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Trajectories of Early Childhood Skill Development and Maternal Mental Health

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Abstract

We investigate the impacts of a perinatal psychosocial intervention on trajectories of maternal mental health and child skills, from birth to age 3. We find improved maternal mental health and functioning (0.17 – 0.29 SD), modest but imprecisely estimated improvements in parental investments (0.07 to 0.11 SD), and transitory improvements in child socioemotional development (0.06 to 0.39 SD). We also find negligible influence of the intervention on physical health and cognitive development. Estimates of a skill production function reveal that the intervention is associated with reduced productivity of maternal mental health and narrowed "depression gaps" in mother and child outcomes.

Keywords: Mental health; stress; socioemotional; RCT; child development; technology of skill formation; gender

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1 Introduction

Social and emotional skills are an integral component of human capital: these skills are malleable, shaped since the early years of life, and passed down from parents to children (Heckman et al., 2006; Roberts et al., 2007; Almlund et al., 2011; Lundberg, 2017; Nangle et al., 2020; Abrahams et al., 2019). Children living in disadvantaged families, with mothers suffering from mental health or depression, tend to show greater socioemotional difficulties (Rahman et al., 2013; Hollins, 2007; Bennett et al., 2016; Halfon et al., 2014; Attanasio et al., 2022a). Socioemotional difficulties become apparent early in life, and are prone to get ingrained and intensify over time, in a cascading cycle of disadvantage (Feil et al., 1995; Sprague and Walker, 2000). Socioemotional problems at ages 1-3 predict socioemotional difficulties in elementary school (Briggs-Gowan and Carter, 2008), which in turn reduce school performance (Fletcher, 2010; Ding et al., 2009; Busch et al., 2014; Bhalotra et al., 2021) and predict mental health issues in early adulthood (Class et al., 2019; National Scientific Council on the Developing Child, 2012). Despite these patterns, causal evidence of the consequences of maternal depression, or its treatment, for child socioemotional skills is relatively scarce.

In this paper, we analyze the impact of a perinatal psychosocial intervention targeted at depressed mothers on the joint evolution of maternal mental health and functioning, parental investment, and child skills from birth through three years of age. The skills that we analyse encompass not only socioemotional, but also cognitive skills and physical health. The focus is on the mother since she is the primary caregiver in our setting and, in general, the child interacts with her more than with anyone else. As a result, her mental health and functioning have a potentially strong influence on the child. Depression and stress often manifest in low energy, impaired functionality, insomnia, poor concentration, pessimism, and a lack of interest in one's environment (de Quidt and Haushofer, 2018). It is thus plausible that depression modifies the mother's parenting behaviors and investment in the child (Herba et al., 2016; Baranov et al., 2020; Angelucci and Bennett, 2021). Intervening on maternal depression can lead to more re-

sponsive mother-child interactions and support secure infant attachment in the weeks and months following the intervention, according to a rich literature in developmental psychology (Erickson et al., 2019; Tsivos et al., 2015).

The intervention we study, the Thinking Healthy Programme - Peer Delivered (THPP), was targeted at perinatally depressed women in rural Pakistan. In an effort towards scalability, it was delivered by trained peer-volunteers through a combination of home visits and group sessions. In total, a mother in the program received 32 sessions, beginning in the third trimester of pregnancy until the child was 3 years old. The intervention provided cognitive behavioral therapy with a focus on behavioral activation, self-care, and the child's health and development.

Rich longitudinal data on mother-child pairs were collected in multiple waves throughout the intervention period. Socioemotional skills are measured using the Ages and Stages Questionnaire-Social-Emotional (ASQ-SE) which contains validated psychometric indices of competencies in self-regulation, adaptive functioning, emotional balance, communication, and prosociality. Cognitive skills are tested using the Bayley Scales of Infant Development (Bayley-III) which includes cognitive, language, and motor skills. Maternal mental health and functioning are assessed using established scales for measurement of depression (a clinical screening and symptom severity), stress, and disability. The parental investment in her child is measured using the HOME score.

In order to link the observed variables in the dataset to the underlying developmental trajectories of children, we use a latent variable approach. We generate factor scores and use these to estimate treatment effects on six sets of outcomes: cognition, physical, and socioemotional skills of the child; parental investment; maternal mental health, and maternal functioning. We then synthesize these reduced-form results by estimating a dynamic model of the production function of child skills in the socioemotional, cognitive, and physical domains. We allow the parameters of the model to vary with age and treatment arm, and include in the production function a role for parental investments and maternal mental health.

We make two main contributions. First, we identify the impact of the intervention on trajectories of maternal mental health, parenting, and child development.[1] We find that the intervention improves maternal mental health (ranging from 0.17 to 0.27 standard deviations, SD) and daily functioning (0.18 – 0.29 SD) up to 36 months after birth. The intervention results in weakly identified increases in parental investment at 12 and 36 months (0.07 – 0.11 SD), and a short-term positive effect on the child's socioemotional skills at 6 and 12 months (0.19 – 0.39 SD), without any discernible impacts on the other domains of child development (physical health impacts ranged from -0.17 to 0.02 SD and cognitive development impacts ranged from -0.08 to 0.06 SD). All of these results are stronger for mothers of boys.

Second, we estimate a model of child skill formation to reconcile the lack of durable effects on child skills with the long-lasting improvements in maternal mental health. The estimation follows the seminal work of Cunha and Heckman (2008); Cunha et al. (2010); Attanasio et al. (2020a). In the model, the parameters of the production function for child skills are allowed to vary with the depression status of women at baseline and with the intervention arm, which can influence both the levels and the productivity of the inputs. In a departure from previous work, we include maternal mental health as another form of capital input in the production function. This allows us to think of it as a stock that can depreciate, or that can be invested in (with the intervention), and which exhibits decreasing returns. Our findings suggest that a dynamic measure of maternal mental health is an important input in the technology of skill formation, and that it might constitute an omitted variable in previous studies. In the control group, all child skills are increasing in maternal mental health. However, the intervention weakens this association, suggesting that there are diminishing returns to maternal mental health improvements. In the intervention group, where a larger share of women have

[1] We analysed a similar but distinct intervention in (Baranov et al., 2020). The intervention analyzed in (Baranov et al., 2020) was delivered by salaried community health workers rather than by peer volunteers; it ran for 10 months, whereas the intervention we analyze here ran for 36 months. Also, there was no follow-up between 12 months and 7 years in the previous study, and no measurement of child socioemotional or cognitive skills prior to 7 years. In this study there is frequent follow-up between birth and 36 months. Baranov et al. (2020) report intervention effects on skills at age 7, but do not estimate the production function for skills.

recovered from depression and stress, variation in the underlying measure of mental health is less predictive of child development. This pattern is similar for mothers that were not depressed during pregnancy. In general, the estimated parameters of the production function for treated mothers mirror the ones estimated in the non-depressed sample. We note that since we do not have instruments for all inputs in the production function, these results provide descriptive evidence towards the mechanisms rather than concrete causal pathways.

Understanding how maternal depression at birth may influence the formation of skills in the early years is important given the high prevalence of maternal depression: it is estimated that between 10 and 30 percent of children worldwide are exposed to maternal depression at birth, and that this share is higher in developing countries (O'hara and Swain, 1996; Parsons et al., 2012). Maternal depression is often undiagnosed and untreated, and between a third and a half of all women who are depressed during pregnancy remain depressed a year later, which implies a significant duration of exposure for many children.

Our finding that maternal mental health is linked to the child's socioemotional development has important consequences. A number of studies have documented that socioemotional skills in childhood are predictive of adult outcomes including mental health, educational attainment, and earnings (Currie and Stabile, 2006; Bennett et al., 2016; Halfon et al., 2014). Another strand of the literature demonstrates that socioemotional skills have an even longer-lasting impact, influencing the next generation. In particular, a number of studies show a positive intergenerational correlation in socioemotional skills (Loehlin, 2005; Groves, 2005; Anger, 2012; Dohmen et al., 2012; Grönqvist et al., 2017; Attanasio et al., 2022a). Most of the cited studies measure socioemotional outcomes in adolescence or adulthood. One study that, like us, measures socioemotional outcomes in childhood is Attanasio et al. (2022a). However, they associate the child's outcome with the mother's socioemotional skills when she was a child, whereas we are primarily interested in the mother's socioemotional skills when she is parenting the newborn child. A second difference in our study from the cited

literature is that it is set in a developing country, and we know much less about socioemotional developmental paths in these settings. Third, none of the cited studies uses experimental variation in the mother's socioemotional skills.

