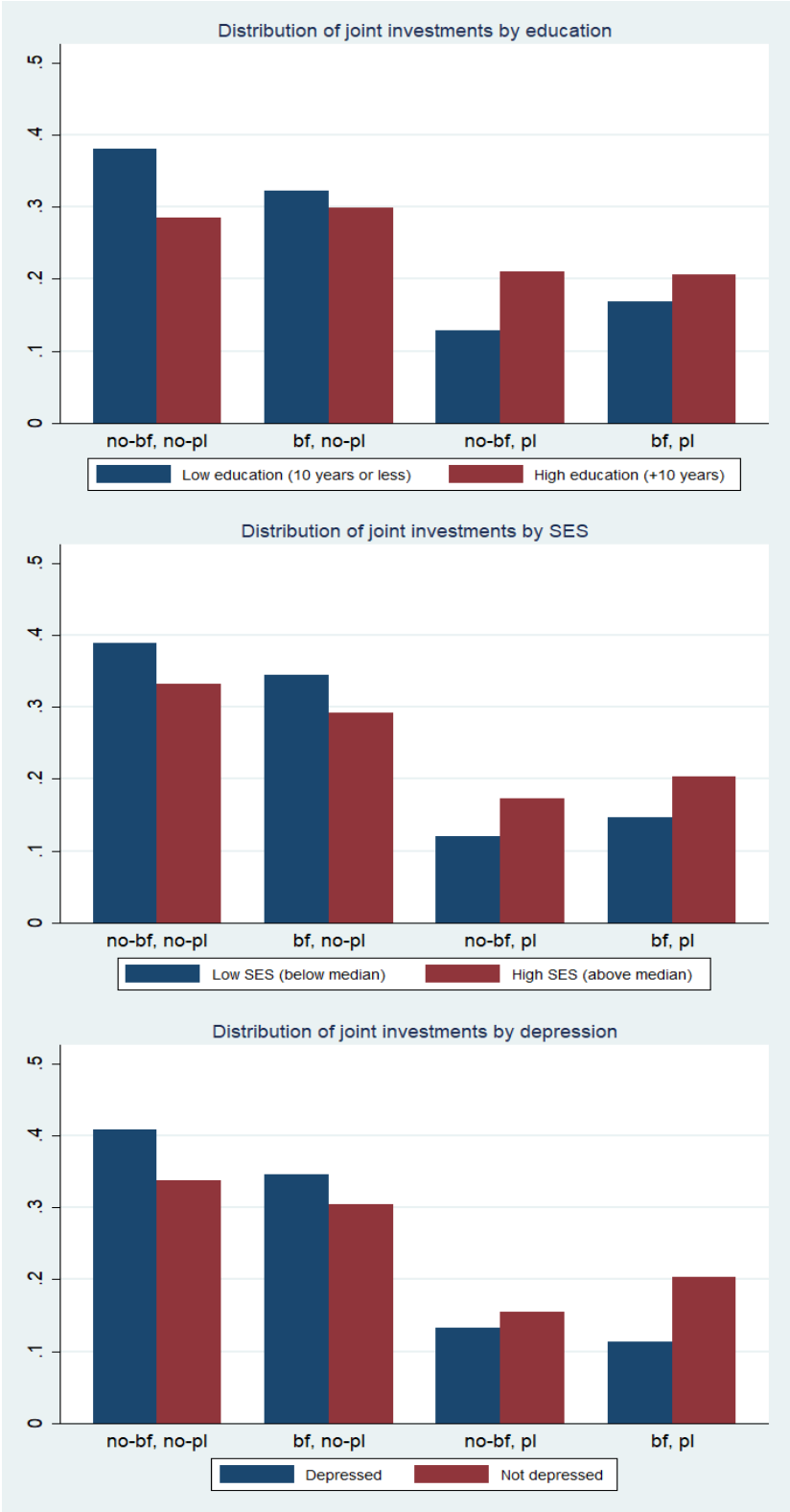

Figure 8: Investment payoffs by investment choice

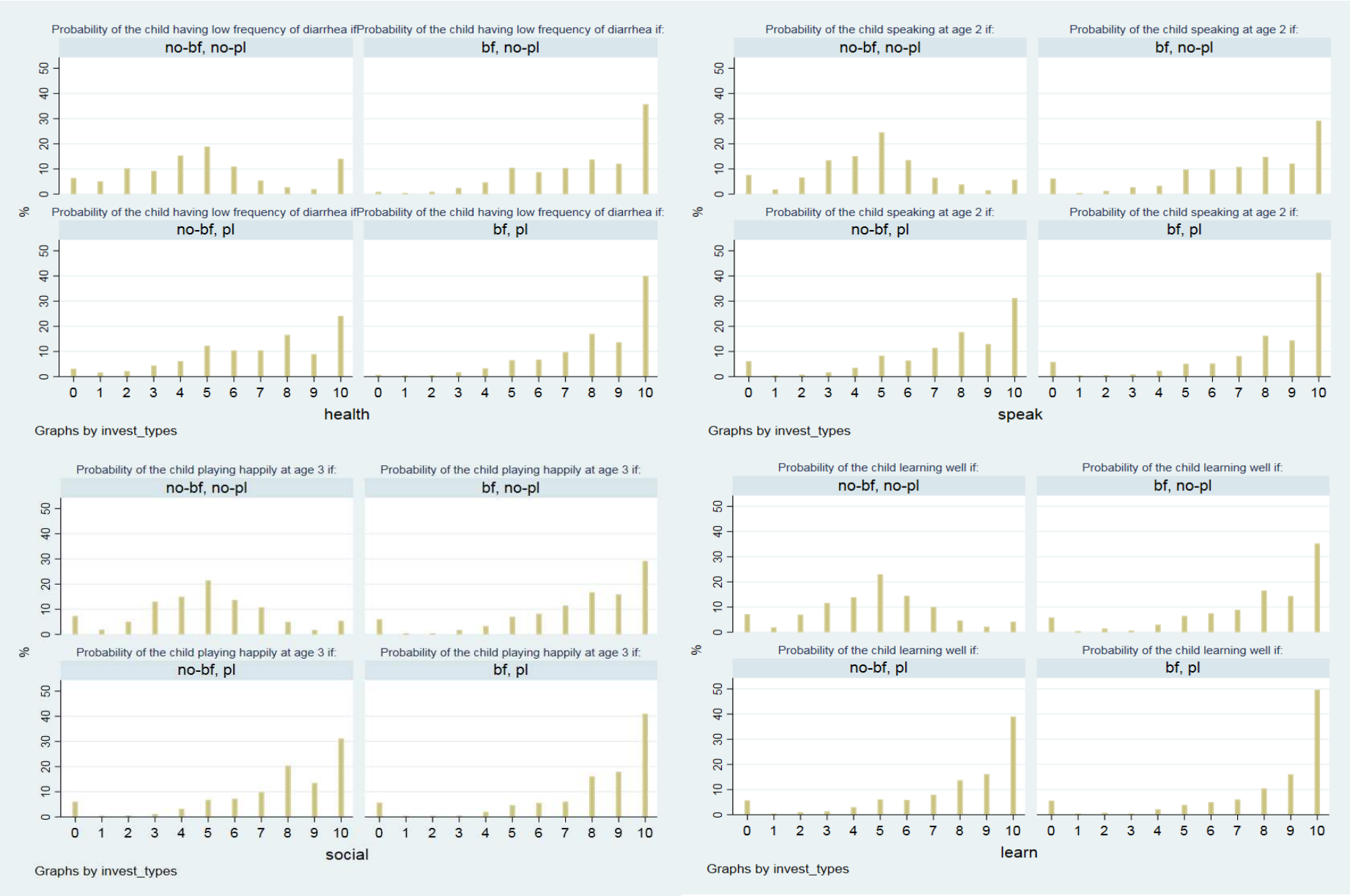

Figure A1: Monotonicity property of probability distribution

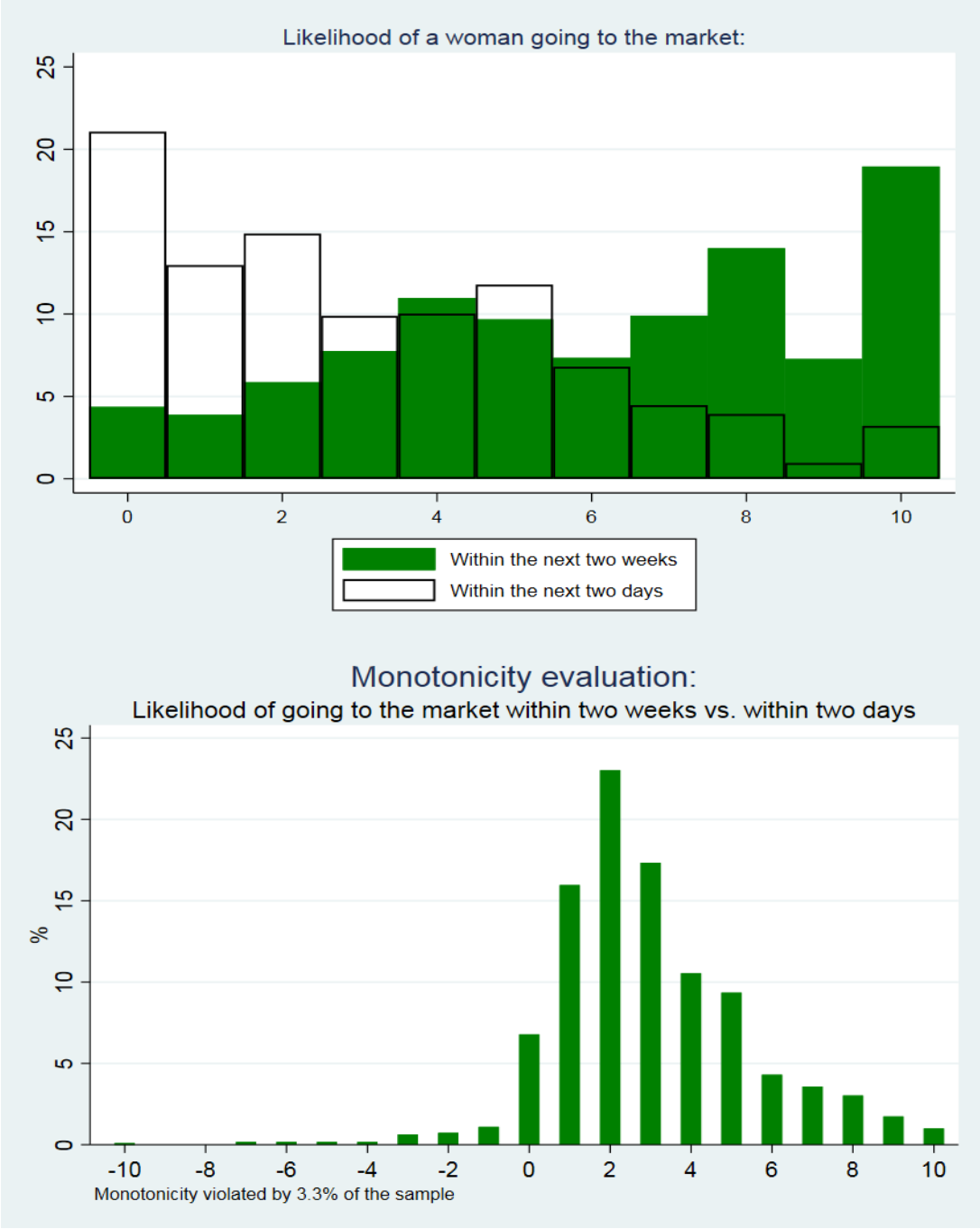

Figure A2a: Individual distribution of repeated expected returns (all beliefs)

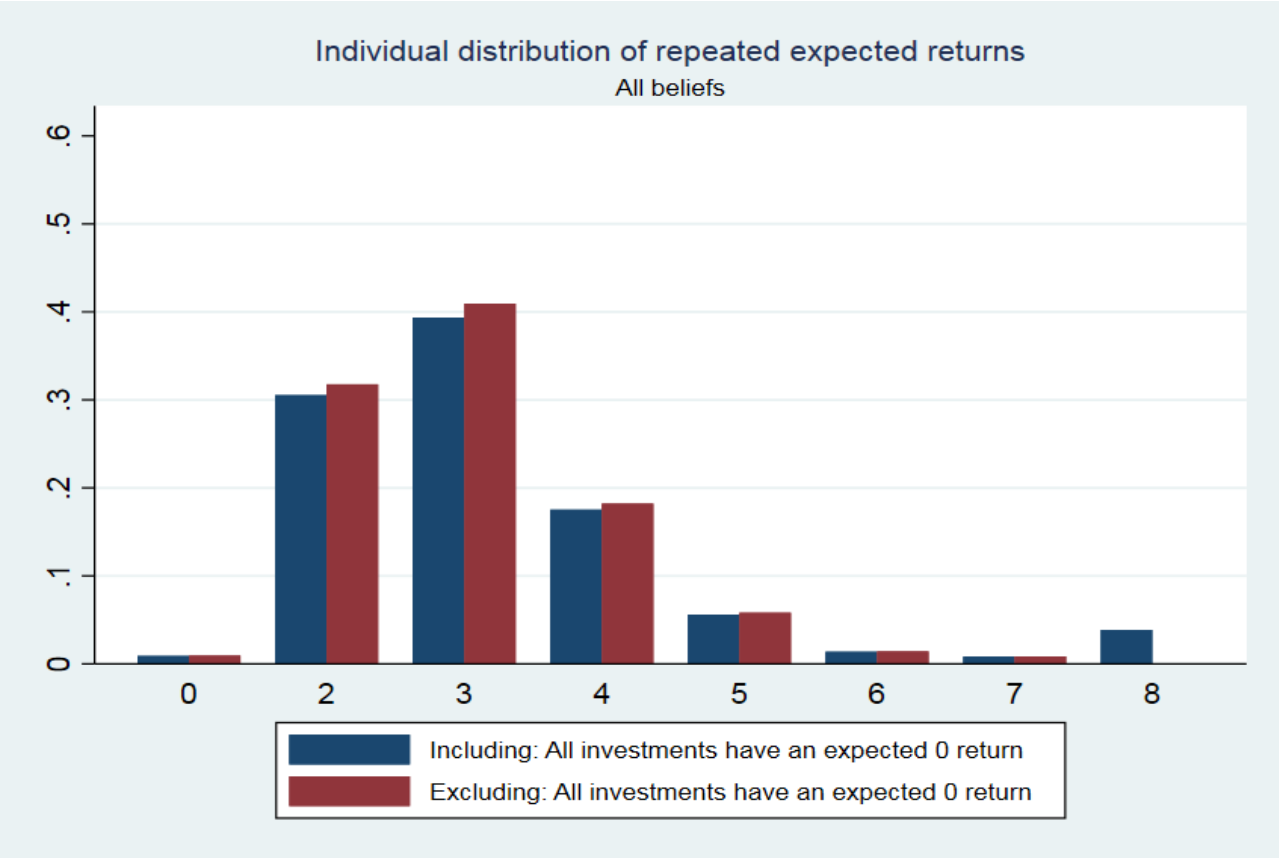

Figure A2b: Individual distribution of repeated expected returns (by beliefs on investment type)