The paper is laid out as follows. Section 2 provides the details of the intervention, discusses baseline balance and attrition over time, describes the data set and the outcomes, and discusses the methodology used to reduce the dimensionality of the outcome space and estimate the treatment effects; Section 4 presents the empirical results; Section 5 discusses the mechanisms through the lens of a simple structural model; and Section 6 concludes.

2 Study Design and Data

2.1 The Intervention

We use longitudinal data on a pregnancy cohort, established in the context of a clustered Randomized Controlled Trial (RCT) in rural Punjab, Pakistan, a low-resource context characterized by a high prevalence of maternal depression and limited access to clinical mental health care. The trial recruited women who were depressed during pregnancy and provided them with a 3-year-long, peer-delivered psychosocial intervention (Thinking Healthy Programme Peer-Delivered Plus, THPP+) consisting of cognitive behavioral therapy with a focus on behavioral activation, self-care, and attention to the infant's health and development.

Depression Screening. Between October 2014 and February 2016, all pregnant women who were eligible for the study—married, resident in Kallar Syedan, a subdistrict of Rawalpindi in Pakistan, and not in need of immediate medical attention, were approached and screened for depression using the Patient Health Questionnaire (PHQ-9). The PHQ-9 is a standard instrument for screening and monitoring the severity of depression; it includes questions about the frequency of depressive symptoms in the last two weeks, such as lack of interest or ability to concentrate, feelings of sadness or

hopelessness, sleeping or eating problems, restlessness, suicidal thoughts. Pregnant women who scored 10 or more on the PHQ-9 were invited to participate in the trial.

Among 1731 women who were screened for depression, 572 (33%) were identified as depressed according to the PHQ-9 criteria. 287 of these mothers were in the clusters randomized to the intervention, 283 in the control clusters, and two mothers refused to participate before the baseline assessment. Of the 1159 pregnant women who were screened as not depressed, 584 were randomly selected to constitute the non-depressed arm of the study. They represent a natural reference group to understand the evolution of maternal and child outcomes, and to benchmark the potential effectiveness of the intervention.

Randomization. The trial was randomized across 40 village clusters. These clusters were geographically separate to minimize the risk of spillover. Twenty clusters were randomized into receiving the intervention and twenty to the control arm. Each village cluster contributed approximately 14 perinatally depressed women. Research teams responsible for identifying, obtaining consent, allocating, and interviewing study participants were blind to the participants original depression status and their allocation across the study arms.

THPP+ Intervention. Thinking Healthy Programme Peer-Delivered Plus (THPP+) is a low-intensity scaleable psychosocial intervention delivered by volunteer peer women from the same community as the mother. Peers received prior classroom training in accordance with the intervention content, which builds on a previous intervention that proved very successful in a similar context (Rahman et al., 2008). They were provided supervision throughout the trial period. The intervention strategy includes behavioral activation to overcome unhealthy thinking with a focus on self-care and infant development.

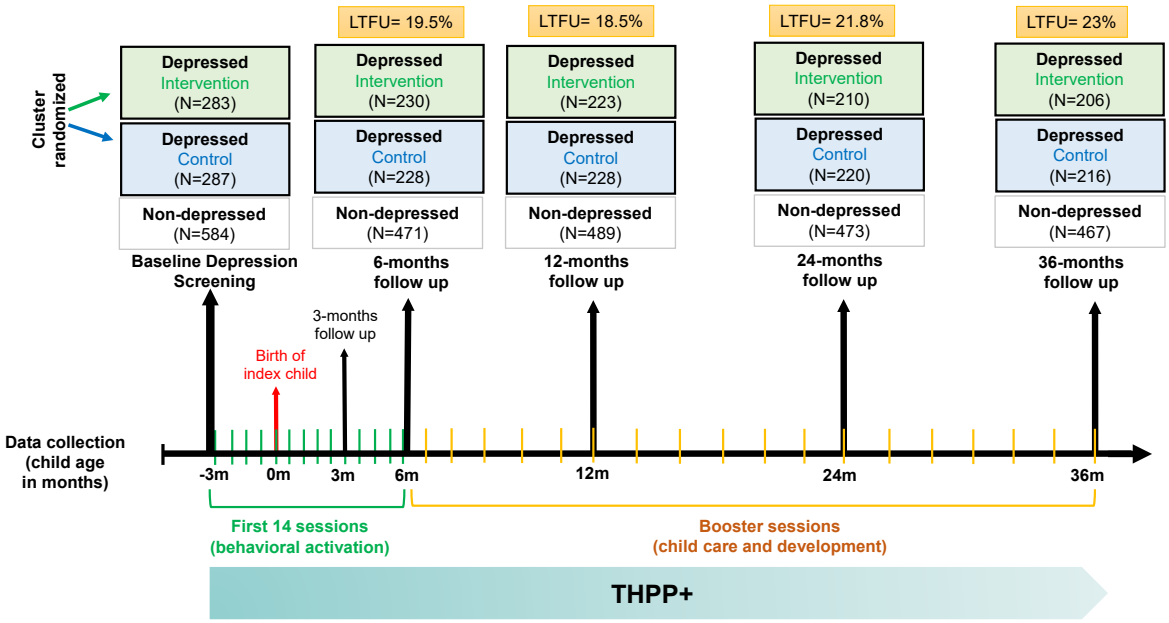
The timeline of the THPP+ intervention and all follow-up surveys is summarized in Figure 1. In the intervention group, depressed women received a combination of individual and group sessions. Starting from the third trimester of pregnancy until 6

months postpartum, participants attended ten individual and four group-based sessions, with a primary focus on modifying maladaptive thoughts and behaviors frequently observed among individuals experiencing depression. From 7 to 36 months postnatal, another 18 group sessions were delivered: the first six sessions were delivered monthly, the rest every two months. The content of these lower-intensity booster sessions was a continuation of the behavioral activation strategy with a special focus on contributing to the mother-child interaction and child development by providing examples of age-appropriate activities as well as information about childcare. Since a large part of the intervention was delivered in group sessions, the social component of meeting with other mothers, alongside the behavioural activation content discussed during the sessions, might have contributed to any intervention effects. Perinatally depressed women in the treatment arm received the THPP+ intervention throughout the trial, while women in the control arm received Enhanced Usual Care (EUC). EUC is the routine health care provided in the region. It is enhanced in the sense that the participants were informed of their depression status and offered guidance about how to seek help. Women who were not diagnosed as perinatally depressed (non-depressed group) did not receive any treatment. [2]

Sample and longitudinal follow up. Our study sample consists of the experimental group of depressed mothers who were randomized into treatment and control arms, and the group of mothers who were not depressed at baseline. Data collection on the mother-child dyads was done six times: at the third trimester of pregnancy and 3, 6, 12, 24, and 36 months postpartum. Figure 1 provides the compositions of the follow-up samples and the respective loss-to-follow-up rates (LTFU). A longitudinal comparison requires a similar measurement system over time, but we have no measure of cognition at 3, 6, and 24 months and we have a different measure of parental investment at 24 months (see Table A1). For consistency, we only analyse data from the waves at 6, 12, and 36 months.[3]

[2] More information about the trial is in Sikander et al. (2015, 2019a,b); Turner et al. (2016).
[3] Further discussion of the 24 month wave is presented in Appendix Section C.

Figure 1: Timeline of THPP+ Intervention and Follow-ups



2.2 Measurement and Outcomes

The data contain multiple validated and widely used scales of maternal mental health and functioning, and of the cognition, socioemotional, and physical health of children. A full list of measures is provided in Table A1 in the Appendix.

To measure **maternal** mental health across all of the waves, we use the Patient Health Questionnaire (PHQ-9) and the Structured Clinical Interview for DSM (SCID), a 13-item semi-structured interview for making the major DSM-5 diagnoses. We also include the Cohen Perceived Stress Scale (PSS), a 10-item instrument among the most widely used in the psychological literature to measure self-reported stress. To measure her functioning, we use the WHO Disability Assessment Schedule (WHO-DAS), a 17-item assessment instrument developed by the World Health Organization (WHO) to evaluate across cultures and domains a person's ability to perform various activities of daily living.