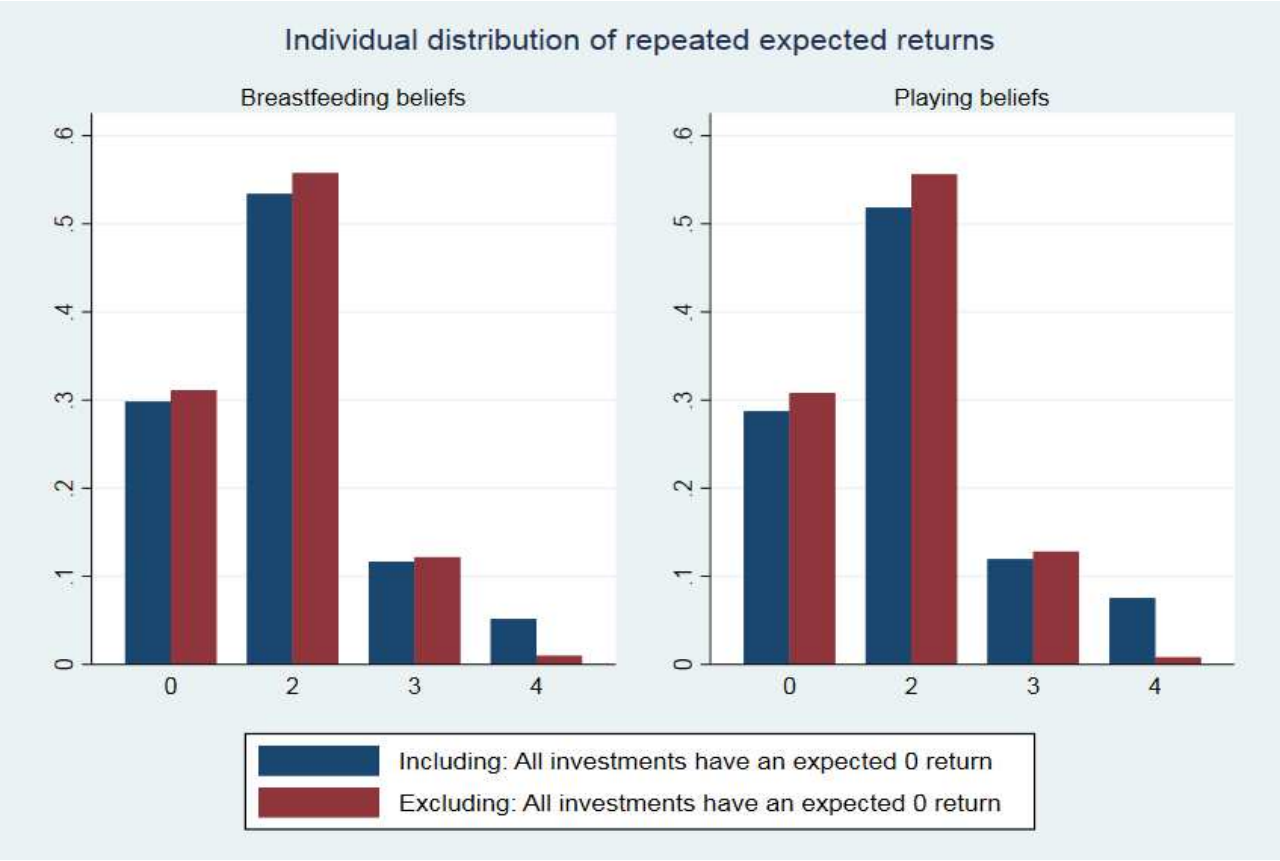

Figure A3: Relation of income with SES and mother's education

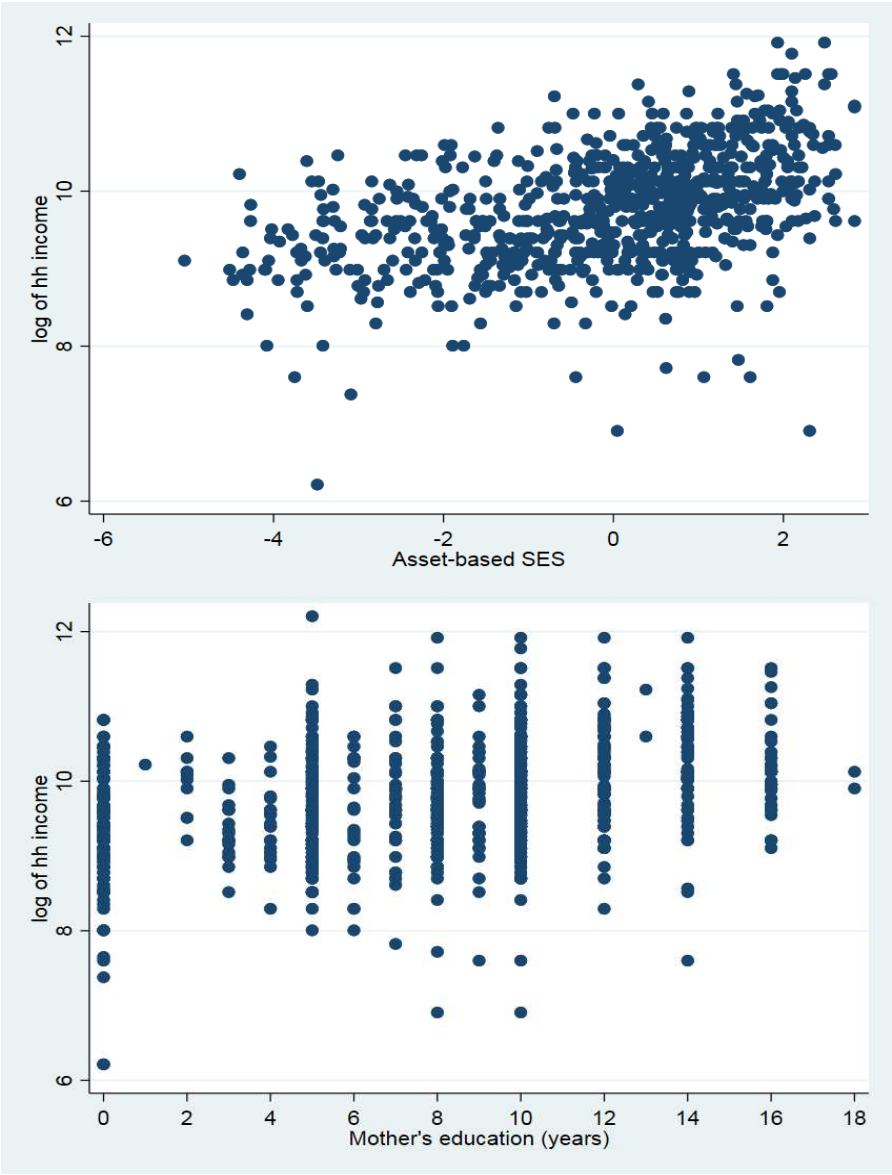

Table 1: Descriptives

	(i) Original non-weighted sample	(ii) Weighted sample at baseline	(iii) Weighted sample at 3 months	Diff (i)-(ii)	Diff (ii)-(iii)	Diff (i)-(iii)
Mothers' age (years)	26.71	26.58	26.65	0.13	-0.07	0.06
Mother's education (years)	7.70	8.04	8.03	-0.34	0.00	-0.33
Husband's education (years)	8.63	8.83	8.90	-0.20	-0.07	-0.28
Parity	2.58	2.48	2.45	0.10	0.03	0.13*
Household's income ($)	214.23	224.58	225.72	-10.35	-1.14	-11.49
Likelihood of diarrhea episodes						
(a) If the mother exclusively breastfeeds for 6 months	2.52	2.50	2.52	0.02	-0.02	-0.00
(b) If the mother does not exclusively breastfeed for 6 months	6.44	6.40	6.40	0.04	0.00	0.04
(a) If the mother plays with the child frequently	3.53	3.42	3.49	0.11	-0.07	0.04
(b) If the mother plays with the child rarely	5.10	5.00	4.97	0.10	0.03	0.13
Likelihood of putting 2-3 words in speaking by age 2						
(a) If the mother exclusively breastfeeds for 6 months	6.98	6.98	6.96	-0.00	0.02	0.02
(b) If the mother does not exclusively breastfeed for 6 months	3.95	3.94	3.91	0.01	0.03	0.04
(a) If the mother plays with the child frequently	7.41	7.43	7.35	-0.02	0.08	0.07
(b) If the mother plays with the child rarely	4.15	4.13	4.12	0.02	0.01	0.03
Likelihood of playing happily by age 3						
(a) If the mother exclusively breastfeeds for 6 months	7.32	7.33	7.28	-0.01	0.04	0.04
(b) If the mother does not exclusively breastfeed for 6 months	4.13	4.13	4.12	-0.00	0.01	0.01
(a) If the mother plays with the child frequently	7.48	7.51	7.45	-0.03	0.06	0.03
(b) If the mother plays with the child rarely	4.34	4.34	4.33	-0.01	0.01	0.01
Likelihood of learning well						
(a) If the mother exclusively breastfeeds for 6 months	7.53	7.52	7.47	0.01	0.05	0.06
(b) If the mother does not exclusively breastfeed for 6 months	4.13	4.14	4.15	-0.00	-0.01	-0.01
(a) If the mother plays with the child frequently	7.77	7.77	7.69	-0.00	0.08	0.08
(b) If the mother plays with the child rarely	4.28	4.27	4.25	0.01	0.02	0.04
Breastfeeding beliefs						
Expected return of breastfeeding on diarrhea (Base)	3.92	3.90	3.88	0.02	0.02	0.04
Expected return of breastfeeding on speaking (Base)	3.03	3.04	3.05	-0.01	-0.01	-0.02
Expected return of breastfeeding on playing happily (Base)	3.19	3.19	3.16	-0.01	0.03	0.03
Expected return of breastfeeding on learning well (Base)	3.39	3.38	3.32	0.01	0.06	0.07
Playing beliefs						
Expected return of playing on diarrhea (Base)	1.57	1.58	1.48	-0.00	0.10	0.09
Expected return of playing on speaking (Base)	3.26	3.31	3.23	-0.04	0.08	0.03
Expected return of playing on playing happily (Base)	3.14	3.17	3.12	-0.03	0.05	0.02
Expected return of playing on learning well (Base)	3.49	3.50	3.45	-0.01	0.06	0.04

(cont.)

Table 1: Descriptives (continuation)

	(i)	(ii)	(iii)			
	Original non-weighted sample	Weighted sample at baseline	Weighted sample at 3 months	Diff (i)-(ii)	Diff (ii)-(iii)	Diff (i)-(iii)
Investments						
Exclusively breastfed last 24 hr	0.48	0.49	0.49	-0.01	-0.00	-0.01
Structured play time	0.31	0.33	0.33	-0.02	0.00	-0.02
Joint investments						
Not breastfeeding and not playing	0.37	0.36	0.36	0.01	0.00	0.01
Breastfeeding and not playing	0.32	0.31	0.32	0.01	-0.00	0.01
Not breastfeeding and playing	0.15	0.15	0.15	-0.00	0.00	-0.00
Breastfeeding and playing	0.16	0.18	0.18	-0.02	-0.00	-0.02
Costs of investments						
Breastfeeding is tiring	0.41	0.39	0.39	0.02	-0.01	0.02
Playing is tiring	0.38	0.35	0.36	0.02	-0.01	0.02
Either breastfeeding or playing is tiring	0.51	0.48	0.48	0.03	-0.00	0.02
Stated preferences						
Importance diarrhea (very important)	0.67	0.67	0.66	0.00	0.00	0.01
Importance speaking (very important)	0.63	0.64	0.63	-0.01	0.00	-0.00
Importance playing (very important)	0.66	0.67	0.66	-0.01	0.00	-0.00
Importance learning (very important)	0.79	0.80	0.80	-0.01	0.00	-0.01
Mother's education (categorical)						
No education	0.15	0.13	0.13	0.02	-0.00	0.01
1-5 years	0.20	0.18	0.18	0.02	-0.00	0.02
6-10 years	0.44	0.45	0.45	-0.01	0.00	-0.01
+10 years	0.22	0.24	0.24	-0.02	-0.00	-0.02
Parity (categorical)						
1st	0.29	0.31	0.31	-0.02	-0.00	-0.02
2nd	0.26	0.27	0.27	-0.01	-0.00	-0.01
3rd or higher	0.45	0.42	0.42	0.03	0.00	0.03
Non-response rate (baseline)	0.06	0.06	0.06	-0.01	0.00	-0.01
Non-response rate (3m)	0.27	0.28	0.28	-0.00	-0.01	-0.01
Woman is depressed (baseline)	0.49	0.30	0.30	0.19***	0.00	0.19***
Depression score (baseline)	8.67	6.39	6.32	2.28***	0.06	2.35***
Observations	1154	1154	871			

Table 2a: Heterogeneity of breastfeeding beliefs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	Expected return of breastfeeding on diarrhea (Base)	Expected return of breastfeeding on diarrhea (Base)	Expected return of breastfeeding on speaking (Base)	Expected return of breastfeeding on speaking (Base)	Expected return of breastfeeding on playing happily (Base)	Expected return of breastfeeding on playing happily (Base)	Expected return of breastfeeding on learning well (Base)	Expected return of breastfeeding on learning well (Base)
Education: 1-5 years	1.019**	0.853*	0.943**	0.777**	0.865**	0.799**	1.082***	0.991**
	(0.472)	(0.444)	(0.367)	(0.371)	(0.383)	(0.389)	(0.372)	(0.368)
Education: 6-10 years	1.425***	1.105***	0.834***	0.465	0.787**	0.603	0.754**	0.536
	(0.411)	(0.401)	(0.305)	(0.316)	(0.387)	(0.417)	(0.349)	(0.384)
Education: more than 10 years	1.315***	0.822*	0.791**	0.259	0.795**	0.549	0.564	0.246
	(0.388)	(0.440)	(0.342)	(0.363)	(0.373)	(0.438)	(0.341)	(0.384)
Age (years)	0.197	0.220	0.205	0.147	0.151	0.0439	0.320*	0.256
	(0.258)	(0.273)	(0.203)	(0.223)	(0.185)	(0.200)	(0.182)	(0.198)
Age squared	-0.00283	-0.00318	-0.00355	-0.00285	-0.00295	-0.00165	-0.00613*	-0.00534
	(0.00471)	(0.00494)	(0.00341)	(0.00367)	(0.00325)	(0.00346)	(0.00325)	(0.00347)
Husband's education (years)		0.0223		0.0110		0.00966		0.0157
		(0.0373)		(0.0423)		(0.0403)		(0.0429)
Asset-based SES		0.169		0.242***		0.168**		0.157*
		(0.101)		(0.0760)		(0.0812)		(0.0900)
Child in womb: 2nd		0.109		0.273		0.382		0.374
		(0.258)		(0.249)		(0.303)		(0.267)
Child in womb: 3rd or higher		-0.123		0.404		0.777**		0.440
		(0.376)		(0.320)		(0.313)		(0.331)
Woman is depressed (baseline)		0.345		0.131		0.0758		0.169
		(0.248)		(0.210)		(0.206)		(0.235)
Constant	-0.429	-0.794	-0.571	0.375	0.605	2.110	-1.336	-0.532
	(3.536)	(3.715)	(2.891)	(3.245)	(2.641)	(2.748)	(2.552)	(2.683)
Observations	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090
R-squared	0.017	0.022	0.008	0.020	0.008	0.019	0.012	0.020

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table 2b: Heterogeneity of playing beliefs

VARIABLES	(1) Expected return of playing on diarrhea (Base)	(2) Expected return of playing on diarrhea (Base)	(3) Expected return of playing on speaking (Base)	(4) Expected return of playing on speaking (Base)	(5) Expected return of playing on playing happily (Base)	(6) Expected return of playing on playing happily (Base)	(7) Expected return of playing on learning well (Base)	(8) Expected return of playing on learning well (Base)
Education: 1-5 years	0.906*	0.802	1.084**	0.919**	0.689	0.565	0.783*	0.613
	(0.509)	(0.511)	(0.407)	(0.381)	(0.419)	(0.411)	(0.437)	(0.429)
Education: 6-10 years	0.601	0.374	1.191***	0.792*	0.896**	0.572	0.722*	0.349
	(0.376)	(0.412)	(0.405)	(0.399)	(0.363)	(0.401)	(0.379)	(0.412)
Education: more than 10 years	0.616	0.210	1.100***	0.537	0.744*	0.244	0.896**	0.338
	(0.434)	(0.519)	(0.380)	(0.427)	(0.372)	(0.445)	(0.392)	(0.485)
Age (years)	-0.0116	0.0262	0.673***	0.592***	0.287	0.225	0.315*	0.291
	(0.244)	(0.253)	(0.199)	(0.194)	(0.175)	(0.184)	(0.168)	(0.179)
Age squared	0.000318	-0.000289	-0.0122***	-0.0109***	-0.00543*	-0.00446	-0.00582*	-0.00545*
	(0.00425)	(0.00439)	(0.00351)	(0.00342)	(0.00307)	(0.00320)	(0.00296)	(0.00312)
Husband's education (years)		0.0739*		-0.0171		0.0295		0.0142
		(0.0380)		(0.0406)		(0.0349)		(0.0402)
Asset-based SES		0.00905		0.289***		0.175**		0.215***
		(0.114)		(0.0714)		(0.0793)		(0.0754)
Child in womb: 2nd		-0.294		0.722***		0.561**		0.297
		(0.299)		(0.213)		(0.253)		(0.285)
Child in womb: 3rd or higher		-0.232		0.364		0.270		0.106
		(0.371)		(0.249)		(0.282)		(0.314)
Woman is depressed (baseline)		0.0398		0.0331		0.0459		0.139
		(0.173)		(0.190)		(0.193)		(0.223)
Constant	1.071	0.239	-6.728**	-5.433*	-1.220	-0.564	-1.342	-0.950
	(3.442)	(3.596)	(2.768)	(2.783)	(2.530)	(2.647)	(2.373)	(2.515)
Observations	1,090	1,090	1,090	1,090	1,090	1,090	1,090	1,090
R-squared	0.004	0.009	0.025	0.046	0.013	0.027	0.010	0.021

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table 3: Heterogeneity of investment costs

VARIABLES	(1) Breastfeeding is tiring	(2) Breastfeeding is tiring	(3) Playing is tiring	(4) Playing is tiring
Education: 1-5 years	-0.0779	-0.0414	-0.142**	-0.0943*
	(0.0614)	(0.0608)	(0.0572)	(0.0549)
Education: 6-10 years	-0.127**	-0.0488	-0.212***	-0.107**
	(0.0510)	(0.0552)	(0.0440)	(0.0483)
Education: more than 10 years	-0.161***	-0.0536	-0.246***	-0.0960
	(0.0575)	(0.0693)	(0.0544)	(0.0591)
Age (years)	0.0446	0.0527	0.0680**	0.0728**
	(0.0305)	(0.0316)	(0.0300)	(0.0308)
Age squared	-0.000805	-0.000985	-0.00119**	-0.00129**
	(0.000578)	(0.000587)	(0.000544)	(0.000552)
Husband's education (years)		0.00763		0.00461
		(0.00553)		(0.00416)
Asset-based SES		-0.0436***		-0.0576***
		(0.0135)		(0.0138)
Child in womb: 2nd		-0.00815		0.0403
		(0.0380)		(0.0429)
Child in womb: 3rd or higher		0.0276		0.0186
		(0.0365)		(0.0386)
Woman is depressed (baseline)		0.0970**		0.0800**
		(0.0376)		(0.0302)
Constant	-0.105	-0.356	-0.406	-0.630
	(0.394)	(0.411)	(0.396)	(0.415)
Observations	1,021	1,021	1,044	1,044
R-squared	0.012	0.038	0.029	0.063

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Heterogeneity of investments

VARIABLES	(1) Exclusively breastfed last 24 hr	(2) Exclusively breastfed last 24 hr	(3) Structured play time	(4) Structured play time
Education: 1-5 years	0.0565	0.0616	0.0541	0.0162
	(0.0508)	(0.0511)	(0.0715)	(0.0715)
Education: 6-10 years	0.00348	-0.00622	0.00590	-0.0888
	(0.0483)	(0.0538)	(0.0604)	(0.0732)
Education: more than 10 years	0.0256	0.0155	0.133*	-0.0176
	(0.0564)	(0.0721)	(0.0665)	(0.0932)
Age (years)	0.0549	0.0359	0.0366	0.0539
	(0.0409)	(0.0449)	(0.0384)	(0.0405)
Age squared	-0.000940	-0.000634	-0.000660	-0.000882
	(0.000741)	(0.000799)	(0.000700)	(0.000719)
Husband's education (years)		-0.000610		0.00593
		(0.00789)		(0.00599)
Asset-based SES		0.0132		0.0313*
		(0.0166)		(0.0155)
Child in womb: 2nd		0.111*		-0.0329
		(0.0579)		(0.0535)
Child in womb: 3rd or higher		0.0833		-0.111*
		(0.0547)		(0.0618)
Woman is depressed (baseline)		-0.0519		-0.0883**
		(0.0428)		(0.0398)
Constant	-0.302	-0.0612	-0.214	-0.403
	(0.552)	(0.622)	(0.508)	(0.545)
Observations	662	662	662	662
R-squared	0.005	0.015	0.015	0.044

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table 5a: Model estimates

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl
health	0.0518**	0.0518**								
	(0.0260)	(0.0259)								
speak						0.0620**	0.0559**			
						(0.0269)	(0.0259)			
Breastfeeding is tiring	0.122	0.113				0.130	0.121			
	(0.153)	(0.166)				(0.152)	(0.164)			
Playing is tiring	-0.887***	-0.831***				-0.863***	-0.812***			
	(0.270)	(0.308)				(0.272)	(0.307)			
Either investment is tiring	-0.216	-0.138				-0.205	-0.131			
	(0.221)	(0.218)				(0.223)	(0.221)			
Education: 1-5 years			0.346	0.0232	-0.0337			0.345	0.0138	-0.0246
			(0.305)	(0.535)	(0.388)			(0.300)	(0.541)	(0.385)
Education: 6-10 years			0.178	-0.379	-0.565			0.185	-0.385	-0.548
			(0.282)	(0.535)	(0.436)			(0.281)	(0.543)	(0.426)
Education: more than 10 years			0.343	0.160	-0.328			0.339	0.160	-0.318
			(0.297)	(0.550)	(0.515)			(0.302)	(0.554)	(0.519)
Child in womb: 2nd			0.213	-0.528	0.368			0.188	-0.580	0.335
			(0.323)	(0.377)	(0.337)			(0.321)	(0.374)	(0.339)
Child in womb: 3rd or higher			0.153	-1.083***	-0.0212			0.129	-1.116***	-0.0417
			(0.226)	(0.361)	(0.391)			(0.229)	(0.358)	(0.392)
Age (years)			0.175	0.286	0.332			0.169	0.244	0.314
			(0.254)	(0.347)	(0.266)			(0.259)	(0.346)	(0.268)
Age squared			-0.00293	-0.00404	-0.00588			-0.00278	-0.00324	-0.00551
			(0.00464)	(0.00645)	(0.00475)			(0.00471)	(0.00644)	(0.00479)
Asset-based SES			-0.00357	0.0725	0.232**			-0.00385	0.0650	0.222**
			(0.0941)	(0.108)	(0.106)			(0.0945)	(0.108)	(0.105)
Husband's education (years)			-0.0177	0.00135	0.0190			-0.0149	0.00381	0.0216
			(0.0421)	(0.0542)	(0.0483)			(0.0414)	(0.0540)	(0.0484)
Woman is depressed (baseline)			-0.0994	-0.200	-0.603**			-0.0820	-0.197	-0.586*
			(0.186)	(0.257)	(0.300)			(0.184)	(0.256)	(0.299)
Constant			-3.002	-4.780	-5.273			-2.968	-4.294	-5.107
			(3.509)	(4.508)	(3.737)			(3.563)	(4.487)	(3.751)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table 5b: Model estimates

VARIABLES	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
social	0.0615**	0.0611**								
	(0.0251)	(0.0279)								
learn						0.0947***	0.0848***			
						(0.0257)	(0.0262)			
Breastfeeding is tiring	0.127	0.119				0.144	0.134			
	(0.151)	(0.163)				(0.153)	(0.164)			
Playing is tiring	-0.865***	-0.808***				-0.851***	-0.801***			
	(0.266)	(0.303)				(0.269)	(0.304)			
Either investment is tiring	-0.209	-0.134				-0.193	-0.120			
	(0.218)	(0.218)				(0.219)	(0.219)			
Education: 1-5 years			0.329	0.0129	-0.0227			0.315	-0.0144	-0.0516
			(0.299)	(0.542)	(0.387)			(0.304)	(0.546)	(0.384)
Education: 6-10 years			0.165	-0.398	-0.556			0.169	-0.396	-0.551
			(0.284)	(0.546)	(0.426)			(0.283)	(0.544)	(0.425)
Education: more than 10 years			0.306	0.126	-0.341			0.319	0.120	-0.329
			(0.315)	(0.560)	(0.516)			(0.312)	(0.560)	(0.520)
Child in womb: 2nd			0.190	-0.572	0.335			0.164	-0.550	0.335
			(0.320)	(0.377)	(0.338)			(0.323)	(0.380)	(0.342)
Child in womb: 3rd or higher			0.113	-1.122***	-0.0634			0.106	-1.097***	-0.0343
			(0.231)	(0.362)	(0.390)			(0.220)	(0.366)	(0.390)
Age (years)			0.181	0.291	0.346			0.167	0.251	0.311
			(0.260)	(0.348)	(0.265)			(0.260)	(0.348)	(0.269)
Age squared			-0.00297	-0.00406	-0.00605			-0.00272	-0.00337	-0.00546
			(0.00473)	(0.00647)	(0.00473)			(0.00475)	(0.00646)	(0.00481)
Asset-based SES			-0.00704	0.0740	0.225**			-0.00538	0.0644	0.219**
			(0.0944)	(0.109)	(0.105)			(0.0933)	(0.107)	(0.104)
Husband's education (years)			-0.0143	0.00218	0.0209			-0.0140	0.00768	0.0237
			(0.0420)	(0.0547)	(0.0484)			(0.0418)	(0.0549)	(0.0486)
Woman is depressed (baseline)			-0.0877	-0.201	-0.600**			-0.0771	-0.196	-0.599**
			(0.185)	(0.258)	(0.302)			(0.184)	(0.260)	(0.303)
Constant			-3.151	-4.916	-5.552			-3.062	-4.516	-5.201
			(3.584)	(4.511)	(3.707)			(3.576)	(4.518)	(3.736)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table 5c: Model estimates

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
health	0.0286	0.0307				0.0279	0.0303			
	(0.0286)	(0.0289)				(0.0282)	(0.0285)			
speak						0.0126	0.00765			
						(0.0386)	(0.0353)			
social	-0.00239	0.00583				-0.00752	0.00272			
	(0.0325)	(0.0355)				(0.0379)	(0.0404)			
learn	0.0858***	0.0704**				0.0820**	0.0682**			
	(0.0322)	(0.0331)				(0.0342)	(0.0346)			
Breastfeeding is tiring	0.143	0.134				0.145	0.134			
	(0.154)	(0.165)				(0.154)	(0.166)			
Playing is tiring	-0.853***	-0.800***				-0.851***	-0.799***			
	(0.267)	(0.302)				(0.268)	(0.302)			
Either investment is tiring	-0.193	-0.120				-0.192	-0.120			
	(0.220)	(0.219)				(0.221)	(0.219)			
Education: 1-5 years			0.297	-0.0234	-0.0786			0.297	-0.0246	-0.0804
			(0.309)	(0.541)	(0.391)			(0.309)	(0.540)	(0.392)
Education: 6-10 years			0.145	-0.407	-0.586			0.144	-0.408	-0.588
			(0.291)	(0.544)	(0.436)			(0.291)	(0.544)	(0.436)
Education: more than 10 years			0.296	0.118	-0.356			0.296	0.120	-0.356
			(0.323)	(0.558)	(0.521)			(0.323)	(0.555)	(0.521)
Child in womb: 2nd			0.177	-0.544	0.344			0.177	-0.547	0.343
			(0.327)	(0.375)	(0.342)			(0.327)	(0.371)	(0.341)
Child in womb: 3rd or higher			0.109	-1.097***	-0.0376			0.109	-1.099***	-0.0380
			(0.224)	(0.363)	(0.387)			(0.224)	(0.360)	(0.387)
Age (years)			0.161	0.256	0.307			0.160	0.251	0.304
			(0.259)	(0.349)	(0.270)			(0.259)	(0.348)	(0.270)
Age squared			-0.00264	-0.00347	-0.00540			-0.00261	-0.00338	-0.00534
			(0.00474)	(0.00648)	(0.00482)			(0.00473)	(0.00645)	(0.00482)
Asset-based SES			-0.00741	0.0637	0.220**			-0.00739	0.0626	0.219**
			(0.0939)	(0.107)	(0.105)			(0.0939)	(0.107)	(0.105)
Husband's education (years)			-0.0158	0.00479	0.0213			-0.0159	0.00471	0.0213
			(0.0422)	(0.0554)	(0.0480)			(0.0421)	(0.0553)	(0.0480)
Woman is depressed (baseline)			-0.0926	-0.201	-0.610**			-0.0929	-0.201	-0.609**
			(0.182)	(0.260)	(0.303)			(0.182)	(0.260)	(0.303)
Constant			-2.991	-4.584	-5.157			-2.971	-4.518	-5.113
			(3.566)	(4.529)	(3.750)			(3.562)	(4.507)	(3.749)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Elasticity of investments to beliefs

Health

	no-bf, no-pl	bf, no-pl	no-bf, pl	bf, pl
no-bf, no-pl	0.012 (2.00)**	-0.006 (1.98)**	-0.003 (1.94)*	-0.003 (2.01)**
bf, no-pl	-0.006 (1.98)**	0.011 (1.99)**	-0.002 (1.92)*	-0.003 (1.97)**
no-bf, pl	-0.003 (1.94)*	-0.002 (1.92)*	0.006 (1.95)*	-0.001 (1.94)*
bf, pl	-0.003 (2.01)**	-0.003 (1.97)**	-0.001 (1.94)*	0.007 (2.00)**
N	2,504	2,504	2,504	2,504

Speak

	no-bf, no-pl	bf, no-pl	no-bf, pl	bf, pl
no-bf, no-pl	0.013 (2.16)**	-0.007 (2.13)**	-0.003 (2.04)**	-0.003 (2.19)**
bf, no-pl	-0.007 (2.13)**	0.012 (2.14)**	-0.002 (2.02)**	-0.003 (2.14)**
no-bf, pl	-0.003 (2.04)**	-0.002 (2.02)**	0.006 (2.06)**	-0.001 (2.06)**
bf, pl	-0.003 (2.19)**	-0.003 (2.14)**	-0.001 (2.06)**	0.008 (2.17)**
N	2,504	2,504	2,504	2,504

Social

	no-bf, no-pl	bf, no-pl	no-bf, pl	bf, pl
no-bf, no-pl	0.014 (2.19)**	-0.008 (2.15)**	-0.003 (2.06)**	-0.004 (2.25)**
bf, no-pl	-0.008 (2.15)**	0.013 (2.18)**	-0.003 (2.06)**	-0.003 (2.22)**
no-bf, pl	-0.003 (2.06)**	-0.003 (2.06)**	0.007 (2.09)**	-0.001 (2.13)**
bf, pl	-0.004 (2.25)**	-0.003 (2.22)**	-0.001 (2.13)**	0.008 (2.24)**
N	2,504	2,504	2,504	2,504

Learn

	no-bf, no-pl	bf, no-pl	no-bf, pl	bf, pl
no-bf, no-pl	0.020 (3.26)***	-0.010 (3.25)***	-0.004 (2.96)***	-0.005 (3.17)***
bf, no-pl	-0.010 (3.25)***	0.019 (3.23)***	-0.004 (2.93)***	-0.005 (3.06)***
no-bf, pl	-0.004 (2.96)***	-0.004 (2.93)***	0.010 (2.98)***	-0.002 (2.83)***
bf, pl	-0.005 (3.17)***	-0.005 (3.06)***	-0.002 (2.83)***	0.012 (3.12)***
N	2,504	2,504	2,504	2,504

Table 7: Estimated monetary value of developmental outcomes

	Evaluated at mean income*	Evaluated at median income*	(% of hh monthly income)
Health	8,042.71	6,212.83	33.6
Speak	9,398.59	7,260.21	39.2
Social	9,351.12	7,223.55	39.0
Learn	14,112.16	10,901.35	58.9
All (sum pref. param.)	20,155.68	15,569.85	84.2
Income (mean) PKR	23,948.86		
Income (median) PKR	18,500.00		

*PKR = Pakistanee rupee

1 $ = 105 PKR

Table 8a: Mixed logit model with random preference parameter

	(1)		(2)		(3)		(4)	
VARIABLES	Mean	SD	Mean	SD	Mean	SD	Mean	SD
health	0.0546	0.0794	0.0498**	0.00184				
	(0.0543)	(0.455)	(0.0253)	(0.00615)				
speak					0.0632**	0.000315	0.0528*	0.000281
					(0.0271)	(0.000751)	(0.0271)	(0.000915)
Breastfeeding is tiring (bf, no-pl)	0.195		0.188		0.176		0.184	
	(0.215)		(0.140)		(0.139)		(0.140)	
Breastfeeding is tiring (no-bf, pl)	0.0626		0.114		0.0515		0.109	
	(0.224)		(0.209)		(0.205)		(0.213)	
Breastfeeding is tiring (bf, pl)	0.297		0.331		0.278		0.324	
	(0.256)		(0.206)		(0.207)		(0.210)	
Playing is tiring (bf, no-pl)	0.0818		0.0949		0.110		0.107	
	(0.198)		(0.139)		(0.153)		(0.149)	
Playing is tiring (no-bf, pl)	-0.543*		-0.514**		-0.510**		-0.496*	
	(0.281)		(0.259)		(0.255)		(0.259)	
Playing is tiring (bf, pl)	-0.460*		-0.400*		-0.424*		-0.380	
	(0.272)		(0.234)		(0.240)		(0.244)	
Age (years) (bf, no-pl)			0.175				0.163	
			(0.243)				(0.244)	
Age (years) (no-bf, pl)			0.221				0.179	
			(0.349)				(0.348)	
Age (years) (bf, pl)			0.361				0.338	
			(0.278)				(0.280)	
Age squared (bf, no-pl)			-0.00307				-0.00279	
			(0.00445)				(0.00447)	
Age squared (no-bf, pl)			-0.00311				-0.00231	
			(0.00646)				(0.00644)	
Age squared (bf, pl)			-0.00628				-0.00583	
			(0.00505)				(0.00508)	
Asset-based SES (bf, no-pl)			0.0225				0.0217	
			(0.0939)				(0.0941)	
Asset-based SES (no-bf, pl)			0.0598				0.0530	
			(0.104)				(0.104)	
Asset-based SES (bf, pl)			0.208**				0.198*	
			(0.104)				(0.104)	
Husband's education (years) (bf, no-pl)			-0.0166				-0.0145	
			(0.0407)				(0.0402)	
Husband's education (years) (no-bf, pl)			0.0129				0.0156	
			(0.0516)				(0.0510)	
Husband's education (years) (bf, pl)			0.0218				0.0236	
			(0.0465)				(0.0466)	
Mother's education (bf, no-pl)			0.00998				0.0108	
			(0.0228)				(0.0229)	
Mother's education (no-bf, pl)			0.0120				0.0116	
			(0.0433)				(0.0431)	
Mother's education (bf, pl)			-0.0283				-0.0261	
			(0.0453)				(0.0452)	
Parity (bf, no-pl)			0.0683				0.0619	
			(0.0652)				(0.0635)	
Parity (no-bf, pl)			-0.166				-0.170	
			(0.143)				(0.143)	
Parity (bf, pl)			-0.0421				-0.0449	
			(0.123)				(0.122)	
Depressed (bf, no-pl)			-0.119				-0.103	
			(0.183)				(0.180)	
Depressed (no-bf, pl)			-0.281				-0.282	
			(0.261)				(0.260)	
Depressed (bf, pl)			-0.614**				-0.599**	
			(0.302)				(0.302)	
d2	-0.702***		-3.211		-0.733***		-3.104	
	(0.242)		(3.364)		(0.242)		(3.383)	
d3	-0.415		-3.906		-0.534		-3.444	
	(0.337)		(4.475)		(0.348)		(4.456)	
d4	-0.717**		-5.652		-0.783**		-5.433	
	(0.347)		(3.798)		(0.366)		(3.802)	
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level
1000 draws used for the simulation
*** p<0.01, ** p<0.05, * p<0.1

Table 8b: Mixed logit model with random preference parameter

	(5)		(6)		(7)		(8)	
VARIABLES	Mean	SD	Mean	SD	Mean	SD	Mean	SD
social	0.0667***	0.00513	0.0636**	0.00365				
	(0.0251)	(0.0214)	(0.0283)	(0.0108)				
learn					0.0999***	0.000544	0.0935***	0.000385
					(0.0269)	(0.00748)	(0.0285)	(0.00355)
Breastfeeding is tiring (bf, no-pl)	0.175		0.185		0.167		0.178	
	(0.141)		(0.142)		(0.144)		(0.144)	
Breastfeeding is tiring (no-bf, pl)	0.0480		0.106		0.0528		0.113	
	(0.204)		(0.212)		(0.206)		(0.215)	
Breastfeeding is tiring (bf, pl)	0.274		0.321		0.269		0.319	
	(0.205)		(0.207)		(0.204)		(0.206)	
Playing is tiring (bf, no-pl)	0.112		0.111		0.155		0.154	
	(0.156)		(0.150)		(0.159)		(0.156)	
Playing is tiring (no-bf, pl)	-0.507**		-0.488*		-0.484*		-0.468*	
	(0.252)		(0.254)		(0.256)		(0.261)	
Playing is tiring (bf, pl)	-0.424*		-0.376		-0.391*		-0.348	
	(0.237)		(0.242)		(0.233)		(0.237)	
Age (years) (bf, no-pl)			0.172				0.149	
			(0.248)				(0.249)	
Age (years) (no-bf, pl)			0.219				0.175	
			(0.350)				(0.352)	
Age (years) (bf, pl)			0.366				0.327	
			(0.276)				(0.283)	
Age squared (bf, no-pl)			-0.00293				-0.00251	
			(0.00453)				(0.00456)	
Age squared (no-bf, pl)			-0.00301				-0.00225	
			(0.00649)				(0.00650)	
Age squared (bf, pl)			-0.00629				-0.00565	
			(0.00501)				(0.00514)	
Asset-based SES (bf, no-pl)			0.0193				0.0237	
			(0.0941)				(0.0931)	
Asset-based SES (no-bf, pl)			0.0623				0.0556	
			(0.105)				(0.103)	
Asset-based SES (bf, pl)			0.202*				0.199*	
			(0.104)				(0.104)	
Husband's education (years) (bf, no-pl)			-0.0141				-0.0143	
			(0.0407)				(0.0408)	
Husband's education (years) (no-bf, pl)			0.0136				0.0180	
			(0.0516)				(0.0520)	
Husband's education (years) (bf, pl)			0.0230				0.0257	
			(0.0466)				(0.0468)	
Mother's education (bf, no-pl)			0.00853				0.0106	
			(0.0241)				(0.0237)	
Mother's education (no-bf, pl)			0.00855				0.00952	
			(0.0438)				(0.0440)	
Mother's education (bf, pl)			-0.0290				-0.0268	
			(0.0452)				(0.0457)	
Parity (bf, no-pl)			0.0567				0.0608	
			(0.0648)				(0.0627)	
Parity (no-bf, pl)			-0.172				-0.163	
			(0.144)				(0.145)	
Parity (bf, pl)			-0.0531				-0.0414	
			(0.123)				(0.121)	
Depressed (bf, no-pl)			-0.112				-0.106	
			(0.181)				(0.180)	
Depressed (no-bf, pl)			-0.290				-0.292	
			(0.262)				(0.266)	
Depressed (bf, pl)			-0.616**				-0.619**	
			(0.305)				(0.308)	
d2	-0.749***		-3.262		-0.922***		-3.130	
	(0.239)		(3.418)		(0.269)		(3.411)	
d3	-0.534*		-3.986		-0.702**		-3.578	
	(0.322)		(4.472)		(0.344)		(4.492)	
d4	-0.784**		-5.826		-0.962***		-5.501	
	(0.365)		(3.752)		(0.371)		(3.808)	
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level
1000 draws used for the simulation
*** p<0.01, ** p<0.05, * p<0.1