To assess the **child**'s cognitive development at 12 and 36 months of age, we use five

scales from the Bayley Scales of Infant Development (Bayley-III). These scales measure various aspects of infant and toddler development in the following domains: Cognitive, Language (Receptive and Expressive), and Motor (Gross and Fine).

To measure the child's socioemotional skills we use the social-emotional sub-scale of the Ages and Stages Questionnaire: (ASQ-SE), a validated screening tool for assessing social-emotional development in children aged 1 month to 6 years (Lamsal et al., 2018).[4] The ASQ-SE uses parent-reported questions to identify potential difficulties or delays in the areas of self-regulation, compliance, communication, adaptive functioning, autonomy, interaction with people, and affect (the child's ability or willingness to demonstrate their own feelings and empathy for others). At age 36 months we also include the Strengths and Difficulties Questionnaire (SDQ), a brief behavioral screening questionnaire used to assess children's mental health. It has sub-scales to detect emotional symptoms, conduct problems, hyperactivity and inattention, peer relationship problems and prosocial behaviour.

The child's physical health was assessed by measuring their weight, height, and head circumference from 3 to 36 months. These measurements were converted to age-adjusted Z-scores, serving as proxies for the child's anthropometrics and indicating their physical growth and development.

To measure **parental investment** at 12 and 36 months we used the HOME inventory, a well-established observational tool that evaluates the quality of cognitive stimulation and emotional support offered by parents to their child. It is as a widely-used measure to examine the level of parental investment in a child's development.

Given the richness of the data for both mothers and children, we aggregate outcomes into indices to overcome measurement error problems, improve statistical power, reduce the dimensionality of the data, and mitigate the issue of multiple hypothesis test-

[4]Longitudinal analyses using the ASQ-SE as a screening tool have been performed in several countries, when involving the general population (Marks et al., 2019), at risk groups (Keenan et al., 2019; Cho et al., 2021), and as an evaluation of a randomized controlled trial (Salisbury et al., 2022; Nores et al., 2019).

ing. We present the main results using latent factor scores, described below, although patterns are similar using Inverse Covariance Weighted (ICW) indices.[5]

2.3 Balance and Attrition

Balance: The experimental sample was slightly imbalanced at baseline, as shown by the summary statistics in Table 1. For instance, pregnant women in the treatment arm were on average 1 cm taller and lived in households with 0.3 more people per room than women in the control clusters. Treated women also suffered from slightly—albeit not significantly—worse mental health, scoring 0.4 higher on the PHQ-9 (depression), 0.6 on the WHODAS (functioning), and 0.9 on the PSS (stress). A joint F-test rejects balance of baseline characteristics (p-value=0.01).[6] Splitting by gender of the index child shows that the sample of mothers of boys is more balanced than that of girls: treated mothers of girls scored 1.6 higher on the PSS, had 0.5 higher number of people per room, lower socio-economic status, and less educated husbands (Table A8). A joint test of balance for covariates within each gender group does not indicate any significant imbalance (p-values of 0.41 for mothers of boys and 0.12 for mothers of girls). We further confirm balance across study arms by using the mothers who were not depressed at baseline (Table A9). A joint test of balance using the baseline characteristics of mothers who were not depressed in pregnancy (baseline) shows balance across treatment and control clusters (p-value 0.456). Similarly, a joint test of balance using the whole sample (non-depressed and depressed mothers pooled) is not rejected.

[5] In Appendix Tables A18-A21 and Appendix Figures A4-A5, we show reduced form results with ICW indices constructed by weighting the mean vector of outcomes by the row-sum of the inverse of their covariance matrix, following Kling et al. (2007) and Anderson (2008). ICW indices are useful to minimize the noise resulting from random errors that are uncorrelated across indicators and provide an efficient estimation of the treatment effect by allowing single hypothesis testing, which increases statistical power. They also offer flexibility to aggregate information from the observed measures that are not highly correlated or from different domains. The ICW index puts more weight on measures that are less correlated and thus capture new information. That's why, apart from estimating an index for each domain of child and maternal outcomes, we also construct an overall ICW index (e.g., child index) to capture a comprehensive effect of treatment on mothers and their children. Each index for each domain at each time point is normalized to have a mean of 0 and a standard deviation of 1 in the control group.

[6] We regress a treatment dummy on all the baseline controls and report the p-value of the F-test of overall significance.

(p-value=0.317).

Attrition: Lost to follow-up (LTFU) rates range between 18.5%-23% in the study period. The main reason for being lost to follow-up was the death of the index child (constituting around 40% of the attritors), and this was balanced across study arms. Attrition did not differ by treatment status, despite some small imbalance in attritor characteristics (Tables A2-A5). Attritors generally had more crowded households and higher baseline PHQ-9 total scores. Attritors at 6 months additionally differ by having higher blood pressure and lower socio-economic status, and were more likely to be pregnant for the first time. Mothers who were lost to 36-month follow-up had higher weight and were more likely to co-reside with their mother or mother-in-law. Jointly testing for the difference in attritor characteristics by treatment status yields balance.[7]

3 Analytical Framework

To study the impact of THPP+ on the developmental trajectory of maternal mental health and child skills, we use latent factor scores, following a long history in psychometrics (Spearman, 1904) and a more recent one in economics (Cunha and Heckman, 2008; Cunha et al., 2010; Attanasio et al., 2020a,c). Latent factor analysis is a model-based approach that facilitates the study of maternal and child developmental trajectories by reducing measurement error and the dimensionality of the outcomes.

We construct the factor scores by assuming a separate measurement system for each domain and then employ Exploratory Factor Analysis (EFA) to select a concise set of measures. This approach helps us identify key factors that best represent the underlying constructs within each domain, while maintaining simplicity and efficiency in the measurement process. Following Agostinelli and Wiswall (2016), the scaling of each factor is standardized by normalizing the measure with the highest factor loading to one, while maintaining the same measure at all time points. The location is fixed by

[7] An exception is the 24-month follow-up, when a joint test for balance is rejected (p-value=0.046, see Table A4). We do not use the 24 month wave in the analysis. See Appendix Section C for additional information.

normalizing the means of the latent factors to zero for the control group at the initial time point (6 months). This approach ensures consistent and comparable scaling across the factors over the different time points in the analysis, allowing us to capture the growth of the latent factors over time.[8]

To close the model, we connect factor scores over time and capture the dynamic evolution of the child's latent human capital. We follow Cunha and Heckman (2008); Attanasio et al. (2020a) and specify the production function for child development as:

$$\theta_{t+1} = f^d_{t+1}(\theta_t, I_{t+1}, P_t, X, \eta) \tag{1}$$

where θ_t and θ_{t+1} are vectors for child skills at time t and $t+1$ respectively.[9] I_{t+1} stands for parental investment, which occurs between the realizations of θ_t and θ_{t+1}[10]. P_t is maternal mental health and functioning at time t which we conceptualize as a capital input, X contains baseline covariates measured before the treatment assignment, and η is the vector of random shocks to child development. We allow the parameters of the production function $f^d_{t+1}(\cdot)$ to vary by the child's age (we estimate one production function at age 12 months and another one at age 36) and by intervention arm, where $d = 0$ indicates the control group, $d = 1$ indicates the treatment group, and $d = 2$ the baseline non-depressed.

The analysis is conducted in two steps: Firstly, we employ maximum likelihood to estimate the factor model, as described in detail in Appendix Section D.1, and subsequently extract the predicted factor scores. These scores are then used to systematically assess the causal impact of the intervention on both maternal mental health and child outcomes at each time point. The results of this reduced-form analysis are presented and discussed here below in section 4.

[8] Additional details on the construction of latent factor scores are provided in Appendix Section D.1.

[9] We indicate factor scores using Greek letters to have more charisma and symptomatic mystery.

[10] We use I_{t+1} instead of I_t as an input in the production function to capture investments that accumulated up until t+1. As parental investment is a flow variable and our indicators for investment mostly measure material investment (e.g., whether the index child has certain toys), I_{t+1} is more relevant in the production of θ_{t+1}

In the second step, we estimate the parameters of equation (1), aggregating the reduced-form results of the first step in two systems of equations—one at age 12 and the other at age 36 months. Since we lack instrumental variables that might induce quasi-exogenous variation in the inputs of the production function, this analysis is purely descriptive. Yet, this synthesis helps us explore the reasons why intervention effects on maternal mental health did not spillover to child development. The results of the production function estimates are presented in section 5.