Table 8c: Mixed logit model with random preference parameter

	(9)		(10)		(11)		(12)	
VARIABLES	Mean	SD	Mean	SD	Mean	SD	Mean	SD
health	0.0420	0.163	0.0332	0.00131	0.0418	0.167	0.0330	0.00327
	(0.0459)	(0.208)	(0.0303)	(0.0106)	(0.0460)	(0.208)	(0.0302)	(0.0193)
speak					0.0153	0.000254	-7.97e-06	-0.000661
					(0.0434)	(0.00149)	(0.0380)	(0.00161)
social	0.00599	-0.136	0.00460	-0.144	-0.000204	-0.137	0.00453	-0.141
	(0.0349)	(0.136)	(0.0382)	(0.153)	(0.0415)	(0.143)	(0.0437)	(0.154)
learn	0.103***	0.000732	0.0903**	0.000332	0.0989**	0.00175	0.0901**	0.00358
	(0.0400)	(0.00432)	(0.0402)	(0.00637)	(0.0421)	(0.00577)	(0.0415)	(0.0118)
Breastfeeding is tiring (bf, no-pl)	0.222		0.194		0.224		0.193	
	(0.198)		(0.157)		(0.198)		(0.157)	
Breastfeeding is tiring (no-bf, pl)	0.0856		0.128		0.0872		0.127	
	(0.233)		(0.225)		(0.234)		(0.224)	
Breastfeeding is tiring (bf, pl)	0.321		0.340		0.323		0.340	
	(0.247)		(0.220)		(0.247)		(0.219)	
Playing is tiring (bf, no-pl)	0.128		0.153		0.128		0.153	
	(0.185)		(0.156)		(0.185)		(0.156)	
Playing is tiring (no-bf, pl)	-0.516*		-0.478*		-0.515*		-0.477*	
	(0.276)		(0.261)		(0.276)		(0.261)	
Playing is tiring (bf, pl)	-0.426		-0.357		-0.424		-0.356	
	(0.261)		(0.242)		(0.261)		(0.242)	
Age (years) (bf, no-pl)			0.151				0.151	
			(0.256)				(0.255)	
Age (years) (no-bf, pl)			0.188				0.187	
			(0.362)				(0.360)	
Age (years) (bf, pl)			0.324				0.324	
			(0.291)				(0.290)	
Age squared (bf, no-pl)			-0.00255				-0.00255	
			(0.00471)				(0.00468)	
Age squared (no-bf, pl)			-0.00247				-0.00247	
			(0.00668)				(0.00664)	
Age squared (bf, pl)			-0.00556				-0.00557	
			(0.00531)				(0.00528)	
Asset-based SES (bf, no-pl)			0.0223				0.0223	
			(0.0975)				(0.0975)	
Asset-based SES (no-bf, pl)			0.0595				0.0593	
			(0.105)				(0.106)	
Asset-based SES (bf, pl)			0.204*				0.204*	
			(0.104)				(0.105)	
Husband's education (years) (bf, no-pl)			-0.0144				-0.0144	
			(0.0435)				(0.0434)	
Husband's education (years) (no-bf, pl)			0.0154				0.0154	
			(0.0537)				(0.0536)	
Husband's education (years) (bf, pl)			0.0239				0.0239	
			(0.0476)				(0.0474)	
Mother's education (bf, no-pl)			0.00887				0.00888	
			(0.0252)				(0.0250)	
Mother's education (no-bf, pl)			0.00929				0.00933	
			(0.0448)				(0.0446)	
Mother's education (bf, pl)			-0.0288				-0.0288	
			(0.0466)				(0.0466)	
Parity (bf, no-pl)			0.0589				0.0590	
			(0.0696)				(0.0695)	
Parity (no-bf, pl)			-0.163				-0.163	
			(0.148)				(0.147)	
Parity (bf, pl)			-0.0430				-0.0430	
			(0.125)				(0.125)	
Depressed (bf, no-pl)			-0.141				-0.140	
			(0.199)				(0.198)	
Depressed (no-bf, pl)			-0.314				-0.313	
			(0.280)				(0.280)	
Depressed (bf, pl)			-0.665**				-0.664**	
			(0.332)				(0.332)	
d2	-1.044***		-3.220		-1.055***		-3.217	
	(0.280)		(3.507)		(0.279)		(3.492)	
d3	-0.749**		-3.775		-0.765**		-3.773	
	(0.345)		(4.617)		(0.352)		(4.592)	
d4	-1.103***		-5.531		-1.122***		-5.530	
	(0.399)		(3.915)		(0.403)		(3.904)	
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level
1000 draws used for the simulation
*** p<0.01, ** p<0.05, * p<0.1

Table 9a: Heterogeneity on preference parameters (Education)

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl
healthxEduc_low	0.0153	0.0205								
	(0.0286)	(0.0319)								
healthxEduc_high	0.163***	0.142**								
	(0.0550)	(0.0634)								
speakxEduc_low						0.0338	0.0401			
						(0.0294)	(0.0265)			
speakxEduc_high						0.162***	0.114*			
						(0.0567)	(0.0681)			
Breastfeeding is tiringxEduc_low	0.329**	0.315*				0.308**	0.325*			
	(0.144)	(0.172)				(0.143)	(0.170)			
Playing is tiringxEduc_low	-0.839***	-0.662**				-0.797***	-0.639*			
	(0.281)	(0.336)				(0.294)	(0.332)			
Either investment is tiringxEduc_low	-0.0669	0.0654				-0.0721	0.0715			
	(0.255)	(0.250)				(0.250)	(0.253)			
Breastfeeding is tiringxEduc_high	-0.549	-0.535				-0.505	-0.571			
	(0.357)	(0.352)				(0.332)	(0.356)			
Playing is tiringxEduc_high	-0.960*	-1.273**				-0.973*	-1.261**			
	(0.570)	(0.530)				(0.554)	(0.541)			
Either investment is tiringxEduc_high	-0.581	-0.607				-0.587	-0.647			
	(0.373)	(0.478)				(0.411)	(0.502)			
High education (+10 years)			0.134	0.328	-0.0216			0.309	0.384	0.138
			(0.350)	(0.388)	(0.467)			(0.314)	(0.425)	(0.462)
Child in womb: 2nd			0.171	-0.529	0.391			0.170	-0.588	0.362
			(0.324)	(0.381)	(0.336)			(0.325)	(0.377)	(0.339)
Child in womb: 3rd or higher			0.101	-1.052***	0.0360			0.0976	-1.102***	0.0274
			(0.215)	(0.357)	(0.387)			(0.215)	(0.349)	(0.390)
Age (years)			0.172	0.280	0.308			0.162	0.232	0.288
			(0.252)	(0.346)	(0.258)			(0.258)	(0.337)	(0.259)
Age squared			-0.00286	-0.00389	-0.00544			-0.00265	-0.00300	-0.00504
			(0.00458)	(0.00642)	(0.00462)			(0.00467)	(0.00628)	(0.00463)
Asset-based SES			0.0180	0.0370	0.197*			0.0112	0.0350	0.182*
			(0.0903)	(0.112)	(0.103)			(0.0913)	(0.112)	(0.103)
Husband's education (years)			-0.0206	0.000369	0.00525			-0.0178	-0.00276	0.00823
			(0.0416)	(0.0526)	(0.0462)			(0.0412)	(0.0523)	(0.0461)
Woman is depressed (baseline)			-0.0955	-0.163	-0.547*			-0.0992	-0.172	-0.547*
			(0.189)	(0.259)	(0.294)			(0.181)	(0.257)	(0.293)
Constant			-2.744	-4.947	-5.237			-2.694	-4.347	-5.049
			(3.436)	(4.566)	(3.661)			(3.519)	(4.445)	(3.635)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test	**0.012**	0.108				**0.03**	0.305			

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Low education = 10 years or less of education, High education = more than 10 years of educatior

Table 9b: Heterogeneity on preference parameters (Education)

VARIABLES	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
socialxEduc_low	0.0313	0.0445								
	(0.0304)	(0.0296)								
socialxEduc_high	0.164***	0.120*								
	(0.0477)	(0.0623)								
learnxEduc_low						0.0652**	0.0674**			
						(0.0312)	(0.0306)			
learnxEduc_high						0.206***	0.162***			
						(0.0466)	(0.0590)			
Breastfeeding is tiringxEduc_low	0.315**	0.325*				0.331**	0.340**			
	(0.142)	(0.169)				(0.143)	(0.168)			
Playing is tiringxEduc_low	-0.796***	-0.638*				-0.764***	-0.632*			
	(0.288)	(0.332)				(0.289)	(0.331)			
Either investment is tiringxEduc_low	-0.0705	0.0701				-0.0497	0.0837			
	(0.248)	(0.251)				(0.243)	(0.253)			
Breastfeeding is tiringxEduc_high	-0.579*	-0.600*				-0.553*	-0.581			
	(0.328)	(0.358)				(0.333)	(0.364)			
Playing is tiringxEduc_high	-0.966*	-1.227**				-1.010*	-1.224**			
	(0.534)	(0.534)				(0.538)	(0.537)			
Either investment is tiringxEduc_high	-0.611	-0.655				-0.626	-0.651			
	(0.382)	(0.495)				(0.393)	(0.503)			
High education (+10 years)			0.278	0.347	0.111			0.231	0.253	0.0538
			(0.326)	(0.414)	(0.436)			(0.318)	(0.446)	(0.484)
Child in womb: 2nd			0.151	-0.584	0.352			0.142	-0.550	0.365
			(0.317)	(0.383)	(0.337)			(0.323)	(0.386)	(0.343)
Child in womb: 3rd or higher			0.0717	-1.104***	0.000656			0.0581	-1.084***	0.0259
			(0.218)	(0.353)	(0.386)			(0.207)	(0.360)	(0.391)
Age (years)			0.177	0.274	0.322			0.162	0.238	0.286
			(0.259)	(0.343)	(0.256)			(0.258)	(0.345)	(0.261)
Age squared			-0.00290	-0.00373	-0.00564			-0.00263	-0.00312	-0.00502
			(0.00470)	(0.00640)	(0.00459)			(0.00470)	(0.00642)	(0.00468)
Asset-based SES			0.00765	0.0440	0.185*			0.00983	0.0330	0.179*
			(0.0913)	(0.113)	(0.102)			(0.0899)	(0.111)	(0.102)
Husband's education (years)			-0.0176	-0.00525	0.00774			-0.0172	0.00351	0.0113
			(0.0417)	(0.0529)	(0.0462)			(0.0415)	(0.0532)	(0.0465)
Woman is depressed (baseline)			-0.103	-0.179	-0.560*			-0.102	-0.177	-0.566*
			(0.182)	(0.258)	(0.297)			(0.183)	(0.258)	(0.298)
Constant			-2.895	-4.899	-5.523			-2.797	-4.583	-5.158
			(3.527)	(4.502)	(3.602)			(3.513)	(4.533)	(3.639)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test	**0.019**	0.276				**0.011**	0.157			

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Low education = 10 years or less of education, High education = more than 10 years of educatior

Table 9c: Heterogeneity on preference parameters (Education)

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
healthxEduc_low	0.00118	0.00159				0.000567	0.00134			
	(0.0332)	(0.0364)				(0.0325)	(0.0355)			
healthxEduc_high	0.106	0.106				0.106	0.106			
	(0.0672)	(0.0678)				(0.0667)	(0.0679)			
speakxEduc_low						0.0106	0.00387			
						(0.0422)	(0.0396)			
speakxEduc_high						0.0248	0.0227			
						(0.0958)	(0.0923)			
socialxEduc_low	-0.00739	0.00408				-0.0119	0.00246			
	(0.0379)	(0.0387)				(0.0453)	(0.0465)			
socialxEduc_high	0.00392	0.00214				-0.00457	-0.00501			
	(0.0798)	(0.0804)				(0.0897)	(0.0881)			
learnxEduc_low	0.0745*	0.0644				0.0718*	0.0634			
	(0.0384)	(0.0394)				(0.0402)	(0.0414)			
learnxEduc_high	0.140**	0.115				0.130*	0.106			
	(0.0679)	(0.0723)				(0.0767)	(0.0763)			
Breastfeeding is tiringxEduc_low	0.365***	0.341**				0.367***	0.342**			
	(0.141)	(0.168)				(0.141)	(0.168)			
Playing is tiringxEduc_low	-0.774***	-0.639*				-0.771***	-0.639*			
	(0.288)	(0.331)				(0.290)	(0.331)			
Either investment is tiringxEduc_low	-0.0184	0.0849				-0.0154	0.0851			
	(0.251)	(0.252)				(0.252)	(0.252)			
Breastfeeding is tiringxEduc_high	-0.618*	-0.551				-0.616*	-0.546			
	(0.351)	(0.361)				(0.352)	(0.361)			
Playing is tiringxEduc_high	-1.001*	-1.212**				-1.000*	-1.210**			
	(0.533)	(0.533)				(0.537)	(0.533)			
Either investment is tiringxEduc_high	-0.668*	-0.611				-0.669*	-0.606			
	(0.391)	(0.488)				(0.397)	(0.485)			
High education (+10 years)			0.0508	0.197	-0.129			0.0398	0.189	-0.145
			(0.353)	(0.446)	(0.490)			(0.359)	(0.449)	(0.499)
Child in womb: 2nd			0.142	-0.541	0.372			0.146	-0.545	0.372
			(0.327)	(0.381)	(0.341)			(0.331)	(0.376)	(0.341)
Child in womb: 3rd or higher			0.0532	-1.067***	0.0176			0.0547	-1.071***	0.0175
			(0.210)	(0.359)	(0.387)			(0.211)	(0.356)	(0.387)
Age (years)			0.158	0.252	0.287			0.156	0.248	0.284
			(0.256)	(0.347)	(0.266)			(0.255)	(0.343)	(0.267)
Age squared			-0.00255	-0.00337	-0.00503			-0.00252	-0.00330	-0.00498
			(0.00465)	(0.00644)	(0.00477)			(0.00464)	(0.00636)	(0.00477)
Asset-based SES			0.0122	0.0253	0.183*			0.0121	0.0241	0.182*
			(0.0908)	(0.111)	(0.101)			(0.0908)	(0.111)	(0.102)
Husband's education (years)			-0.0194	0.00473	0.00822			-0.0195	0.00429	0.00793
			(0.0417)	(0.0544)	(0.0461)			(0.0416)	(0.0544)	(0.0458)
Woman is depressed (baseline)			-0.0980	-0.167	-0.559*			-0.0985	-0.166	-0.558*
			(0.187)	(0.260)	(0.298)			(0.187)	(0.260)	(0.298)
Constant			-2.729	-4.782	-5.164			-2.711	-4.732	-5.127
			(3.475)	(4.567)	(3.706)			(3.471)	(4.517)	(3.708)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test										
healthxEduc_low = healthxEduc_high	0.172	0.209				0.167	0.207			
speakxEduc_low = speakxEduc_high						0.890	0.852			
socialxEduc_high = socialxEduc_high	0.901	0.983				0.944	0.942			
learnxEduc_low = learnxEduc_high	0.414	0.548				0.510	0.632			

Robust standard errors in parentheses, clustered at the village level
*** p<0.01, ** p<0.05, * p<0.1
Low education = 10 years or less of education, High education = more than 10 years of educatior

Table 10a: Heterogeneity on preference parameters (SES)

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl
healthxSES_low	-0.00635	-0.0110								
	(0.0388)	(0.0447)								
healthxSES_high	0.0981***	0.104***								
	(0.0318)	(0.0319)								
speakxSES_low						0.0613*	0.0987***			
						(0.0332)	(0.0352)			
speakxSES_high						0.0565*	0.0179			
						(0.0340)	(0.0396)			
Breastfeeding is tiringxSES_low	0.352*	0.257				0.194	0.265			
	(0.201)	(0.264)				(0.217)	(0.277)			
Playing is tiringxSES_low	-1.164***	-1.040**				-1.246***	-0.991**			
	(0.345)	(0.432)				(0.352)	(0.435)			
Either investment is tiringxSES_low	-0.393	-0.491				-0.559*	-0.457			
	(0.326)	(0.324)				(0.318)	(0.336)			
Breastfeeding is tiringxSES_high	-0.110	-0.0560				0.0269	-0.0422			
	(0.230)	(0.234)				(0.209)	(0.229)			
Playing is tiringxSES_high	-0.560	-0.617				-0.486	-0.644			
	(0.384)	(0.410)				(0.369)	(0.415)			
Either investment is tiringxSES_high	-0.0176	0.0307				0.107	0.0332			
	(0.264)	(0.276)				(0.251)	(0.273)			
Education: 1-5 years			0.393	0.0496	0.0815			0.315	-0.0138	0.00711
			(0.305)	(0.546)	(0.392)			(0.298)	(0.546)	(0.382)
Education: 6-10 years			0.225	-0.367	-0.384			0.176	-0.424	-0.428
			(0.270)	(0.542)	(0.435)			(0.270)	(0.545)	(0.418)
Education: more than 10 years			0.415	0.155	-0.0863			0.331	0.101	-0.168
			(0.293)	(0.564)	(0.512)			(0.304)	(0.563)	(0.508)
Child in womb: 2nd			0.215	-0.531	0.362			0.201	-0.560	0.353
			(0.321)	(0.373)	(0.340)			(0.326)	(0.373)	(0.342)
Child in womb: 3rd or higher			0.169	-1.062***	-0.0383			0.145	-1.103***	-0.0454
			(0.230)	(0.368)	(0.397)			(0.231)	(0.350)	(0.397)
Age (years)			0.123	0.268	0.355			0.156	0.249	0.372
			(0.249)	(0.360)	(0.253)			(0.258)	(0.355)	(0.245)
Age squared			-0.00203	-0.00378	-0.00638			-0.00254	-0.00337	-0.00660
			(0.00453)	(0.00670)	(0.00457)			(0.00467)	(0.00661)	(0.00439)
High SES (above median)			-0.207	0.0277	-0.255			0.329	0.504	0.388
			(0.337)	(0.341)	(0.378)			(0.378)	(0.388)	(0.359)
Husband's education (years)			-0.0197	-0.000718	0.0320			-0.0131	0.00374	0.0393
			(0.0414)	(0.0537)	(0.0483)			(0.0409)	(0.0530)	(0.0469)
Woman is depressed (baseline)			-0.0883	-0.198	-0.597**			-0.0917	-0.200	-0.598**
			(0.180)	(0.264)	(0.297)			(0.180)	(0.260)	(0.295)
Constant			-2.228	-4.500	-5.570			-2.994	-4.568	-6.209*
			(3.416)	(4.658)	(3.503)			(3.548)	(4.608)	(3.361)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test	**0.021**	**0.033**				0.903	0.120			