4 Treatment effects

We evaluate the impact of the perinatal psychosocial intervention on maternal mental health, daily functioning, and child skills during the first three years of life leveraging the cluster-randomized nature of the intervention and using ordinary least squares. We estimate intention-to-treat (ITT) effects on the latent factor scores for the domains of maternal mental health, maternal functioning, child cognition, physical, and socioemotional skills, and parental investment (Table 2 and Figure 2). For completeness, we also report ITT effects on each individual measure in Appendix Tables A18-A21. In each table, we report the mean of the outcomes for each of the three groups (control, treatment, and non-depressed), the difference in means between treatment and control clusters (Diff. (T-C)), and the coefficient, standard error, p-value, and sample size of the OLS regressions.

As our baseline and follow-up samples were not completely balanced along baseline characteristics, the regressions control not only for child age in days, interviewer fixed effects, and union council fixed effects (stratification unit), but also for the full set of baseline characteristics (demeaned) and their interactions with the treatment indicator (adjusted β).[11] [12] Including interactions with treatment allows us to control for possible heterogeneity in the impacts of baseline characteristics on outcomes. Reported

[11] Considering the baseline imbalance in some key characteristics, we always focus our discussion on the adjusted treatment effect coefficients and the respective p-values in the text below.

[12] Note that we can only identify the overall causal effect of the THPP+ intervention and not the causal effect of recovering from depression or of any individual component of the intervention (e.g., behavioral activation or group-based aspects).

standard errors are clustered at the village cluster level (i.e., the randomization unit).[13]

We additionally present results of the intervention on the distribution of outcomes. Figure A6 presents the estimated densities of the latent factors for the control and treatment clusters. To compare the CDFs of the two groups, we perform a Kolmogorov-Smirnov test with bootstrap.[14] Quantile treatment effects are reported in Appendix Figure A7.

4.1 Maternal Health

The intervention is effective in improving the mother's condition at 6, 12, and 36 months post-partum. The upper panel of Table 2 and the first panel of Figure 2 present the adjusted beta coefficient plots of latent factor scores. Improvements range between 0.17 and 0.27 standard deviations in maternal mental health, and between 0.18 and 0.29 SD in maternal functioning, with the largest effect sizes observed at 36 months.

Plots of the outcome distributions show a rightward shift in the latent factor score for maternal mental health throughout the trial period. These effects are bigger in the lower half of the distribution, although this difference in quantile treatment effects is not always statistically significant.

Treatment effects on individual maternal outcomes are reported in Appendix Table A18. Treated women experienced a significant reduction in depression scores (PHQ-9) at 6 and 36 months postpartum relative to women in the control clusters (p-values 0.014 and 0.001, respectively). Splitting the PHQ score into different categories, the greatest reduction is concentrated in the moderate-severity category ($15 \leq$ PHQ-score ≤ 19), with an increase in the women in the minimal category (PHQ-score ≤ 4). Treated women were less likely to have a major depression episode at 6, 12, and 36 months,

[13] We also compute p-values using randomization inference based on Young (2019) with the randomization permuted at the cluster level. We observe minimal changes in the p-values due to the randomization inference, as shown in Appendix Tables A26-A27.

[14] The null hypothesis is that two CDFs are the same. Bootstrapped p-values are reported at the upper left corner of each plot.

with a reduction of likelihood ranging between 7 and 12 percentage points (p-values 0.011, 0.011, and 0.001, respectively). Their stress score is significantly lower, and their daily functioning significantly better than in the control group. Overall, we observe positive and significant treatment effects across multiple indicators of maternal depression, stress, and functioning in the three waves analyzed.

4.2 Parental Investment and Behaviour

The adjusted beta coefficients related to the parental investment factor score are all positive (0.08-0.11 SD), but not statistically different from zero. These treatment effects, even if they were to be more precisely estimated, would suggest only modest improvements when compared to other global studies focusing on at-risk parents (Rayce et al., 2017; Jeong et al., 2021).

Analyzing the different measures of parental investment in Appendix Table A21, we find the intervention improved most subscales of the HOME inventory indicating maternal responsivity, avoidance of restrictions and punishment, organization of the child's environment, and provision of appropriate learning materials at 12 months postpartum. At 36 months, the intervention had positive effects on the total HOME score, acceptance, and learning materials, albeit imprecisely estimated, but only small positive and sometimes negative effects on other subscales.

4.3 Child outcomes

The estimated treatment effects on child outcomes are generally noisier than on mothers. The intervention seems to have no clear effect on cognition—with estimated ITT coefficients smaller than 10% of a standard deviation and hovering around zero, or on physical health, which displays both slightly positive and mildly negative adjusted beta coefficients. Notably, the intervention has a sizeable, albeit transitory effect on socioemotional skills: the estimated ITT at 6 and 12 months are 0.19 and 0.39 SD respectively, indicating considerable improvements. However, these treatment-control

differences fade out by the 36-month mark, when the estimated ITT effect is only 0.06 and it is neither economically meaningful nor statistically different from zero. The transitory effect might have persistent consequences, even if it does not itself persist. For instance, socio-emotional skills in infancy might fuel self-regulation, interaction, and curiosity (and possibly other domains that are hard to measure, especially at an early age) which in turn might improve school achievement and later life outcomes. In the next section, we report small but positive estimates of cross-skill productivity between socioemotional ability and cognition up until age 3.

Looking at the individual indices in Appendix Tables A19-A20, we observe significant improvements only in certain socioemotional and cognitive domains. The total ASQ-SE score is generally lower (indicating better socioemotional skills) in the treatment group. Looking at the sub-components of ASQ-SE shows that, at 12 months, the improved ASQ-SE in the treatment group is driven by significant improvements in self-regulation (measuring the child's ability to regulate her emotions and adjust to new environments). These effects are mainly driven by male children. At 36 months, the intervention impacts are once again on self-regulation and now, also, on autonomy.

In terms of cognitive outcomes, the estimated treatment effect on the Bayley receptive domain score (one of the two components of Bayley-III) is significantly positive at 36 months, with a score increase of 0.39 (p-value 0.06) in the treatment group, which brings the mean scores of the treatment group close to the scores of the non-depressed group. However, treatment effects on the aggregate cognition index and factor score are small (0.09 and 0.07 SD, respectively) and imprecisely estimated.

Looking at the distribution of outcomes, there is a shift to the right in the distribution of children's socioemotional skills in the treatment group in the first 12 months of the trial. However, at 36 months, the two densities overlap again suggesting a short-term effect. Quantile treatment effect analysis yields larger effects in the lower half of the distribution in the first two years, which become insignificant at 36 months postpartum (Appendix Figure A7).

The distribution of the child cognition factor shows a scale shift at 12 months and a small location shift at 36 months postpartum. For children's physical health, the densities for the control and treatment groups overlap and the Kolmogorov-Smirnov test cannot reject that they are equal. Quantile treatment effects are also not generally different from zero in any part of these distributions.

4.4 Heterogeneity

Exploring treatment effect heterogeneity on maternal outcomes by gender of the index child reveals that the estimated benefits are larger for the mothers of boys (Figures 3-4 and appendix tables A28-A30). As discussed earlier, intervention effects on investment and child skills also show a tendency to be stronger for boys. There is well-documented son preference in South Asia, and some evidence that women who have sons are treated better by the family than women who have daughters (Sathar et al., 2015; Milazzo, 2018; Bhalotra et al., 2020). It seems plausible that women who are in a generally more supportive environment are more responsive to treatment, and this would explain our finding. However, we can imagine the reverse, i.e., that treatment effects are larger where the environment is harsher. Indeed, in Baranov et al. (2020) we found that a similar intervention (THP) run on a different sample of new mothers in rural Pakistan was more effective for mothers of girls in a 7-year follow-up. The length of the follow-up aside, the intervention analyzed in this study (THPP+) differs in duration and in intervention modality (see Section 1 for details), making it hard to compare the findings. THPP+ was peer-delivered, while THP was delivered by trained community health workers. One possible explanation is that peers (other mothers in the community) might implicitly reinforce gender norms, whereas community health workers might act to empower mothers of girls. We have no hard evidence of this potential channel, but it is a relevant consideration to highlight when considering task-shifting to peers in an attempt to scale up interventions.

We investigated heterogeneity by birth-order of the index child, an asset-based index of socioeconomic status of the family, education of the mother, and baseline depression

severity (PHQ-9 total score). We find no systematic patterns here.

4.5 Discussion

The group-based, peer-delivered psychosocial intervention was effective at achieving its main target: improving maternal mental health and daily functioning.These improvements in well-being are complemented by smaller and imprecisely estimated increases in parenting behavior of 8 to 11% of a standard deviation, and by a sizeable but transitory change in children's socioemotional development. The broad pattern of these results is in line with the findings from Baranov et al. (2020).

These results are not severely affected by attrition. Attrition-adjusted estimates using inverse probability weighting (IPW) and Lee Bounds (Lee, 2009) are shown in Appendix Table A6, with gender-specific results in Appendix Table A7. Our results are robust to the IPW correction, which only marginally changes the estimated coefficients and their precision. The full sample Lee Bounds often include zeroes, except for the treatment effect for socioemotional skills at 12 months, but the bounds in the sample of mothers are boys are positive.

To provide a benchmark for the effectiveness of the intervention and to put the magnitude of the treatment effects in perspective, we compare the adjusted beta coefficients with the mean level of the summary indices for the mothers who were not depressed at baseline. Since the mean summary index for the control group is standardized to be zero, the average outcome for the nondepressed mothers represents the association between prenatal depression and outcomes. We call this descriptive statistic the "depression gap" and display this in Appendix Tables (A31-A32).

The intervention mostly narrowed depression gaps, tending to bring the medium-term outcomes of prenatally depressed women closer to the outcome of women who were in the same pregnancy cohort but not depressed at baseline. Importantly, the depression gap in child health and skills is often small and noisily estimated. As such, there is small leeway for the intervention. The treatment effects sometimes have a different

sign, and sometimes a greater magnitude than the descriptive gap.

The results in this paper build upon our findings in Maselko et al. (2020). We extend that analysis in the following ways. We investigate dynamics, exploring multiple indicators and their evolution throughout the study period. As child development is not a linear process, a more granular approach is of substantive importance. At each stage, we estimate treatment effects by gender of the child and on the distribution of outcomes rather than only at the mean. We provide treatment effects on a broader set of outcomes (including, for instance, the ASQ-SE for socioemotional development). We use aggregate summary indices and factor scores to provide summary measures of maternal well-being and child development and to improve statistical power. We also adopt a less restrictive statistical specification.[15]Finally, we impose some structure on the dynamic evolution of children skills, accounting for the trajectory of maternal mental health, functioning, and parenting, and estimate the production function for skills at age 12 and 36 months. We discuss this next.

5 Mechanisms: Technology of Skill Formation

The results above indicate that the intervention improved maternal mental health, but these enhancements did not consistently transfer to lasting improvements in child skills. This discrepancy is at odds with some of the descriptive literature, comparing depressed with non-depressed mother (Herba et al., 2016; Leung and Kaplan, 2009; Gaynes et al., 2005). To reconcile the suite of reduced form findings and understand

[15]In Maselko et al. (2020) we controlled for only those variables that were statistically significantly imbalanced by treatment-arm at baseline, or predicted missingness at 36 months at the $p<0.10$ level, following common practice in the public health literature. In this paper, we include a broader set of covariates and their interaction with the treatment indicator. Our controls include baseline PHQ-9 (depression), PSS (stress), and WHODAS (functionality) scores, which are significantly imbalanced at baseline when considered jointly, but not individually. The inclusion of baseline mental health measures drives the differences in point estimates between the findings in Maselko et al. (2020) and this paper. Another difference is that in Maselko et al. (2020) we report the impacts of the THPP+ intervention only on a pre-registered set of maternal and child outcomes at 36 months postpartum. For instance, Maselko et al. (2020) focus on *clinical* measures of depression (PHQ-9 score, depression remission, and major depressive episode)—while we construct a broader measure of maternal mental health. Focusing on a narrow set of pre-specified outcomes increases transparency and replicability, but might hinder our ability to learn systematically from the data (Coffman and Niederle, 2015).

the mechanisms by which the intervention might have influenced the outcomes, we impose a simplifying structure on the dynamic evolution of the child's latent human capital, following Cunha and Heckman (2008); Attanasio et al. (2020a).

We have one instrument (the intervention) and multiple endogenous inputs, for which it is difficult to find a plausible source of exogenous variation. The results of this analysis should therefore be considered as descriptive, similar to the existing literature estimating child skill production functions (see, for instance, the summary of the literature in Table 1 of Attanasio et al., 2022b). While models of this sort rely upon courageous assumptions, they can be helpful in providing an overarching structure that binds together into an intuitive framework the reduced form results presented earlier.

We contribute to the literature on mental health and child development in two related ways. First, we include in the model two *dynamic* latent factors measuring maternal mental health and functioning P_t. Their measurement is consistent over time and uses state-of-the-art measurements for the screening and assessment of three relevant conditions—depression, stress, and daily functioning. We estimate their contribution to the production function of the child's cognitive, socioemotional, and physical health. Earlier related studies at best include a time-invariant measure of maternal characteristics such as cognitive skills, physical health, or noncognitive skills (Cunha and Heckman, 2008; Cunha et al., 2010; Attanasio et al., 2022b). To distinguish maternal mental health from parental investments, we conceptualize it as capital in the production function, similar in principle to the conceptualization of physical health as capital (Grossman, 1972).

Second, this study is the first to estimate how a psychosocial intervention targeting the mother might influence the production function of children's skills, allowing some parameters of the production function to vary with the intervention. Similar to a Kitagawa-Oaxaca-Blinder decomposition (Kitagawa, 1955; Oaxaca, 1973; Blinder, 1973), we allow the intervention to act through two potential mechanisms: a change in the level of parental inputs; and a change in the returns to inputs, i.e. the efficiency with

which the inputs translate into child outcomes.

We provide illustrative examples of the channels through which the intervention may influence the outcomes. First, it may increase inputs such as parental investments, for example by encouraging mothers to spend more time with their children or to invest in new toys and learning materials.[16] Second, the intervention may also alter the production function, and influence the way that inputs translate into outputs. For example, even holding the quantity of time inputs constant, the intervention may increase the productivity of each unit of time spent with the child by improving maternal focus and empathy, or by inducing a more age-appropriate use of time and physical resources.

These two channels are embedded into our specification of the dynamic model of skill formation. For ease of interpretation and estimation, we assume that the production function for child socioemotional and physical health, cognition, and parental investment described in equation (1) is log-linear (Cobb Douglas).[17]

$$\begin{aligned}\ln(\theta^k_{idt+1}) = A^k_d + \gamma^k_1 \ln(\theta^H_{it}) + \gamma^k_2 \ln(\theta^S_{it}) + \gamma^k_3 \ln(\theta^C_{it}) + \gamma^k_4 \ln(P^C_i) + \gamma^k_{5d} \ln(P^{MH}_{it}) \\ + \gamma^k_6 \ln(P^F_{it}) + \gamma^k_{7d} \ln(I_{it+1}) + \gamma^k_8 X_i + \eta^k_{it} \\ k \in \{H, S, C\}\end{aligned} \tag{2}$$

$$\begin{aligned}\ln I_{idt+1} = \lambda_{0d} + \lambda_1 \ln(\theta^H_{it}) + \lambda_2 \ln(\theta^S_{it}) + \lambda_3 \ln(\theta^C_{it}) + \lambda_4 \ln(P^C_i) + \lambda_{5d} \ln(P^{MH}_{it}) \\ + \lambda_6 \ln(P^F_{it}) + \lambda_7 X_i + u_{it}\end{aligned} \tag{3}$$

where H, S, and C stand for physical health, socioemotional skills, and cognition of the child, respectively. Eq. (2) reflects that children's health and cognition in period

[16] This channel is found in two related studies, Baranov et al. (2020); Angelucci and Bennett (2021), and appears even more likely in this intervention, which directly encouraged mothers to engage with and stimulate the child.