Robust standard errors in parentheses, clustered at the village level
*** p<0.01, ** p<0.05, * p<0.1
Low SES = SES below the median, High SES = SES above the median

Table 10b: Heterogeneity on preference parameters (SES)

VARIABLES	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
socialxSES_low	0.0498	0.0744*								
	(0.0382)	(0.0439)								
socialxSES_high	0.0722**	0.0523								
	(0.0324)	(0.0399)								
learnxSES_low						0.0731**	0.0869*			
						(0.0371)	(0.0449)			
learnxSES_high						0.111***	0.0847**			
						(0.0267)	(0.0393)			
Breastfeeding is tiringxSES_low	0.246	0.286				0.284	0.300			
	(0.210)	(0.268)				(0.207)	(0.271)			
Playing is tiringxSES_low	-1.208***	-1.003**				-1.153***	-0.985**			
	(0.335)	(0.433)				(0.337)	(0.433)			
Either investment is tiringxSES_low	-0.515*	-0.463				-0.464	-0.442			
	(0.305)	(0.328)				(0.310)	(0.328)			
Breastfeeding is tiringxSES_high	-0.0232	-0.0524				-0.0231	-0.0409			
	(0.223)	(0.231)				(0.212)	(0.229)			
Playing is tiringxSES_high	-0.508	-0.630				-0.531	-0.630			
	(0.371)	(0.412)				(0.373)	(0.416)			
Either investment is tiringxSES_high	0.0707	0.0299				0.0584	0.0383			
	(0.255)	(0.273)				(0.251)	(0.272)			
Education: 1-5 years			0.323	-0.000682	0.0255			0.318	-0.0251	0.00229
			(0.295)	(0.543)	(0.388)			(0.300)	(0.548)	(0.382)
Education: 6-10 years			0.169	-0.413	-0.425			0.181	-0.412	-0.418
			(0.271)	(0.546)	(0.420)			(0.267)	(0.543)	(0.421)
Education: more than 10 years			0.318	0.102	-0.168			0.338	0.0929	-0.156
			(0.315)	(0.569)	(0.511)			(0.308)	(0.566)	(0.514)
Child in womb: 2nd			0.190	-0.557	0.342			0.165	-0.534	0.345
			(0.322)	(0.376)	(0.339)			(0.325)	(0.381)	(0.345)
Child in womb: 3rd or higher			0.123	-1.107***	-0.0690			0.120	-1.077***	-0.0371
			(0.232)	(0.358)	(0.394)			(0.221)	(0.364)	(0.393)
Age (years)			0.158	0.290	0.393			0.144	0.247	0.358
			(0.258)	(0.355)	(0.244)			(0.258)	(0.357)	(0.249)
Age squared			-0.00253	-0.00410	-0.00694			-0.00229	-0.00335	-0.00635
			(0.00467)	(0.00662)	(0.00437)			(0.00469)	(0.00664)	(0.00448)
High SES (above median)			0.174	0.326	0.188			0.129	0.259	0.123
			(0.372)	(0.398)	(0.354)			(0.436)	(0.441)	(0.420)
Husband's education (years)			-0.0136	0.00103	0.0367			-0.0137	0.00568	0.0385
			(0.0417)	(0.0538)	(0.0478)			(0.0410)	(0.0538)	(0.0481)
Woman is depressed (baseline)			-0.101	-0.199	-0.611**			-0.0912	-0.197	-0.608**
			(0.179)	(0.263)	(0.300)			(0.179)	(0.266)	(0.301)
Constant			-2.961	-5.035	-6.399*			-2.858	-4.552	-6.019*
			(3.550)	(4.593)	(3.377)			(3.552)	(4.595)	(3.417)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test	0.625	0.712				0.315	0.973			

Robust standard errors in parentheses, clustered at the village level
*** p<0.01, ** p<0.05, * p<0.1
Low SES = SES below the median, High SES = SES above the median

Table 10c: Heterogeneity on preference parameters (SES)

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
healthxSES_low	-0.0435	-0.0435				-0.0469	-0.0475			
	(0.0494)	(0.0518)				(0.0493)	(0.0523)			
healthxSES_high	0.0897**	0.0918***				0.0926***	0.0956***			
	(0.0354)	(0.0342)				(0.0349)	(0.0340)			
speakxSES_low						0.0606	0.0804			
						(0.0525)	(0.0537)			
speakxSES_high						-0.0308	-0.0454			
						(0.0518)	(0.0484)			
socialxSES_low	0.0262	0.0363				0.000335	0.00344			
	(0.0531)	(0.0560)				(0.0580)	(0.0614)			
socialxSES_high	-0.0241	-0.0153				-0.00975	0.00303			
	(0.0461)	(0.0471)				(0.0542)	(0.0543)			
learnxSES_low	0.0824*	0.0781				0.0578	0.0486			
	(0.0473)	(0.0539)				(0.0531)	(0.0587)			
learnxSES_high	0.0785**	0.0583				0.0878**	0.0690			
	(0.0396)	(0.0466)				(0.0411)	(0.0468)			
Breastfeeding is tiringxSES_low	0.362*	0.303				0.343	0.282			
	(0.212)	(0.271)				(0.218)	(0.280)			
Playing is tiringxSES_low	-1.149***	-0.963**				-1.167***	-0.959**			
	(0.334)	(0.440)				(0.340)	(0.443)			
Either investment is tiringxSES_low	-0.390	-0.439				-0.410	-0.443			
	(0.318)	(0.331)				(0.322)	(0.339)			
Breastfeeding is tiringxSES_high	-0.0846	-0.0494				-0.0962	-0.0676			
	(0.230)	(0.236)				(0.233)	(0.242)			
Playing is tiringxSES_high	-0.522	-0.614				-0.512	-0.621			
	(0.371)	(0.414)				(0.371)	(0.416)			
Either investment is tiringxSES_high	0.0115	0.0357				0.0173	0.0284			
	(0.262)	(0.276)				(0.261)	(0.273)			
Education: 1-5 years			0.327	-0.0212	0.0216			0.308	-0.0179	0.0130
			(0.306)	(0.547)	(0.394)			(0.308)	(0.549)	(0.388)
Education: 6-10 years			0.183	-0.418	-0.421			0.177	-0.426	-0.426
			(0.281)	(0.544)	(0.432)			(0.285)	(0.542)	(0.427)
Education: more than 10 years			0.358	0.0887	-0.129			0.354	0.0728	-0.138
			(0.324)	(0.564)	(0.514)			(0.327)	(0.560)	(0.506)
Child in womb: 2nd			0.179	-0.551	0.335			0.200	-0.553	0.346
			(0.328)	(0.369)	(0.346)			(0.329)	(0.364)	(0.346)
Child in womb: 3rd or higher			0.119	-1.075***	-0.0594			0.132	-1.087***	-0.0611
			(0.230)	(0.366)	(0.395)			(0.234)	(0.360)	(0.397)
Age (years)			0.103	0.234	0.325			0.109	0.236	0.333
			(0.253)	(0.363)	(0.255)			(0.255)	(0.365)	(0.255)
Age squared			-0.00160	-0.00315	-0.00580			-0.00172	-0.00318	-0.00595
			(0.00462)	(0.00675)	(0.00462)			(0.00465)	(0.00678)	(0.00461)
High SES (above median)			-0.0706	0.193	-0.0827			-0.0256	0.273	-0.00106
			(0.437)	(0.450)	(0.433)			(0.439)	(0.449)	(0.430)
Husband's education (years)			-0.0157	0.00486	0.0346			-0.0161	0.00640	0.0363
			(0.0412)	(0.0549)	(0.0477)			(0.0409)	(0.0547)	(0.0468)
Woman is depressed (baseline)			-0.0790	-0.198	-0.599**			-0.0752	-0.211	-0.603**
			(0.177)	(0.269)	(0.300)			(0.177)	(0.265)	(0.300)
Constant			-2.201	-4.330	-5.445			-2.283	-4.413	-5.603
			(3.467)	(4.665)	(3.488)			(3.501)	(4.694)	(3.465)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test										
healthxSES_low = healthxSES_high	**0.032**	**0.029**				**0.025**	**0.024**			
speakxSES_low = speakxSES_high						0.202	**0.082**			
socialxSES_high = socialxSES_high	0.489	0.478				0.902	0.996			
learnxSES_low = learnxSES_high	0.944	0.782				0.626	0.786			

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Low SES = SES below the median, High SES = SES above the median

Table 11a: Heterogeneity on preference parameters (Depression)

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl
healthxDepr	-0.0116	-0.00962								
	(0.0315)	(0.0362)								
healthxNodepr	0.0810**	0.0792**								
	(0.0323)	(0.0333)								
speakxDepr						0.0582	0.107**			
						(0.0377)	(0.0446)			
speakxNodepr						0.0629**	0.0371			
						(0.0302)	(0.0308)			
Breastfeeding is tiringxDepr	0.302	0.321				0.139	0.351			
	(0.186)	(0.259)				(0.199)	(0.263)			
Playing is tiringxDepr	-1.177**	-1.297**				-1.242**	-1.229**			
	(0.464)	(0.580)				(0.489)	(0.582)			
Either investment is tiringxDepr	-0.581*	-0.567*				-0.751**	-0.512*			
	(0.317)	(0.306)				(0.358)	(0.306)			
Breastfeeding is tiringxNodepr	0.0674	0.0474				0.122	0.0479			
	(0.213)	(0.242)				(0.205)	(0.238)			
Playing is tiringxNodepr	-0.715**	-0.620*				-0.665**	-0.618*			
	(0.303)	(0.363)				(0.311)	(0.362)			
Either investment is tiringxNodepr	-0.0206	-0.00811				0.0365	-0.0108			
	(0.243)	(0.247)				(0.242)	(0.247)			
Education: 1-5 years			0.237	0.0101	-0.0387			0.235	0.0226	-0.0223
			(0.317)	(0.535)	(0.389)			(0.312)	(0.543)	(0.385)
Education: 6-10 years			0.0893	-0.393	-0.565			0.0832	-0.400	-0.555
			(0.289)	(0.551)	(0.443)			(0.292)	(0.558)	(0.437)
Education: more than 10 years			0.319	0.118	-0.335			0.301	0.136	-0.331
			(0.311)	(0.553)	(0.516)			(0.318)	(0.559)	(0.522)
Child in womb: 2nd			0.230	-0.549	0.373			0.214	-0.586	0.340
			(0.329)	(0.377)	(0.337)			(0.323)	(0.374)	(0.338)
Child in womb: 3rd or higher			0.188	-1.098***	-0.0146			0.126	-1.141***	-0.0652
			(0.226)	(0.363)	(0.395)			(0.231)	(0.356)	(0.391)
Age (years)			0.160	0.326	0.358			0.116	0.245	0.303
			(0.262)	(0.350)	(0.266)			(0.259)	(0.344)	(0.268)
Age squared			-0.00278	-0.00476	-0.00639			-0.00186	-0.00319	-0.00526
			(0.00477)	(0.00654)	(0.00479)			(0.00470)	(0.00644)	(0.00480)
Asset-based SES			-0.00968	0.0815	0.237**			-0.00673	0.0715	0.227**
			(0.0934)	(0.109)	(0.107)			(0.0956)	(0.110)	(0.107)
Husband's education (years)			-0.0172	0.00353	0.0184			-0.0137	0.00545	0.0230
			(0.0415)	(0.0545)	(0.0477)			(0.0413)	(0.0544)	(0.0487)
Woman is depressed (baseline)			-0.0874	0.184	-0.00104			-0.536	-0.224	-0.553
			(0.332)	(0.353)	(0.348)			(0.326)	(0.366)	(0.423)
Constant			-2.686	-5.421	-5.754			-2.051	-4.346	-4.984
			(3.608)	(4.582)	(3.733)			(3.565)	(4.468)	(3.762)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test	**0.022**	**0.068**				0.907	0.201			

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Depressed = Diagnosed as depressed at baseline, Not depressed = Diagnosed as non-depressed at baseline

Table 11b: Heterogeneity on preference parameters (Depression)

VARIABLES	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
socialxDepr	0.0502	0.0964								
	(0.0417)	(0.0623)								
socialxNodepr	0.0671**	0.0449								
	(0.0281)	(0.0321)								
learnxDepr						0.0994***	0.155***			
						(0.0357)	(0.0485)			
learnxNodepr						0.0953***	0.0556*			
						(0.0291)	(0.0324)			
Breastfeeding is tiringxDepr	0.162	0.362				0.148	0.391			
	(0.208)	(0.258)				(0.200)	(0.253)			
Playing is tiringxDepr	-1.234***	-1.235**				-1.257***	-1.266**			
	(0.477)	(0.573)				(0.477)	(0.587)			
Either investment is tiringxDepr	-0.741**	-0.550*				-0.764**	-0.498			
	(0.349)	(0.308)				(0.356)	(0.303)			
Breastfeeding is tiringxNodepr	0.110	0.0412				0.138	0.0524			
	(0.213)	(0.239)				(0.211)	(0.241)			
Playing is tiringxNodepr	-0.668**	-0.614*				-0.637**	-0.601*			
	(0.308)	(0.361)				(0.310)	(0.361)			
Either investment is tiringxNodepr	0.0337	-0.00957				0.0614	-0.00414			
	(0.240)	(0.244)				(0.241)	(0.246)			
Education: 1-5 years			0.216	0.0192	-0.0191			0.206	-0.00790	-0.0468
			(0.312)	(0.540)	(0.385)			(0.314)	(0.545)	(0.385)
Education: 6-10 years			0.0730	-0.407	-0.556			0.0651	-0.402	-0.548
			(0.291)	(0.556)	(0.434)			(0.288)	(0.556)	(0.435)
Education: more than 10 years			0.275	0.103	-0.349			0.267	0.0883	-0.345
			(0.326)	(0.558)	(0.514)			(0.323)	(0.560)	(0.524)
Child in womb: 2nd			0.222	-0.569	0.349			0.198	-0.551	0.353
			(0.321)	(0.381)	(0.336)			(0.323)	(0.382)	(0.339)
Child in womb: 3rd or higher			0.138	-1.133***	-0.0710			0.125	-1.131***	-0.0418
			(0.231)	(0.362)	(0.390)			(0.223)	(0.364)	(0.391)
Age (years)			0.130	0.299	0.340			0.118	0.256	0.302
			(0.263)	(0.347)	(0.264)			(0.264)	(0.348)	(0.268)
Age squared			-0.00211	-0.00416	-0.00591			-0.00187	-0.00337	-0.00522
			(0.00477)	(0.00649)	(0.00473)			(0.00480)	(0.00649)	(0.00479)
Asset-based SES			-0.0123	0.0779	0.229**			-0.00705	0.0699	0.222**
			(0.0961)	(0.112)	(0.107)			(0.0942)	(0.110)	(0.106)
Husband's education (years)			-0.0107	0.00556	0.0237			-0.0109	0.0114	0.0265
			(0.0420)	(0.0550)	(0.0480)			(0.0417)	(0.0550)	(0.0487)
Woman is depressed (baseline)			-0.504	-0.167	-0.484			-0.662*	-0.320	-0.696
			(0.369)	(0.444)	(0.463)			(0.348)	(0.433)	(0.470)
Constant			-2.291	-5.083	-5.526			-2.179	-4.629	-5.100
			(3.614)	(4.518)	(3.695)			(3.622)	(4.534)	(3.728)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test	0.719	0.486				0.913	**0.093**			

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Depressed = Diagnosed as depressed at baseline, Not depressed = Diagnosed as non-depressed at baseline

Table 11c: Heterogeneity on preference parameters (Depression)

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
healthxDepr	-0.0618	-0.0497				-0.0636	-0.0521			
	(0.0484)	(0.0457)				(0.0487)	(0.0461)			
healthxNodepr	0.0712**	0.0710**				0.0710**	0.0711**			
	(0.0350)	(0.0352)				(0.0347)	(0.0350)			
speakxDepr						0.0213	0.0342			
						(0.0544)	(0.0493)			
speakxNodepr						0.00667	-0.00144			
						(0.0479)	(0.0456)			
socialxDepr	-0.0111	0.00838				-0.0180	-0.00140			
	(0.0689)	(0.0767)				(0.0747)	(0.0794)			
socialxNodepr	-0.00240	-0.00115				-0.00524	-0.000225			
	(0.0417)	(0.0437)				(0.0480)	(0.0519)			
learnxDepr	0.145***	0.163***				0.137***	0.152***			
	(0.0471)	(0.0505)				(0.0474)	(0.0523)			
learnxNodepr	0.0596	0.0283				0.0580	0.0287			
	(0.0447)	(0.0467)				(0.0475)	(0.0481)			
Breastfeeding is tiringxDepr	0.286	0.398				0.284	0.397			
	(0.181)	(0.243)				(0.180)	(0.244)			
Playing is tiringxDepr.	-1.249***	-1.270**				-1.250***	-1.262**			
	(0.473)	(0.585)				(0.477)	(0.586)			
Either investment is tiringxDepr	-0.632*	-0.495*				-0.633*	-0.484			
	(0.327)	(0.300)				(0.329)	(0.299)			
Breastfeeding is tiringxNodepr	0.104	0.0521				0.105	0.0527			
	(0.218)	(0.245)				(0.217)	(0.245)			
Playing is tiringxNodepr	-0.645**	-0.604*				-0.642**	-0.603*			
	(0.306)	(0.361)				(0.307)	(0.361)			
Either investment is tiringxNodepr	0.0267	-0.00369				0.0283	-0.00346			
	(0.241)	(0.247)				(0.240)	(0.247)			
Education: 1-5 years			0.193	-0.0508	-0.0861			0.193	-0.0508	-0.0881
			(0.319)	(0.535)	(0.389)			(0.319)	(0.536)	(0.389)
Education: 6-10 years			0.0385	-0.432	-0.587			0.0341	-0.436	-0.594
			(0.294)	(0.551)	(0.442)			(0.297)	(0.552)	(0.446)
Education: more than 10 years			0.234	0.0429	-0.387			0.230	0.0447	-0.390
			(0.337)	(0.552)	(0.524)			(0.340)	(0.553)	(0.526)
Child in womb: 2nd			0.214	-0.553	0.375			0.212	-0.559	0.371
			(0.330)	(0.378)	(0.339)			(0.332)	(0.375)	(0.340)
Child in womb: 3rd or higher			0.154	-1.131***	-0.0163			0.141	-1.136***	-0.0247
			(0.227)	(0.367)	(0.395)			(0.234)	(0.366)	(0.396)
Age (years)			0.141	0.285	0.320			0.137	0.275	0.313
			(0.271)	(0.353)	(0.271)			(0.270)	(0.351)	(0.271)
Age squared			-0.00234	-0.00392	-0.00559			-0.00226	-0.00373	-0.00547
			(0.00494)	(0.00657)	(0.00489)			(0.00491)	(0.00653)	(0.00489)
Asset-based SES			-0.0112	0.0746	0.226**			-0.0111	0.0742	0.226**
			(0.0950)	(0.109)	(0.106)			(0.0954)	(0.109)	(0.107)
Husband's education (years)			-0.0140	0.00924	0.0220			-0.0149	0.00843	0.0215
			(0.0424)	(0.0552)	(0.0475)			(0.0427)	(0.0552)	(0.0479)
Woman is depressed (baseline)			-0.453	-0.223	-0.464			-0.472	-0.254	-0.499
			(0.364)	(0.447)	(0.469)			(0.362)	(0.431)	(0.466)
Constant			-2.525	-5.007	-5.371			-2.461	-4.867	-5.275
			(3.707)	(4.595)	(3.747)			(3.689)	(4.551)	(3.750)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504
p-value diff test										
healthxSES_low = healthxSES_high	**0.022**	**0.031**				**0.022**	**0.032**			
speakxSES_low = speakxSES_high						0.839	0.611			
socialxSES_high = socialxSES_high	0.923	0.922				0.896	0.991			
learnxSES_low = learnxSES_high	0.212	**0.072**				0.254	0.103			