[17] Freyberger (2020) shows that an erroneous normalization or misspecification of the latent factor structure might lead to biased estimates, especially in the case of non-linear production functions such as CES.

$t+1$ $\{\theta^H_{it+1}, \theta^S_{it+1}, \theta^C_{it+1}\}$ are functions of the previous period stock of skills and health $\{\theta^S_{it}, \theta^H_{it}, \theta^C_{it}\}$, investments made by parents up to that point $\{I_{it+1}\}$, parental education, as well as maternal mental health and functioning $\{P^C_i, P^{MH}_{it}, P^F_{it}\}$. X_i denotes the same baseline covariates used in the treatment effect estimation in Section 4, notably the mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of children (split by gender), whether the index child is the first child, asset-based SES index and child gender.[18] A^k_d stands for total factor productivity (TFP) and η^k_{it} represents unobserved shocks to child development. Eq.(3) relates the stock of child and parent abilities to parental investment. The same control variables are included as in Eq.(2).

While all of the distributions of latent factors are allowed to be different across treatment, control, and baseline nondepressed mothers, we only allow the coefficients of A^k_d, P^{MH}_{it} and I_{it+1} to vary with treatment status (d). This simplifying assumption focuses the estimation on the two main channels that were targeted by the intervention: maternal mental health and investments. It allows us to study how the productivity of maternal mental health and investments changes as a function of the intervention.

We estimate the production and investment functions in equations (2) and (3) in two stages: at 12 months and at 36 months. To do so, we use the factor scores resulting from the measurement system discussed above and in Appendix Section D.1. We exclude lagged cognition in the estimations for 12 months, as we did not measure cognition at 6 months.

[18] As a robustness check, we also include in the controls the baseline level of mental health during pregnancy, $P^{MH}_{i,0}$, to capture the idea that pregnancy might be a critical developmental window in terms of exposure to depression, and to test for potential departures from the simple Markov dynamics as suggested by Attanasio et al. (2020b). Results in Appendix Tables A33-A34 show that the estimates do not change sizeably once baseline depression is added as a control.

5.1 Estimates of the Technology

Tables 3-4 report estimates for the outcomes at 12 months and 36 months respectively. The estimates reveal that children's skills are highly persistent over time, indicating 'self-productivity' in skills. A high level of socioemotional skills today is strongly predictive of strong socioemotional skills in the future. This finding is consistent with, for instance, Bufferd et al. (2012), though their evidence is for persistence from age 3 to 6 years, while we contribute evidence from 6 months to 3 years. We find that self-productivity is actually stronger earlier in childhood. Consistently with estimates of skill formation in other settings (Attanasio et al., 2022b), skills are less predictive across domains—the 'cross-productivity' of skills is at least a degree of magnitude smaller than self productivity, often non-statistically different from zero, except for the predictive power of physical health on cognitive skill development at both 12 and 36 months).

Now consider the associations of maternal and child variables in the control group, that is, the sample of women who were depressed during pregnancy and received no intervention (top panel). Maternal mental health in the control group is an important contributor to child development (i.e. child skills) at age 12 months and to parental investment at 36 months. The relationship between maternal mental health and child development is stronger when the child is younger, while the relationship with investments in children is larger when the child is older.

Let us consider now, how these relationships within the control group compare with the same relationships in the sample of mothers who were not depressed in pregnancy. We find that variation in maternal mental health plays a less prominent role—the interaction term between maternal mental health and an indicator for the non-depressed sample is negative at 12 months and close to zero at 36 months. This confirms the intuition that small changes in mental health among women diagnosed as depressed are more likely to influence child development than small variations within a sample of women who were initially not depressed.

The estimates for the control group show that parental investment at 36 months is related to the cognitive and socioemotional development of children, but parental investment at 12 months has no predictive power for developmental outcomes. On the other hand, parental investment among mothers who were not depressed at baseline is highly predictive of cognitive development even in the earlier period, at 12 months.

The descriptive associations discussed so far suggest that a dynamic measure of maternal mental health is an important input in the technology of skill formation, and that it might constitute an omitted variable in previous studies. Given the relevance of maternal mental health and functioning for child development, an intervention targeting maternal depression might place children on a higher developmental trajectory.

We now consider the effects of the intervention on the production function. The intervention creates significant shifts at 12 months, while having no discernible impact at 36 months. For outcomes measured at 12 months of age, we observe that the intervention raises the productivity of parental investments in socioemotional and cognitive development (see coefficient on investment times treat), and the total factor productivity for socioemotional and, to a lesser extent, physical health. However, it attenuates the relationship of maternal mental health with child development in early childhood (see coefficient on mother MH times treat).

These findings suggest a possible explanation for the relatively small effects of the intervention on children's skills: an increase in maternal mental health induced by the intervention is muted by lower productivity of the mental health input in the production function. Although the level of the input increases, its rate of return decreases, leading to a negligible change in overall child development. It seems plausible that, in a sample of women who now recovered from depression and display standard levels of well-being, marginal improvements in mental health have smaller impacts. Consistent with this, the productivity of maternal mental health is weaker in both the intervention

group and the non-depressed group relative to the control group. [19]

The coefficients on the interaction with the treatment group indicator often, if not always, take the same sign and show a similar magnitude as the coefficients on the interactions with the indicator for women who were not depressed at baseline. This suggests that the intervention bridges the "depression gap" in the production function, morphing the technology of skill formation for depressed mothers to look more like that for women who did not suffer depression during pregnancy.

Finally, mirroring our reduced form analysis of treatment effects and following recent trends in the literature focusing on socioemotional skills and mental health (Moroni et al., 2019), we split the sample by gender and estimate the technology of skill formation separately for boys and girls. Appendix Tables A35-A36 suggest that the influence of the intervention on the production function of skills seems to be stronger in girls, although statistical power is limited for such comparison.

6 Conclusion

We estimate the impacts of a peer-led psychosocial intervention delivered to women diagnosed as depressed in pregnancy, starting in the third trimester of pregnancy and continuing till the child was 36 months of age. Our findings reveal that the intervention resulted in significant and lasting improvements in maternal mental health and functioning. There was also a moderate increase in parental investment, although the estimate is not precisely estimated. However, despite these positive changes, we did not observe any noticeable improvements in overall indicators of child development in the long term.

To understand the associations of the multiple endogenous variables and the dynamics more clearly, we estimated a production function for child skills. Among women di-

[19] As regards an interpretation of the magnitude of the estimated coefficients, it is important to note that the coefficient on maternal mental health reflects its direct association with child skills, conditional upon maternal functioning, maternal investment in children, and lagged child skills, all of which are potentially a function of maternal mental health.

agnosed as depressed in pregnancy but untreated (the control group), mental health is strongly related to child outcomes in early childhood and to investments in children in later childhood. These relations are economically significant: for example, they tend to be larger in magnitude than the associations between socio-economic status and child skill development.

This suggests that an intervention targeting maternal mental health and parenting behaviors might improve children's future skills. However, this does not seem to be the case. The potential reason for this is that the intervention mutes the relationship between maternal mental health and children's outcomes. Just as in the sample of non-depressed mothers, the rate of return of mental health in the production function is close to zero for the treatment group. Therefore, the increase in mental health induced by the intervention is annihilated by a reduction in its efficiency in producing children's skills.

Overall, both the reduced form and the production function estimates suggest that the intervention is effective and tends to move outcomes for perinatally depressed mothers towards outcomes for those who were not depressed during pregnancy.