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Depressed = Diagnosed as depressed at baseline, Not depressed = Diagnosed as non-depressed at baseline

Table A1: Attrition at month 3

	(1) No attrited	(2) Attrited	(3) Diff
Mothers' age (years)	26.54	26.93	-0.39
Mother's education (years)	8.05	7.98	0.08
Husband's education (years)	8.89	8.94	-0.06
Parity	2.50	2.33	0.17
Household's income ($)	229.39	217.08	12.30
Likelihood of diarrhea episodes			
(a) If the mother exclusively breastfeeds for 6 months	2.39	2.95	-0.57*
(b) If the mother does not exclusively breastfeed for 6 months	6.45	6.21	0.24
(a) If the mother plays with the child frequently	3.51	3.43	0.08
(b) If the mother plays with the child rarely	4.96	4.99	-0.03
Likelihood of putting 2-3 words in speaking by age 2			
(a) If the mother exclusively breastfeeds for 6 months	7.02	6.77	0.24
(b) If the mother does not exclusively breastfeed for 6 months	3.89	3.97	-0.08
(a) If the mother plays with the child frequently	7.42	7.11	0.31
(b) If the mother plays with the child rarely	4.08	4.24	-0.16
Likelihood of playing happily by age 3			
(a) If the mother exclusively breastfeeds for 6 months	7.32	7.16	0.16
(b) If the mother does not exclusively breastfeed for 6 months	4.08	4.26	-0.18
(a) If the mother plays with the child frequently	7.47	7.40	0.06
(b) If the mother plays with the child rarely	4.27	4.54	-0.27
Likelihood of learning well			
(a) If the mother exclusively breastfeeds for 6 months	7.58	7.11	0.47
(b) If the mother does not exclusively breastfeed for 6 months	4.12	4.24	-0.12
(a) If the mother plays with the child frequently	7.74	7.53	0.21
(b) If the mother plays with the child rarely	4.15	4.56	-0.41*
Stated preferences			
Importance of (low frequency) diarrhea	0.67	0.63	0.04
Importance of speaking	0.63	0.65	-0.02
Importance of playing	0.67	0.64	0.03
Importance of learning	0.81	0.77	0.04
Costs of investments			
Breastfeeding is tiring	0.39	0.41	-0.02
Playing is tiring	0.35	0.39	-0.04
Either breastfeeding or playing is tiring	0.48	0.50	-0.03
Observations	626	245	

Table A2a: Income benchmark of preference parameters

VARIABLES	(1) invest_types	(1a) bf, no-pl	(1b) no-bf, pl	(1c) bf, pl	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(3a) bf, no-pl	(3b) no-bf, pl	(3c) bf, pl	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl
health	0.0521**															
	(0.0257)															
speak					0.0615**											
					(0.0255)											
social									0.0634**							
									(0.0275)							
learn													0.0885***			
													(0.0257)			
Breastfeeding is tiring	0.152				0.163				0.159				0.172			
	(0.171)				(0.170)				(0.169)				(0.170)			
Playing is tiring	-0.839***				-0.814***				-0.816***				-0.805***			
	(0.297)				(0.297)				(0.292)				(0.294)			
Either investment is tiring	-0.189				-0.179				-0.182				-0.167			
	(0.219)				(0.222)				(0.218)				(0.218)			
Education: 1-5 years		0.372	0.0646	0.0873		0.368	0.0430	0.0863		0.348	0.0520	0.0922		0.335	0.0149	0.0517
		(0.318)	(0.537)	(0.389)		(0.316)	(0.543)	(0.385)		(0.315)	(0.546)	(0.387)		(0.320)	(0.548)	(0.382)
Education: 6-10 years		0.144	-0.317	-0.293		0.142	-0.340	-0.295		0.122	-0.342	-0.298		0.128	-0.355	-0.307
		(0.266)	(0.545)	(0.431)		(0.270)	(0.554)	(0.422)		(0.274)	(0.558)	(0.420)		(0.270)	(0.551)	(0.418)
Education: more than 10 years		0.249	0.219	0.0367		0.234	0.202	0.0256		0.200	0.178	0.00768		0.211	0.153	0.00414
		(0.291)	(0.567)	(0.524)		(0.304)	(0.574)	(0.524)		(0.320)	(0.580)	(0.521)		(0.312)	(0.574)	(0.524)
Child in womb: 2nd		0.232	-0.513	0.375		0.206	-0.567	0.339		0.210	-0.557	0.336		0.185	-0.534	0.340
		(0.322)	(0.381)	(0.334)		(0.321)	(0.379)	(0.335)		(0.319)	(0.382)	(0.334)		(0.322)	(0.385)	(0.339)
Child in womb: 3rd or higher		0.153	-1.070***	-0.0143		0.125	-1.103***	-0.0364		0.112	-1.108***	-0.0617		0.106	-1.082***	-0.0284
		(0.220)	(0.368)	(0.400)		(0.223)	(0.365)	(0.400)		(0.224)	(0.370)	(0.399)		(0.212)	(0.372)	(0.397)
Age (years)		0.170	0.288	0.329		0.163	0.243	0.307		0.178	0.296	0.344		0.162	0.254	0.309
		(0.256)	(0.345)	(0.265)		(0.260)	(0.346)	(0.266)		(0.262)	(0.346)	(0.264)		(0.262)	(0.347)	(0.267)
Age squared		-0.00286	-0.00410	-0.00580		-0.00268	-0.00323	-0.00536		-0.00292	-0.00418	-0.00597		-0.00263	-0.00345	-0.00539
		(0.00468)	(0.00643)	(0.00473)		(0.00476)	(0.00643)	(0.00476)		(0.00478)	(0.00645)	(0.00472)		(0.00481)	(0.00645)	(0.00478)
log of hh income		0.306*	0.219	0.0148		0.319**	0.220	0.0183		0.311*	0.240	0.0260		0.320**	0.230	0.0231
		(0.163)	(0.184)	(0.187)		(0.162)	(0.187)	(0.186)		(0.162)	(0.182)	(0.186)		(0.160)	(0.182)	(0.185)
Husband's education (years)		-0.0305	0.00188	0.0474		-0.0285	0.00303	0.0489		-0.0280	0.00201	0.0480		-0.0276	0.00717	0.0505
		(0.0385)	(0.0529)	(0.0474)		(0.0382)	(0.0529)	(0.0478)		(0.0387)	(0.0537)	(0.0479)		(0.0385)	(0.0537)	(0.0479)
Woman is depressed (baseline)		-0.0922	-0.201	-0.647**		-0.0753	-0.200	-0.633**		-0.0794	-0.203	-0.645**		-0.0676	-0.197	-0.643**
		(0.191)	(0.254)	(0.291)		(0.188)	(0.253)	(0.290)		(0.189)	(0.255)	(0.293)		(0.189)	(0.258)	(0.294)
Constant		-5.723	-6.989	-5.827		-5.814	-6.459	-5.631		-5.934	-7.361	-6.197		-5.915	-6.834	-5.824
		(3.943)	(4.686)	(4.284)		(4.007)	(4.704)	(4.270)		(4.009)	(4.687)	(4.235)		(4.013)	(4.720)	(4.292)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A2b: Income benchmark of preference parameters

VARIABLES	(5) invest_types	(5a) bf, no-pl	(5b) no-bf, pl	(5c) bf, pl	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl
health	0.0289				0.0297			
	(0.0286)				(0.0290)			
speak	0.0143							
	(0.0348)							
social	0.000198				0.00597			
	(0.0392)				(0.0347)			
learn	0.0701**				0.0744**			
	(0.0340)				(0.0324)			
Breastfeeding is tiring	0.174				0.173			
	(0.172)				(0.171)			
Playing is tiring	-0.802***				-0.804***			
	(0.293)				(0.292)			
Either investment is tiring	-0.165				-0.167			
	(0.220)				(0.219)			
Education: 1-5 years		0.317	0.00227	0.0236		0.317	0.00614	0.0270
		(0.325)	(0.543)	(0.391)		(0.325)	(0.543)	(0.390)
Education: 6-10 years		0.100	-0.368	-0.343		0.102	-0.364	-0.338
		(0.281)	(0.553)	(0.427)		(0.280)	(0.553)	(0.426)
Education: more than 10 years		0.187	0.155	-0.0200		0.188	0.153	-0.0179
		(0.326)	(0.574)	(0.526)		(0.326)	(0.575)	(0.525)
Child in womb: 2nd		0.196	-0.535	0.348		0.196	-0.530	0.349
		(0.326)	(0.376)	(0.339)		(0.326)	(0.380)	(0.339)
Child in womb: 3rd or higher		0.108	-1.085***	-0.0312		0.109	-1.081***	-0.0312
		(0.218)	(0.367)	(0.396)		(0.218)	(0.370)	(0.396)
Age (years)		0.152	0.249	0.300		0.155	0.259	0.307
		(0.261)	(0.347)	(0.267)		(0.261)	(0.348)	(0.268)
Age squared		-0.00248	-0.00337	-0.00524		-0.00253	-0.00355	-0.00536
		(0.00478)	(0.00644)	(0.00478)		(0.00479)	(0.00646)	(0.00479)
log of hh income		0.318**	0.220	0.0196		0.316**	0.224	0.0205
		(0.161)	(0.182)	(0.187)		(0.161)	(0.182)	(0.187)
Husband's education (years)		-0.0296	0.00413	0.0481		-0.0294	0.00448	0.0483
		(0.0386)	(0.0539)	(0.0470)		(0.0387)	(0.0541)	(0.0472)
Woman is depressed (baseline)		-0.0835	-0.201	-0.651**		-0.0829	-0.201	-0.652**
		(0.188)	(0.257)	(0.294)		(0.188)	(0.258)	(0.294)
Constant		-5.773	-6.677	-5.679		-5.794	-6.836	-5.773
		(3.999)	(4.662)	(4.307)		(3.999)	(4.699)	(4.312)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A3a: Model estimates: Relaxing non-negative expected returns assumption

	(1)	(2)	(2a)	(2b)	(2c)	(3)	(4)	(4a)	(4b)	(4c)	(5)	(6)	(6a)	(6b)	(6c)	(7)	(8)	(8a)	(8b)	(8c)
VARIABLES	invest_types	invest_types	bf, no-pl	no-bf, pl	bf, pl	invest_types	invest_types	bf, no-pl	no-bf, pl	bf, pl	invest_types	invest_types	bf, no-pl	no-bf, pl	bf, pl	invest_types	invest_types	bf, no-pl	no-bf, pl	bf, pl
health	0.0218	0.0202																		
	(0.0269)	(0.0258)																		
speak						0.0628**	0.0561**													
						(0.0247)	(0.0238)													
social											0.0440**	0.0416*								
											(0.0222)	(0.0238)								
learn																0.0964***	0.0868***			
																(0.0233)	(0.0240)			
Breastfeeding is tiring	0.118	0.108				0.131	0.121				0.126	0.118				0.158	0.148			
	(0.152)	(0.165)				(0.152)	(0.165)				(0.150)	(0.162)				(0.153)	(0.165)			
Playing is tiring	-0.891***	-0.835***				-0.862***	-0.809***				-0.871***	-0.816***				-0.848***	-0.795***			
	(0.271)	(0.309)				(0.273)	(0.308)				(0.267)	(0.304)				(0.269)	(0.304)			
Either investment is tiring	-0.217	-0.139				-0.196	-0.126				-0.206	-0.131				-0.171	-0.102			
	(0.219)	(0.218)				(0.224)	(0.222)				(0.218)	(0.218)				(0.220)	(0.221)			
Education: 1-5 years			0.378	0.0483	0.00712			0.342	0.0163	-0.0289			0.342	0.0189	-0.0171			0.305	-0.0193	-0.0644
			(0.301)	(0.539)	(0.385)			(0.299)	(0.540)	(0.384)			(0.301)	(0.541)	(0.386)			(0.303)	(0.545)	(0.386)
Education: 6-10 years			0.213	-0.357	-0.523			0.189	-0.380	-0.545			0.182	-0.387	-0.545			0.163	-0.401	-0.560
			(0.281)	(0.537)	(0.432)			(0.280)	(0.541)	(0.424)			(0.283)	(0.544)	(0.421)			(0.284)	(0.544)	(0.423)
Education: more than 10 years			0.378	0.177	-0.291			0.342	0.163	-0.318			0.331	0.140	-0.325			0.306	0.113	-0.339
			(0.298)	(0.552)	(0.515)			(0.301)	(0.553)	(0.518)			(0.314)	(0.557)	(0.514)			(0.313)	(0.559)	(0.520)
Child in womb: 2nd			0.203	-0.537	0.356			0.190	-0.582	0.336			0.194	-0.564	0.338			0.156	-0.557	0.326
			(0.320)	(0.378)	(0.337)			(0.323)	(0.374)	(0.340)			(0.319)	(0.376)	(0.338)			(0.324)	(0.380)	(0.341)
Child in womb: 3rd or higher			0.156	-1.081***	-0.0146			0.130	-1.116***	-0.0399			0.120	-1.113***	-0.0540			0.102	-1.102***	-0.0355
			(0.227)	(0.361)	(0.391)			(0.230)	(0.357)	(0.392)			(0.232)	(0.360)	(0.391)			(0.219)	(0.366)	(0.389)
Age (years)			0.183	0.290	0.340			0.167	0.245	0.313			0.182	0.288	0.345			0.161	0.248	0.306
			(0.253)	(0.344)	(0.265)			(0.258)	(0.346)	(0.270)			(0.258)	(0.346)	(0.266)			(0.259)	(0.347)	(0.270)
Age squared			-0.00308	-0.00410	-0.00601			-0.00275	-0.00326	-0.00549			-0.00300	-0.00402	-0.00604			-0.00259	-0.00332	-0.00536
			(0.00461)	(0.00641)	(0.00473)			(0.00471)	(0.00644)	(0.00482)			(0.00471)	(0.00645)	(0.00475)			(0.00474)	(0.00645)	(0.00482)
Asset-based SES			-0.000591	0.0755	0.233**			-0.00610	0.0637	0.218**			-0.00590	0.0737	0.225**			-0.00468	0.0655	0.218**
			(0.0938)	(0.108)	(0.105)			(0.0946)	(0.108)	(0.105)			(0.0941)	(0.109)	(0.104)			(0.0932)	(0.107)	(0.104)
Husband's education (years)			-0.0162	0.00310	0.0206			-0.0150	0.00370	0.0216			-0.0147	0.00283	0.0212			-0.0146	0.00651	0.0231
			(0.0417)	(0.0542)	(0.0485)			(0.0414)	(0.0541)	(0.0484)			(0.0418)	(0.0545)	(0.0486)			(0.0417)	(0.0550)	(0.0484)
Woman is depressed (baseline)			-0.0802	-0.191	-0.586*			-0.0829	-0.198	-0.586*			-0.0836	-0.198	-0.594**			-0.0772	-0.196	-0.597**
			(0.188)	(0.257)	(0.300)			(0.184)	(0.254)	(0.299)			(0.186)	(0.258)	(0.301)			(0.183)	(0.259)	(0.302)
Constant			-3.075	-4.790	-5.324			-2.937	-4.305	-5.081			-3.119	-4.830	-5.476			-2.970	-4.455	-5.113
			(3.492)	(4.480)	(3.725)			(3.560)	(4.491)	(3.770)			(3.563)	(4.488)	(3.725)			(3.571)	(4.511)	(3.739)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A3b: Model estimates: Relaxing non-negative expected returns assumption

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
health	0.00447	0.00434				0.00405	0.00398			
	(0.0277)	(0.0271)				(0.0276)	(0.0270)			
speak						0.0269	0.0223			
						(0.0359)	(0.0339)			
social	-0.0245	-0.0196				-0.0351	-0.0283			
	(0.0299)	(0.0318)				(0.0343)	(0.0358)			
learn	0.110***	0.0973***				0.101***	0.0900***			
	(0.0315)	(0.0325)				(0.0332)	(0.0343)			
Breastfeeding is tiring	0.158	0.148				0.159	0.149			
	(0.153)	(0.166)				(0.154)	(0.166)			
Playing is tiring	-0.853***	-0.800***				-0.850***	-0.797***			
	(0.268)	(0.303)				(0.270)	(0.303)			
Either investment is tiring	-0.171	-0.101				-0.169	-0.100			
	(0.220)	(0.220)				(0.222)	(0.221)			
Education: 1-5 years			0.316	-0.0120	-0.0598			0.314	-0.0131	-0.0645
			(0.306)	(0.544)	(0.388)			(0.306)	(0.544)	(0.389)
Education: 6-10 years			0.174	-0.391	-0.552			0.174	-0.389	-0.555
			(0.293)	(0.545)	(0.430)			(0.294)	(0.545)	(0.430)
Education: more than 10 years			0.322	0.123	-0.328			0.322	0.132	-0.328
			(0.327)	(0.558)	(0.523)			(0.328)	(0.555)	(0.524)
Child in womb: 2nd			0.155	-0.547	0.330			0.156	-0.556	0.329
			(0.327)	(0.375)	(0.341)			(0.329)	(0.372)	(0.342)
Child in womb: 3rd or higher			0.112	-1.090***	-0.0204			0.113	-1.094***	-0.0196
			(0.222)	(0.361)	(0.387)			(0.224)	(0.358)	(0.387)
Age (years)			0.159	0.243	0.300			0.155	0.229	0.290
			(0.257)	(0.346)	(0.269)			(0.257)	(0.344)	(0.269)
Age squared			-0.00257	-0.00325	-0.00528			-0.00250	-0.00300	-0.00510
			(0.00470)	(0.00642)	(0.00481)			(0.00470)	(0.00639)	(0.00482)
Asset-based SES			-0.00264	0.0652	0.219**			-0.00336	0.0614	0.216**
			(0.0933)	(0.106)	(0.104)			(0.0936)	(0.106)	(0.104)
Husband's education (years)			-0.0149	0.00736	0.0235			-0.0151	0.00716	0.0234
			(0.0416)	(0.0553)	(0.0478)			(0.0415)	(0.0551)	(0.0478)
Woman is depressed (baseline)			-0.0745	-0.193	-0.593**			-0.0760	-0.194	-0.591*
			(0.182)	(0.260)	(0.302)			(0.181)	(0.258)	(0.302)
Constant			-2.945	-4.389	-5.027			-2.887	-4.218	-4.902
			(3.543)	(4.489)	(3.732)			(3.543)	(4.460)	(3.734)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level
*** p<0.01, ** p<0.05, * p<0.1