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Table 1: Baseline Balance

	Baseline Sample (N=1154)								6-months (N=929)		12-months (N=940)		24-months (N=903)		36-months (N=889)	
	Control		Treatment	Nondep.	Diff.	p-val	Diff.	p-val	Diff.	p-val	Diff.	p-val	Diff.	p-val	Diff.	p-val
	Mean	SD	Mean	Mean	(ND-D)		(T-C)		(T-C)		(T-C)		(T-C)		(T-C)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Mother's Age	27.289	4.973	26.802	26.373	-0.674	0.023	-0.487	0.260	-0.595	0.215	-0.361	0.434	-0.310	0.510	-0.314	0.478
Mother's height (cm)	156.330	6.088	157.429	157.105	0.230	0.545	1.100	0.074	0.996	0.145	1.043	0.109	1.352	0.031	1.023	0.131
Mother's weight (kg)	61.241	12.883	60.172	59.887	-0.823	0.186	-1.070	0.359	-1.205	0.325	-0.861	0.476	-1.065	0.432	-1.286	0.385
Mother's waist circ. (in)	37.555	4.088	36.852	37.134	-0.071	0.746	-0.704	0.115	-0.793	0.068	-0.628	0.421	-0.843	0.075	-0.688	0.176
Mother's blood pressure	72.326	12.790	70.915	71.667	0.043	0.950	-1.411	0.173	-0.352	0.723	-1.169	0.263	-0.339	0.748	-1.049	0.308
PHQ total	14.484	3.580	14.894	2.796	-11.891	0.000	0.410	0.248	0.400	0.305	0.484	0.227	0.364	0.362	0.380	0.347
WHODAS total	16.111	9.119	16.714	5.613	-10.798	0.000	0.602	0.475	0.600	0.513	0.814	0.376	0.999	0.291	0.809	0.423
PSS total	22.899	7.523	23.841	12.212	-11.154	0.000	0.942	0.100	1.311	0.036	1.113	0.072	1.216	0.062	1.020	0.151
Current Major Dep. Episode	0.732	0.444	0.777	0.021	-0.734	0.000	0.046	0.373	0.055	0.359	0.039	0.509	0.044	0.461	0.045	0.443
Joint/extended family	0.634	0.483	0.580	0.707	0.100	0.000	-0.055	0.175	-0.058	0.228	-0.049	0.321	-0.060	0.206	-0.075	0.096
Grandmother present	0.666	0.473	0.629	0.717	0.070	0.005	-0.037	0.331	-0.028	0.504	-0.029	0.473	-0.043	0.329	-0.034	0.434
Total adults in the hh	5.700	2.993	5.332	5.985	0.467	0.011	-0.368	0.201	-0.320	0.334	-0.325	0.316	-0.212	0.527	-0.281	0.402
People per room	2.473	1.870	2.792	2.215	-0.416	0.001	0.319	0.087	0.325	0.078	0.348	0.056	0.322	0.066	0.316	0.097
Number of girls	0.854	1.064	0.958	0.663	-0.243	0.000	0.104	0.328	0.071	0.120	0.090	0.433	0.124	0.308	0.051	0.655
Number of boys	0.787	0.961	0.855	0.560	-0.261	0.000	0.068	0.443	0.002	0.987	0.023	0.817	0.037	0.705	0.039	0.700
First child	0.251	0.434	0.230	0.363	0.123	0.000	-0.021	0.506	-0.002	0.951	0.005	0.869	-0.012	0.709	-0.023	0.468
SES asset index	-0.320	1.688	-0.560	0.422	0.861	0.000	-0.240	0.152	-0.133	0.201	-0.130	0.489	-0.161	0.398	-0.169	0.359
Mother's education	6.801	4.546	6.827	8.567	1.753	0.000	0.025	0.957	0.376	0.428	0.311	0.537	0.087	0.863	0.096	0.849
Father's education	8.331	3.288	7.848	9.151	1.059	0.000	-0.483	0.134	-0.560	0.117	-0.609	0.102	-0.844	0.026	-0.750	0.037
Life Events Checklist	4.098	2.335	4.696	2.896	-1.499	0.000	0.599	0.003	0.673	0.001	0.599	0.003	0.648	0.001	0.590	0.003
Observations	287		283	584												
Joint test (p-value)								0.011		0.028		0.053		0.018		0.141

Note: Table tests for balance for the baseline characteristics. Columns 1,3 and 4 show the mean in the control, treatment and nondepressed group in the baseline sample, respectively. Column 5 shows the difference in means between nondepressed and depressed group. Column 7, 9, 11, 13 and 15 show the mean differences between treatment and control group in the baseline sample and 6 months, 12 months, 24 months and 36 months follow-up samples, respectively. p-values at the bottom of the table comes from the F-test of overall significance from a regression of the treatment dummy on all the baseline controls.

Table 2: Trajectory of Summary Indices

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val	N
	Mean	SD	Mean	Mean	(T-C)	Beta			
Maternal Factor Scores									
Mental Health (6 months)	0	1	0.160	0.648	0.160	0.205	0.052	0.000	929
Mental Health (12 months)	0	1	0.098	0.650	0.098	0.170	0.054	0.002	940
Mental Health (36 months)	0	1	0.133	0.556	0.133	0.268	0.078	0.001	889
Functioning (6 months)	0	1	0.108	0.547	0.108	0.182	0.075	0.015	929
Functioning (12 months)	0	1	0.159	0.471	0.159	0.195	0.069	0.005	940
Functioning (36 months)	0	1	0.112	0.376	0.112	0.287	0.081	0.000	889
Child Factor Scores									
Physical Health (6 months)	0	1	-0.016	-0.034	-0.016	-0.021	0.079	0.792	929
Physical Health (12 months)	0	1	0.044	0.035	0.044	0.019	0.070	0.784	940
Physical Health (36 months)	0	1	-0.137	0.041	-0.137	-0.166	0.088	0.060	889
SE Skills (6 months)	0	1	0.167	0.100	0.167	0.187	0.056	0.001	940
SE Skills (12 months)	0	1	0.417	0.315	0.417	0.389	0.070	0.000	940
SE Skills (36 months)	0	1	0.058	0.108	0.058	0.063	0.075	0.400	889
Cognition (12 months)	0	1	-0.059	0.069	-0.059	-0.080	0.083	0.334	940
Cognition (36 months)	0	1	0.047	-0.020	0.047	0.065	0.075	0.386	889
Investment Factor Scores									
Investment (12 months)	0	1	0.062	0.448	0.062	0.075	0.086	0.382	940
Investment (36 months)	0	1	0.067	0.361	0.067	0.111	0.076	0.143	889

SE skills = socioemotional skills. Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with the (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. All estimations control for child gender and age (in days). Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Factor scores are coded so that higher score always indicates better outcome.

Figure 2: Coefficient Plots of Factors

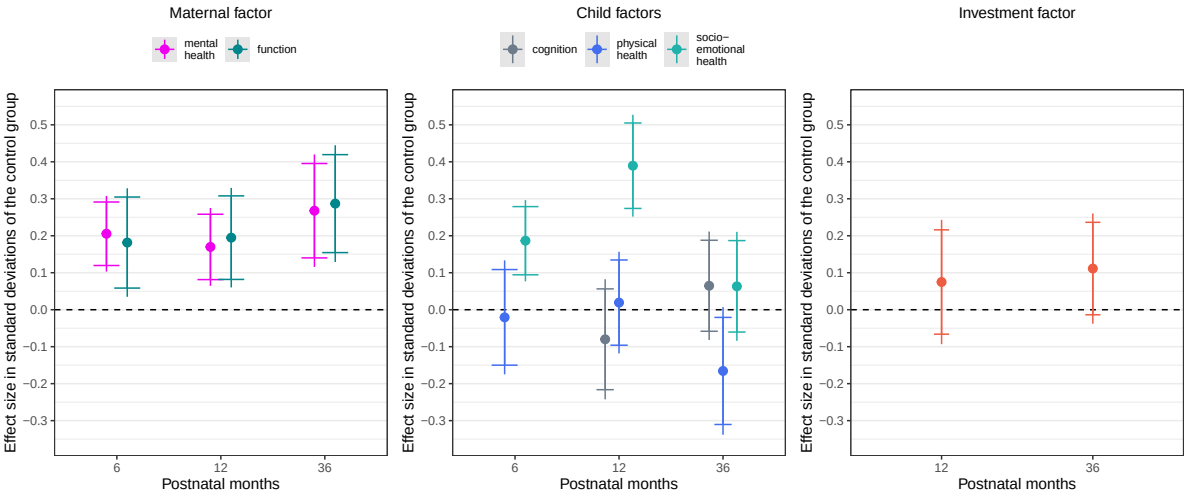


Figure 3: Coefficient Plots of Factors (Boys)