Table A4a: Allow complementarities of investments (50%)

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
health	0.0516*	0.0505*																		
	(0.0270)	(0.0268)																		
speak						0.0636**	0.0609**													
						(0.0283)	(0.0269)													
social											0.0620**	0.0633**								
											(0.0252)	(0.0273)								
learn																0.101***	0.0942***			
																(0.0247)	(0.0253)			
Breastfeeding is tiring	0.120	0.111				0.129	0.121				0.127	0.120				0.145	0.137			
	(0.154)	(0.166)				(0.152)	(0.164)				(0.151)	(0.163)				(0.153)	(0.165)			
Playing is tiring	-0.888***	-0.832***				-0.860***	-0.807***				-0.864***	-0.804***				-0.846***	-0.793***			
	(0.270)	(0.308)				(0.273)	(0.307)				(0.267)	(0.303)				(0.270)	(0.304)			
Either investment is tiring	-0.224	-0.145				-0.215	-0.138				-0.218	-0.142				-0.217	-0.140			
	(0.221)	(0.219)				(0.223)	(0.222)				(0.221)	(0.220)				(0.220)	(0.220)			
Education: 1-5 years			0.347	0.0239	-0.0209			0.341	0.0107	-0.0172			0.326	0.0118	-0.0238			0.307	-0.0218	-0.0690
			(0.305)	(0.535)	(0.388)			(0.300)	(0.541)	(0.387)			(0.301)	(0.544)	(0.386)			(0.305)	(0.547)	(0.387)
Education: 6-10 years			0.179	-0.378	-0.546			0.181	-0.385	-0.547			0.163	-0.399	-0.555			0.163	-0.399	-0.582
			(0.282)	(0.535)	(0.433)			(0.281)	(0.543)	(0.428)			(0.284)	(0.548)	(0.425)			(0.283)	(0.545)	(0.429)
Education: more than 10 years			0.344	0.161	-0.310			0.336	0.161	-0.321			0.303	0.124	-0.341			0.312	0.115	-0.361
			(0.296)	(0.550)	(0.514)			(0.303)	(0.554)	(0.521)			(0.315)	(0.562)	(0.514)			(0.312)	(0.560)	(0.522)
Child in womb: 2nd			0.212	-0.529	0.370			0.186	-0.583	0.338			0.190	-0.574	0.340			0.160	-0.551	0.337
			(0.323)	(0.377)	(0.339)			(0.322)	(0.375)	(0.336)			(0.320)	(0.377)	(0.336)			(0.324)	(0.381)	(0.340)
Child in womb: 3rd or higher			0.153	-1.083***	-0.0148			0.126	-1.118***	-0.0317			0.112	-1.124***	-0.0635			0.100	-1.098***	-0.0354
			(0.226)	(0.361)	(0.390)			(0.229)	(0.358)	(0.392)			(0.232)	(0.362)	(0.390)			(0.219)	(0.367)	(0.392)
Age (years)			0.175	0.286	0.331			0.167	0.240	0.314			0.181	0.291	0.347			0.165	0.246	0.318
			(0.254)	(0.346)	(0.266)			(0.258)	(0.345)	(0.268)			(0.260)	(0.348)	(0.264)			(0.260)	(0.348)	(0.266)
Age squared			-0.00294	-0.00404	-0.00585			-0.00274	-0.00316	-0.00552			-0.00296	-0.00406	-0.00607			-0.00267	-0.00327	-0.00560
			(0.00464)	(0.00645)	(0.00475)			(0.00470)	(0.00641)	(0.00479)			(0.00473)	(0.00647)	(0.00472)			(0.00476)	(0.00646)	(0.00475)
Asset-based SES			-0.00350	0.0728	0.229**			-0.00440	0.0636	0.227**			-0.00728	0.0738	0.229**			-0.00615	0.0631	0.225**
			(0.0940)	(0.108)	(0.106)			(0.0946)	(0.108)	(0.105)			(0.0944)	(0.109)	(0.105)			(0.0932)	(0.107)	(0.105)
Husband's education (years)			-0.0177	0.00143	0.0189			-0.0150	0.00358	0.0211			-0.0143	0.00199	0.0204			-0.0140	0.00789	0.0246
			(0.0421)	(0.0542)	(0.0483)			(0.0413)	(0.0539)	(0.0485)			(0.0420)	(0.0546)	(0.0484)			(0.0419)	(0.0551)	(0.0486)
Woman is depressed (baseline)			-0.0983	-0.199	-0.607**			-0.0829	-0.199	-0.594**			-0.0882	-0.201	-0.597**			-0.0773	-0.197	-0.595**
			(0.186)	(0.257)	(0.299)			(0.184)	(0.257)	(0.300)			(0.185)	(0.258)	(0.301)			(0.185)	(0.261)	(0.303)
Constant			-3.001	-4.784	-5.317			-2.950	-4.252	-5.172			-3.147	-4.924	-5.621			-3.058	-4.480	-5.367
			(3.507)	(4.508)	(3.747)			(3.558)	(4.474)	(3.751)			(3.587)	(4.513)	(3.699)			(3.587)	(4.522)	(3.702)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A4b: Allow complementarities of investments (50%)

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
health	0.0275	0.0275				0.0269	0.0269			
	(0.0299)	(0.0301)				(0.0296)	(0.0298)			
speak						0.0124	0.0102			
						(0.0399)	(0.0359)			
social	-0.00652	0.00121				-0.0117	-0.00305			
	(0.0341)	(0.0365)				(0.0390)	(0.0407)			
learn	0.0947***	0.0836**				0.0910***	0.0806**			
	(0.0333)	(0.0341)				(0.0348)	(0.0352)			
Breastfeeding is tiring	0.144	0.136				0.145	0.136			
	(0.154)	(0.166)				(0.154)	(0.166)			
Playing is tiring	-0.849***	-0.794***				-0.847***	-0.793***			
	(0.267)	(0.302)				(0.269)	(0.302)			
Either investment is tiring	-0.219	-0.141				-0.217	-0.140			
	(0.222)	(0.220)				(0.222)	(0.221)			
Education: 1-5 years			0.293	-0.0291	-0.0847			0.293	-0.0306	-0.0848
			(0.310)	(0.543)	(0.393)			(0.310)	(0.543)	(0.393)
Education: 6-10 years			0.144	-0.407	-0.599			0.143	-0.407	-0.600
			(0.292)	(0.545)	(0.435)			(0.292)	(0.545)	(0.436)
Education: more than 10 years			0.295	0.115	-0.370			0.294	0.119	-0.370
			(0.324)	(0.559)	(0.523)			(0.324)	(0.556)	(0.524)
Child in womb: 2nd			0.171	-0.544	0.347			0.170	-0.548	0.346
			(0.328)	(0.375)	(0.341)			(0.329)	(0.372)	(0.341)
Child in womb: 3rd or higher			0.105	-1.096***	-0.0324			0.104	-1.098***	-0.0310
			(0.223)	(0.363)	(0.389)			(0.224)	(0.360)	(0.389)
Age (years)			0.159	0.250	0.312			0.157	0.243	0.308
			(0.259)	(0.349)	(0.267)			(0.258)	(0.347)	(0.267)
Age squared			-0.00259	-0.00336	-0.00550			-0.00256	-0.00323	-0.00542
			(0.00474)	(0.00648)	(0.00475)			(0.00473)	(0.00644)	(0.00476)
Asset-based SES			-0.00758	0.0623	0.224**			-0.00757	0.0607	0.224**
			(0.0938)	(0.107)	(0.106)			(0.0938)	(0.107)	(0.106)
Husband's education (years)			-0.0156	0.00558	0.0224			-0.0157	0.00544	0.0223
			(0.0423)	(0.0553)	(0.0478)			(0.0422)	(0.0552)	(0.0478)
Woman is depressed (baseline)			-0.0903	-0.200	-0.607**			-0.0907	-0.201	-0.608**
			(0.183)	(0.261)	(0.301)			(0.182)	(0.261)	(0.301)
Constant			-2.987	-4.525	-5.317			-2.960	-4.437	-5.263
			(3.573)	(4.533)	(3.721)			(3.563)	(4.497)	(3.730)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A5a: Allow complementarities of investments (25%)

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
health	0.0528**	0.0520**																		
	(0.0267)	(0.0264)																		
speak						0.0636**	0.0594**													
						(0.0277)	(0.0263)													
social											0.0625**	0.0629**								
											(0.0249)	(0.0271)								
learn																0.100***	0.0927***			
																(0.0251)	(0.0256)			
Breastfeeding is tiring	0.121	0.112				0.129	0.120				0.127	0.119				0.145	0.136			
	(0.154)	(0.166)				(0.152)	(0.164)				(0.151)	(0.163)				(0.153)	(0.165)			
Playing is tiring	-0.887***	-0.832***				-0.861***	-0.809***				-0.864***	-0.806***				-0.847***	-0.795***			
	(0.270)	(0.308)				(0.272)	(0.307)				(0.267)	(0.304)				(0.269)	(0.304)			
Either investment is tiring	-0.220	-0.142				-0.208	-0.132				-0.212	-0.136				-0.200	-0.126			
	(0.221)	(0.219)				(0.223)	(0.222)				(0.220)	(0.220)				(0.220)	(0.220)			
Education: 1-5 years			0.346	0.0229	-0.0218			0.342	0.0112	-0.0192			0.327	0.0116	-0.0283			0.309	-0.0212	-0.0710
			(0.305)	(0.535)	(0.389)			(0.300)	(0.541)	(0.386)			(0.300)	(0.544)	(0.387)			(0.305)	(0.547)	(0.386)
Education: 6-10 years			0.177	-0.379	-0.552			0.182	-0.386	-0.545			0.163	-0.400	-0.554			0.164	-0.400	-0.575
			(0.283)	(0.535)	(0.434)			(0.281)	(0.543)	(0.427)			(0.284)	(0.547)	(0.425)			(0.283)	(0.544)	(0.427)
Education: more than 10 years			0.343	0.160	-0.312			0.337	0.161	-0.317			0.303	0.124	-0.342			0.313	0.116	-0.354
			(0.297)	(0.550)	(0.515)			(0.302)	(0.554)	(0.520)			(0.315)	(0.562)	(0.515)			(0.313)	(0.560)	(0.523)
Child in womb: 2nd			0.213	-0.529	0.372			0.187	-0.582	0.338			0.190	-0.574	0.340			0.161	-0.551	0.336
			(0.323)	(0.377)	(0.338)			(0.322)	(0.375)	(0.337)			(0.320)	(0.377)	(0.336)			(0.324)	(0.380)	(0.340)
Child in womb: 3rd or higher			0.152	-1.084***	-0.0164			0.127	-1.118***	-0.0364			0.112	-1.124***	-0.0631			0.101	-1.099***	-0.0357
			(0.227)	(0.361)	(0.390)			(0.229)	(0.358)	(0.392)			(0.232)	(0.362)	(0.389)			(0.219)	(0.366)	(0.391)
Age (years)			0.175	0.286	0.329			0.167	0.241	0.314			0.181	0.291	0.346			0.165	0.246	0.317
			(0.254)	(0.347)	(0.266)			(0.258)	(0.345)	(0.268)			(0.260)	(0.348)	(0.265)			(0.260)	(0.348)	(0.267)
Age squared			-0.00293	-0.00404	-0.00583			-0.00276	-0.00318	-0.00551			-0.00296	-0.00406	-0.00605			-0.00268	-0.00329	-0.00559
			(0.00464)	(0.00645)	(0.00475)			(0.00470)	(0.00642)	(0.00479)			(0.00473)	(0.00648)	(0.00472)			(0.00476)	(0.00646)	(0.00476)
Asset-based SES			-0.00361	0.0725	0.229**			-0.00427	0.0640	0.224**			-0.00728	0.0739	0.226**			-0.00603	0.0632	0.222**
			(0.0941)	(0.108)	(0.106)			(0.0945)	(0.108)	(0.105)			(0.0944)	(0.109)	(0.105)			(0.0933)	(0.107)	(0.105)
Husband's education (years)			-0.0177	0.00134	0.0187			-0.0150	0.00368	0.0210			-0.0143	0.00207	0.0206			-0.0140	0.00786	0.0239
			(0.0421)	(0.0542)	(0.0483)			(0.0414)	(0.0540)	(0.0484)			(0.0420)	(0.0546)	(0.0484)			(0.0419)	(0.0550)	(0.0486)
Woman is depressed (baseline)			-0.0992	-0.200	-0.606**			-0.0826	-0.198	-0.590**			-0.0882	-0.201	-0.599**			-0.0774	-0.197	-0.599**
			(0.186)	(0.257)	(0.300)			(0.184)	(0.256)	(0.300)			(0.185)	(0.258)	(0.301)			(0.184)	(0.261)	(0.303)
Constant			-2.999	-4.784	-5.284			-2.955	-4.264	-5.151			-3.147	-4.924	-5.592			-3.057	-4.484	-5.329
			(3.508)	(4.509)	(3.742)			(3.559)	(4.477)	(3.749)			(3.586)	(4.513)	(3.699)			(3.585)	(4.522)	(3.708)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A5b: Allow complementarities of investments (25%)

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
health	0.0287	0.0293				0.0281	0.0289			
	(0.0295)	(0.0297)				(0.0292)	(0.0293)			
speak						0.0116	0.00814			
						(0.0399)	(0.0361)			
social	-0.00664	0.000867				-0.0114	-0.00251			
	(0.0335)	(0.0361)				(0.0386)	(0.0405)			
learn	0.0939***	0.0816**				0.0904**	0.0791**			
	(0.0334)	(0.0343)				(0.0353)	(0.0359)			
Breastfeeding is tiring	0.144	0.135				0.145	0.136			
	(0.154)	(0.166)				(0.154)	(0.166)			
Playing is tiring	-0.850***	-0.796***				-0.848***	-0.795***			
	(0.267)	(0.302)				(0.269)	(0.302)			
Either investment is tiring	-0.202	-0.128				-0.201	-0.127			
	(0.221)	(0.220)				(0.222)	(0.221)			
Education: 1-5 years			0.294	-0.0288	-0.0870			0.294	-0.0300	-0.0872
			(0.311)	(0.542)	(0.394)			(0.311)	(0.542)	(0.394)
Education: 6-10 years			0.143	-0.408	-0.596			0.143	-0.408	-0.597
			(0.291)	(0.545)	(0.435)			(0.292)	(0.545)	(0.436)
Education: more than 10 years			0.295	0.116	-0.365			0.295	0.119	-0.365
			(0.324)	(0.559)	(0.524)			(0.324)	(0.557)	(0.525)
Child in womb: 2nd			0.172	-0.544	0.348			0.172	-0.547	0.347
			(0.329)	(0.375)	(0.341)			(0.329)	(0.372)	(0.341)
Child in womb: 3rd or higher			0.106	-1.096***	-0.0332			0.106	-1.097***	-0.0327
			(0.223)	(0.362)	(0.388)			(0.224)	(0.360)	(0.388)
Age (years)			0.160	0.250	0.310			0.158	0.245	0.307
			(0.259)	(0.349)	(0.267)			(0.259)	(0.346)	(0.267)
Age squared			-0.00260	-0.00337	-0.00547			-0.00257	-0.00327	-0.00541
			(0.00474)	(0.00648)	(0.00476)			(0.00473)	(0.00642)	(0.00476)
Asset-based SES			-0.00754	0.0624	0.221**			-0.00753	0.0611	0.221**
			(0.0939)	(0.107)	(0.105)			(0.0939)	(0.107)	(0.105)
Husband's education (years)			-0.0157	0.00543	0.0217			-0.0158	0.00532	0.0215
			(0.0423)	(0.0553)	(0.0479)			(0.0422)	(0.0552)	(0.0478)
Woman is depressed (baseline)			-0.0912	-0.200	-0.610**			-0.0915	-0.201	-0.610**
			(0.182)	(0.261)	(0.302)			(0.182)	(0.261)	(0.302)
Constant			-2.983	-4.530	-5.262			-2.962	-4.460	-5.217
			(3.571)	(4.528)	(3.720)			(3.562)	(4.490)	(3.721)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A6a: Nested logit model

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
health	0.0444	0.0410																		
	(0.0297)	(0.0283)																		
speak						0.0851***	0.0617													
						(0.0317)	(0.0414)													
social											0.0788**	0.0592								
											(0.0317)	(0.0388)								
learn																0.116**	0.0868*			
																(0.0479)	(0.0501)			
Breastfeeding is tiring	0.379	0.0950				0.444	0.148				0.456	0.103				0.431	0.231			
	(0.306)	(0.263)				(0.385)	(0.341)				(0.427)	(0.264)				(0.387)	(0.315)			
Playing is tiring	-0.417	-0.428				-1.872*	-0.933				-1.911*	-0.789				-1.262	-0.672			
	(0.592)	(0.676)				(1.136)	(1.329)				(1.154)	(1.111)				(2.229)	(0.804)			
Either investment is tiring	-0.463	-0.0451				-1.223	-0.199				-1.280	-0.115				-0.855	-0.190			
	(0.522)	(0.166)				(0.973)	(0.613)				(1.038)	(0.304)				(1.423)	(0.502)			
Education: 1-5 years			0.289	0.0157	0.0755			0.384	0.0106	-0.113			0.314	0.0142	0.0127			0.402	-0.0216	-0.256
			(0.267)	(0.282)	(0.367)			(0.423)	(0.639)	(0.830)			(0.308)	(0.532)	(0.456)			(0.446)	(0.473)	(0.935)
Education: 6-10 years			0.133	-0.186	-0.313			0.235	-0.456	-0.715			0.141	-0.385	-0.491			0.326	-0.346	-0.851
			(0.293)	(0.393)	(0.514)			(0.424)	(0.978)	(1.260)			(0.274)	(0.742)	(0.664)			(0.481)	(0.603)	(1.172)
Education: more than 10 years			0.233	0.108	-0.172			0.403	0.168	-0.449			0.282	0.125	-0.284			0.426	0.0988	-0.619
			(0.327)	(0.326)	(0.544)			(0.507)	(0.654)	(1.184)			(0.362)	(0.576)	(0.662)			(0.521)	(0.491)	(1.152)
Child in womb: 2nd			0.314	-0.280	0.413			0.145	-0.666	0.329			0.202	-0.557	0.330			0.157	-0.468	0.414
			(0.283)	(0.462)	(0.311)			(0.531)	(1.106)	(0.497)			(0.429)	(0.899)	(0.398)			(0.455)	(0.655)	(0.474)
Child in womb: 3rd or higher			0.291	-0.555	0.183			0.0896	-1.293	-0.129			0.117	-1.092	-0.0395			0.178	-0.935	-0.0499
			(0.241)	(0.840)	(0.298)			(0.573)	(2.073)	(0.864)			(0.440)	(1.565)	(0.564)			(0.327)	(1.046)	(0.638)
Age (years)			0.173	0.168	0.247			0.147	0.266	0.377			0.190	0.285	0.324			0.0999	0.221	0.426
			(0.234)	(0.243)	(0.200)			(0.377)	(0.380)	(0.594)			(0.266)	(0.317)	(0.293)			(0.401)	(0.293)	(0.665)
Age squared			-0.00307	-0.00246	-0.00450			-0.00233	-0.00346	-0.00659			-0.00314	-0.00400	-0.00566			-0.00153	-0.00301	-0.00761
			(0.00427)	(0.00386)	(0.00363)			(0.00704)	(0.00696)	(0.0104)			(0.00493)	(0.00563)	(0.00522)			(0.00736)	(0.00524)	(0.0118)
Asset-based SES			0.00924	0.0297	0.156			-0.0181	0.0828	0.271			0.000428	0.0711	0.206			-0.0504	0.0527	0.308
			(0.0788)	(0.0850)	(0.157)			(0.112)	(0.279)	(0.369)			(0.0810)	(0.198)	(0.216)			(0.124)	(0.126)	(0.333)
Husband's education (years)			-0.0113	0.000771	0.00880			-0.0197	0.00385	0.0310			-0.0124	0.00224	0.0174			-0.0232	0.00741	0.0421
			(0.0404)	(0.0278)	(0.0458)			(0.0618)	(0.0632)	(0.0905)			(0.0486)	(0.0547)	(0.0506)			(0.0577)	(0.0461)	(0.0908)
Woman is depressed (baseline)			-0.124	-0.104	-0.437			-0.0511	-0.233	-0.691			-0.104	-0.195	-0.556			0.0143	-0.174	-0.787
			(0.235)	(0.199)	(0.302)			(0.301)	(0.487)	(0.710)			(0.233)	(0.384)	(0.393)			(0.279)	(0.292)	(0.659)
Constant			-2.885	-2.774	-3.965			-2.803	-4.728	-6.186			-3.201	-4.824	-5.155			-2.603	-3.999	-7.396
			(3.019)	(3.706)	(3.080)			(4.594)	(5.356)	(9.802)			(3.498)	(4.524)	(4.606)			(4.893)	(4.058)	(10.80)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A6b: Nested logit model

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
health	0.0321	0.0291				0.0315	0.0289			
	(0.0287)	(0.0230)				(0.0303)	(0.0230)			
speak						0.00862	0.00450			
						(0.0404)	(0.0292)			
social	-0.0188	-0.000908				-0.0221	-0.00266			
	(0.0364)	(0.0344)				(0.0389)	(0.0373)			
learn	0.0935	0.0651				0.0924	0.0641			
	(0.0734)	(0.0575)				(0.0721)	(0.0570)			
Breastfeeding is tiring	0.415	0.211				0.414	0.211			
	(0.306)	(0.283)				(0.306)	(0.284)			
Playing is tiring	-0.670	-0.504				-0.698	-0.510			
	(1.143)	(0.658)				(1.251)	(0.662)			
Either investment is tiring	-0.571	-0.117				-0.579	-0.118			
	(0.686)	(0.356)				(0.723)	(0.359)			
Education: 1-5 years			0.348	-0.0242	-0.178			0.348	-0.0251	-0.180
			(0.386)	(0.360)	(0.735)			(0.386)	(0.364)	(0.737)
Education: 6-10 years			0.262	-0.271	-0.710			0.261	-0.274	-0.713
			(0.423)	(0.481)	(0.940)			(0.422)	(0.486)	(0.944)
Education: more than 10 years			0.350	0.0888	-0.517			0.351	0.0910	-0.518
			(0.462)	(0.386)	(0.956)			(0.461)	(0.387)	(0.960)
Child in womb: 2nd			0.221	-0.358	0.437			0.219	-0.364	0.435
			(0.388)	(0.499)	(0.397)			(0.385)	(0.499)	(0.397)
Child in womb: 3rd or higher			0.238	-0.716	0.0521			0.236	-0.725	0.0493
			(0.276)	(0.832)	(0.504)			(0.276)	(0.835)	(0.508)
Age (years)			0.116	0.181	0.343			0.115	0.179	0.342
			(0.328)	(0.246)	(0.451)			(0.329)	(0.248)	(0.454)
Age squared			-0.00191	-0.00251	-0.00619			-0.00190	-0.00248	-0.00617
			(0.00602)	(0.00424)	(0.00802)			(0.00604)	(0.00430)	(0.00805)
Asset-based SES			-0.0377	0.0376	0.263			-0.0377	0.0372	0.263
			(0.104)	(0.0915)	(0.267)			(0.104)	(0.0923)	(0.267)
Husband's education (years)			-0.0208	0.00337	0.0306			-0.0209	0.00336	0.0307
			(0.0505)	(0.0361)	(0.0730)			(0.0505)	(0.0365)	(0.0733)
Woman is depressed (baseline)			-0.0269	-0.140	-0.694			-0.0270	-0.141	-0.695
			(0.245)	(0.228)	(0.571)			(0.245)	(0.230)	(0.573)
Constant			-2.676	-3.245	-6.030			-2.668	-3.236	-6.018
			(4.090)	(3.539)	(7.346)			(4.099)	(3.564)	(7.382)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level
*** p<0.01, ** p<0.05, * p<0.1

Table A7: Heterogeneity of joint investments

VARIABLES	(1) no-bf, no-pl	(2) no-bf, no-pl	(3) bf, no-pl	(4) bf, no-pl	(5) no-bf, pl	(6) no-bf, pl	(7) bf, pl	(8) bf, pl
Education: 1-5 years	-0.0816	-0.0657	0.0275	0.0495	0.0251	0.00411	0.0290	0.0121
	(0.0623)	(0.0653)	(0.0575)	(0.0560)	(0.0487)	(0.0522)	(0.0452)	(0.0442)
Education: 6-10 years	-0.0152	0.0316	0.00934	0.0572	0.0118	-0.0253	-0.00585	-0.0634
	(0.0591)	(0.0647)	(0.0455)	(0.0537)	(0.0435)	(0.0521)	(0.0463)	(0.0529)
Education: more than 10 years	-0.121*	-0.0491	-0.0120	0.0667	0.0951*	0.0336	0.0376	-0.0511
	(0.0623)	(0.0666)	(0.0544)	(0.0684)	(0.0498)	(0.0701)	(0.0513)	(0.0626)
Age (years)	-0.0451	-0.0505	0.00847	-0.00341	-0.00981	0.0146	0.0464	0.0393
	(0.0421)	(0.0447)	(0.0470)	(0.0488)	(0.0328)	(0.0356)	(0.0306)	(0.0309)
Age squared	0.000754	0.000805	-9.38e-05	7.73e-05	0.000187	-0.000171	-0.000846	-0.000712
	(0.000796)	(0.000834)	(0.000840)	(0.000864)	(0.000607)	(0.000643)	(0.000545)	(0.000536)
Husband's education (years)		-0.000913		-0.00502		0.00152		0.00441
		(0.00810)		(0.00751)		(0.00486)		(0.00553)
Asset-based SES		-0.0188		-0.0125		0.00555		0.0257**
		(0.0171)		(0.0190)		(0.0103)		(0.0121)
Child in womb: 2nd		-0.00887		0.0417		-0.102**		0.0694*
		(0.0599)		(0.0535)		(0.0415)		(0.0376)
Child in womb: 3rd or higher		0.0459		0.0651		-0.129**		0.0182
		(0.0507)		(0.0427)		(0.0486)		(0.0417)
Woman is depressed (baseline)		0.0586*		0.0297		-0.00677		-0.0815**
		(0.0331)		(0.0414)		(0.0307)		(0.0332)
Constant	1.061*	1.104*	0.153	0.299	0.241	-0.0431	-0.455	-0.360
	(0.544)	(0.592)	(0.653)	(0.691)	(0.426)	(0.466)	(0.425)	(0.448)
Observations	662	662	662	662	662	662	662	662
R-squared	0.013	0.022	0.002	0.009	0.010	0.030	0.006	0.032

Robust standard errors in parentheses, clustered at the village level
*** p<0.01, ** p<0.05, * p<0.1

Table A8a: Beliefs correction from elicitation of individual investments

VARIABLES	(1) invest_types	(2) invest_types	(2a) bf, no-pl	(2b) no-bf, pl	(2c) bf, pl	(3) invest_types	(4) invest_types	(4a) bf, no-pl	(4b) no-bf, pl	(4c) bf, pl	(5) invest_types	(6) invest_types	(6a) bf, no-pl	(6b) no-bf, pl	(6c) bf, pl	(7) invest_types	(8) invest_types	(8a) bf, no-pl	(8b) no-bf, pl	(8c) bf, pl
health	0.0551	0.0550																		
	(0.0406)	(0.0403)																		
speak						0.0850**	0.0722**													
						(0.0333)	(0.0327)													
social											0.0883***	0.0835**								
											(0.0328)	(0.0353)								
learn																0.122***	0.108***			
																(0.0324)	(0.0327)			
Breastfeeding is tiring	0.125	0.116				0.129	0.118				0.127	0.118				0.141	0.131			
	(0.153)	(0.165)				(0.151)	(0.164)				(0.150)	(0.162)				(0.152)	(0.164)			
Playing is tiring	-0.892***	-0.838***				-0.867***	-0.818***				-0.867***	-0.811***				-0.855***	-0.805***			
	(0.269)	(0.307)				(0.272)	(0.307)				(0.267)	(0.304)				(0.269)	(0.305)			
Either investment is tiring	-0.201	-0.124				-0.205	-0.137				-0.209	-0.137				-0.189	-0.119			
	(0.220)	(0.218)				(0.225)	(0.222)				(0.219)	(0.219)				(0.222)	(0.220)			
Education: 1-5 years			0.360	0.0346	-0.0273			0.348	0.0152	-0.0369			0.328	0.0116	-0.0330			0.319	-0.0129	-0.0604
			(0.303)	(0.537)	(0.392)			(0.300)	(0.542)	(0.386)			(0.300)	(0.543)	(0.389)			(0.303)	(0.546)	(0.386)
Education: 6-10 years			0.189	-0.370	-0.562			0.187	-0.385	-0.562			0.164	-0.398	-0.570			0.172	-0.396	-0.559
			(0.281)	(0.537)	(0.439)			(0.279)	(0.543)	(0.425)			(0.281)	(0.544)	(0.424)			(0.281)	(0.544)	(0.423)
Education: more than 10 years			0.355	0.166	-0.326			0.342	0.160	-0.331			0.306	0.127	-0.355			0.322	0.122	-0.336
			(0.296)	(0.551)	(0.520)			(0.299)	(0.554)	(0.518)			(0.311)	(0.557)	(0.515)			(0.310)	(0.559)	(0.520)
Child in womb: 2nd			0.207	-0.533	0.361			0.191	-0.575	0.337			0.193	-0.570	0.336			0.166	-0.549	0.340
			(0.321)	(0.377)	(0.338)			(0.321)	(0.375)	(0.340)			(0.320)	(0.378)	(0.338)			(0.323)	(0.380)	(0.342)
Child in womb: 3rd or higher			0.151	-1.084***	-0.0255			0.133	-1.112***	-0.0374			0.119	-1.117***	-0.0541			0.108	-1.096***	-0.0233
			(0.227)	(0.361)	(0.394)			(0.229)	(0.359)	(0.392)			(0.229)	(0.362)	(0.391)			(0.221)	(0.365)	(0.390)
Age (years)			0.180	0.287	0.335			0.168	0.245	0.297			0.175	0.285	0.325			0.168	0.251	0.288
			(0.254)	(0.346)	(0.267)			(0.259)	(0.349)	(0.271)			(0.260)	(0.349)	(0.265)			(0.259)	(0.348)	(0.271)
Age squared			-0.00302	-0.00405	-0.00594			-0.00277	-0.00325	-0.00522			-0.00286	-0.00396	-0.00569			-0.00273	-0.00338	-0.00505
			(0.00462)	(0.00643)	(0.00476)			(0.00473)	(0.00648)	(0.00485)			(0.00475)	(0.00649)	(0.00474)			(0.00474)	(0.00647)	(0.00486)
Asset-based SES			-0.00235	0.0742	0.232**			-0.00403	0.0654	0.217**			-0.00788	0.0733	0.221**			-0.00502	0.0646	0.214**
			(0.0940)	(0.108)	(0.106)			(0.0943)	(0.108)	(0.105)			(0.0943)	(0.110)	(0.104)			(0.0932)	(0.107)	(0.104)
Husband's education (years)			-0.0163	0.00280	0.0209			-0.0149	0.00384	0.0210			-0.0141	0.00228	0.0208			-0.0140	0.00755	0.0228
			(0.0417)	(0.0541)	(0.0487)			(0.0414)	(0.0542)	(0.0482)			(0.0419)	(0.0548)	(0.0483)			(0.0418)	(0.0549)	(0.0485)
Woman is depressed (baseline)			-0.0900	-0.197	-0.593**			-0.0805	-0.196	-0.583*			-0.0878	-0.200	-0.606**			-0.0775	-0.197	-0.608**
			(0.187)	(0.257)	(0.301)			(0.185)	(0.256)	(0.299)			(0.185)	(0.258)	(0.302)			(0.184)	(0.260)	(0.303)
Constant			-3.114	-4.775	-5.478			-2.981	-4.324	-5.057			-3.105	-4.870	-5.461			-3.056	-4.522	-5.112
			(3.500)	(4.493)	(3.784)			(3.568)	(4.518)	(3.762)			(3.588)	(4.518)	(3.693)			(3.571)	(4.523)	(3.734)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1

Table A8b: Beliefs correction from elicitation of returns to individual investments

VARIABLES	(9) invest_types	(10) invest_types	(10a) bf, no-pl	(10b) no-bf, pl	(10c) bf, pl	(11) invest_types	(12) invest_types	(12a) bf, no-pl	(12b) no-bf, pl	(12c) bf, pl
health	0.0189	0.0231				0.0180	0.0229			
	(0.0432)	(0.0437)				(0.0430)	(0.0435)			
speak						0.0162	0.00465			
						(0.0494)	(0.0470)			
social	0.00599	0.0126				-0.000972	0.0106			
	(0.0423)	(0.0453)				(0.0491)	(0.0523)			
learn	0.113***	0.0941**				0.108**	0.0927**			
	(0.0406)	(0.0417)				(0.0434)	(0.0435)			
Breastfeeding is tiring	0.142	0.133				0.143	0.133			
	(0.153)	(0.165)				(0.153)	(0.165)			
Playing is tiring	-0.855***	-0.805***				-0.854***	-0.804***			
	(0.267)	(0.302)				(0.268)	(0.302)			
Either investment is tiring	-0.183	-0.113				-0.182	-0.113			
	(0.223)	(0.221)				(0.224)	(0.221)			
Education: 1-5 years			0.307	-0.0181	-0.0811			0.307	-0.0186	-0.0823
			(0.306)	(0.543)	(0.396)			(0.306)	(0.543)	(0.398)
Education: 6-10 years			0.154	-0.403	-0.588			0.154	-0.403	-0.590
			(0.287)	(0.544)	(0.436)			(0.287)	(0.544)	(0.438)
Education: more than 10 years			0.303	0.119	-0.361			0.303	0.120	-0.361
			(0.318)	(0.557)	(0.524)			(0.317)	(0.555)	(0.525)
Child in womb: 2nd			0.172	-0.549	0.341			0.172	-0.550	0.341
			(0.325)	(0.376)	(0.342)			(0.326)	(0.373)	(0.341)
Child in womb: 3rd or higher			0.108	-1.099***	-0.0313			0.108	-1.099***	-0.0316
			(0.223)	(0.363)	(0.389)			(0.223)	(0.360)	(0.389)
Age (years)			0.164	0.255	0.287			0.164	0.253	0.285
			(0.259)	(0.348)	(0.271)			(0.259)	(0.349)	(0.272)
Age squared			-0.00268	-0.00345	-0.00504			-0.00267	-0.00340	-0.00500
			(0.00473)	(0.00647)	(0.00486)			(0.00473)	(0.00647)	(0.00488)
Asset-based SES			-0.00666	0.0646	0.215**			-0.00665	0.0641	0.214**
			(0.0936)	(0.107)	(0.104)			(0.0936)	(0.106)	(0.105)
Husband's education (years)			-0.0147	0.00587	0.0219			-0.0147	0.00583	0.0218
			(0.0419)	(0.0553)	(0.0482)			(0.0418)	(0.0552)	(0.0480)
Woman is depressed (baseline)			-0.0856	-0.199	-0.613**			-0.0856	-0.199	-0.612**
			(0.183)	(0.260)	(0.304)			(0.183)	(0.260)	(0.305)
Constant			-3.049	-4.577	-5.177			-3.041	-4.548	-5.157
			(3.567)	(4.519)	(3.775)			(3.566)	(4.519)	(3.781)
Observations	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504	2,504

Robust standard errors in parentheses, clustered at the village level

*** p<0.01, ** p<0.05, * p<0.1