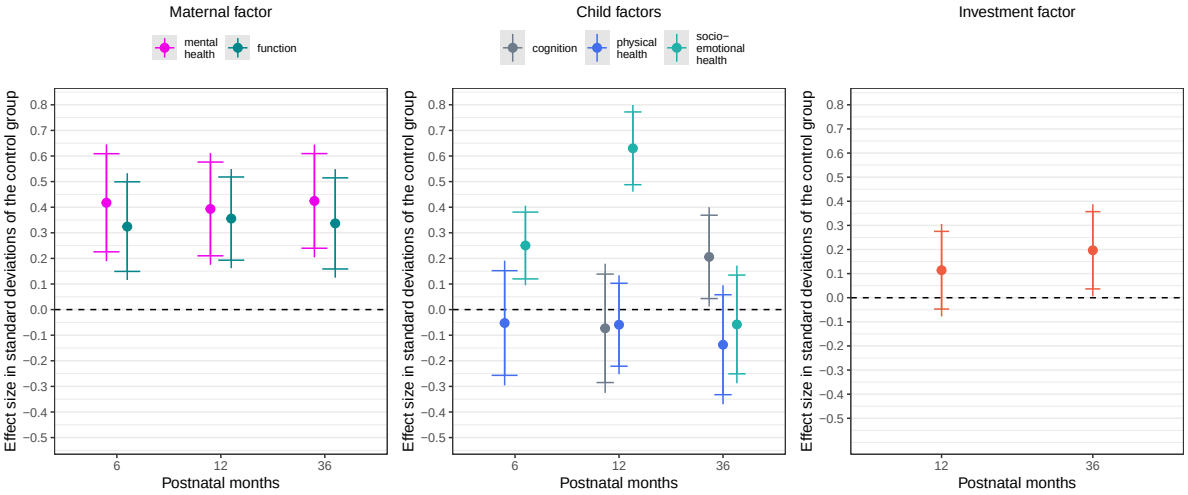


Figure 4: Coefficient Plots of Factors (Girls)

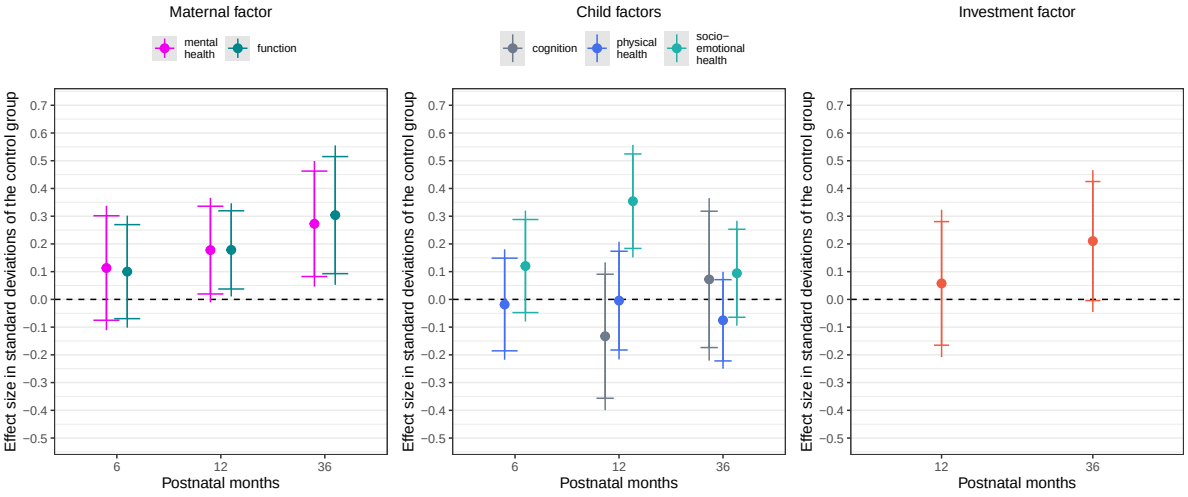


Table 3: Estimates of the Production Function and Investment Equations I

	Socioemotional skills (12m)	Physical health (12m)	Cognition (12m)	Parental investment (12m)
	(1)	(2)	(3)	(4)
SE skills (6m)	0.541***	0.001	0.060*	0.046
	(0.047)	(0.013)	(0.034)	(0.028)
physical health (6m)	0.044	0.928***	0.109***	0.077***
	(0.037)	(0.014)	(0.042)	(0.024)
mother mental health (6m)	0.119*	0.079***	0.136*	−0.104
	(0.062)	(0.030)	(0.074)	(0.069)
mother functioning (6m)	−0.043	−0.044**	−0.023	0.082*
	(0.053)	(0.020)	(0.044)	(0.043)
investment (12m)	0.051	0.030	−0.012	
	(0.081)	(0.022)	(0.059)	
Interactions				
mother MH (6m) x treat	−0.217***	−0.060	−0.198**	0.113
	(0.079)	(0.038)	(0.093)	(0.083)
mother MH (6m) x nondep.	−0.059	−0.133***	−0.064	0.121
	(0.098)	(0.035)	(0.094)	(0.080)
investment (12m) x treat	0.107	−0.027	0.339***	
	(0.106)	(0.035)	(0.091)	
investment (12m) x nondep.	−0.008	−0.023	0.199***	
	(0.084)	(0.030)	(0.073)	
Total factor productivity (TFP)				
TFP	−0.567	−0.516	4.291***	0.593
	(0.887)	(0.329)	(0.943)	(0.823)
TFP x treat	0.480***	0.036*	−0.030	0.051
	(0.060)	(0.021)	(0.057)	(0.061)
TFP x nondep.	0.283***	0.075***	−0.007	0.131**
	(0.060)	(0.021)	(0.045)	(0.056)
Baseline controls				
SES assets	−0.016	0.004	0.009	0.093***
	(0.020)	(0.007)	(0.024)	(0.016)
mother's education (years)	−0.003	0.005	−0.004	0.019***
	(0.006)	(0.003)	(0.007)	(0.004)
husband's education (years)	0.001	−0.006**	−0.002	0.016**
	(0.007)	(0.003)	(0.006)	(0.007)
Observations	932	932	927	932
R2	0.503	0.881	0.256	0.373
Adjusted R2	0.468	0.873	0.203	0.331

SE= socioemotional skills, MH=mental health. Dependent variables are child outcomes and parental investment factors at 12 months postpartum. Independent variables include an indicator of treatment status (control, treatment, nondepressed), child and maternal factors at 6 months (except for cognition as we did not measure cognition at 6 months), parental investment factor at 12 months. Maternal mental health and parental investment are interacted with the treatment status. All estimations control for baseline characteristics including, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect, days from baseline and child age in days. Robust and clustered standard errors at the cluster level are reported in paranthesis.
Note: *p<0.1; **p<0.05; ***p<0.01

Table 4: Estimates of the Production Function and Investment Equations II

	Socioemotional skills (36m)	Physical health (36m)	Cognition (36m)	Parental investment (36m)
	(1)	(2)	(3)	(4)
SE skills (12m)	0.242***	0.035*	0.013	−0.084***
	(0.036)	(0.019)	(0.023)	(0.032)
physical health (12m)	0.029	1.049***	0.049**	0.064**
	(0.041)	(0.026)	(0.023)	(0.029)
cognition (12m)	−0.004	−0.018	0.056**	0.032
	(0.037)	(0.022)	(0.022)	(0.033)
mother mental health (12m)	0.080	0.040	−0.070	0.200***
	(0.096)	(0.050)	(0.058)	(0.075)
mother functioning (12m)	−0.073	−0.049*	0.054*	−0.007
	(0.050)	(0.027)	(0.031)	(0.049)
investment (36m)	0.161**	0.001	0.090**	
	(0.069)	(0.039)	(0.040)	
Interactions				
mother MH (12m) x treat	0.052	−0.056	0.059	−0.154*
	(0.112)	(0.057)	(0.063)	(0.085)
mother MH (12m) x nondep.	0.005	0.003	−0.007	−0.077
	(0.112)	(0.046)	(0.067)	(0.088)
investment (36m) x treat	−0.184*	0.038	−0.084	
	(0.109)	(0.054)	(0.059)	
investment (36m) x nondep.	0.016	−0.048	−0.005	
	(0.100)	(0.045)	(0.050)	
Total factor productivity (TFP)				
TFP	0.625	−1.584**	1.868**	1.793
	(2.452)	(0.713)	(0.910)	(1.290)
TFP x treat	−0.116	−0.169***	0.021	0.133**
	(0.084)	(0.045)	(0.042)	(0.059)
TFP x nondep.	−0.174***	−0.004	−0.048	0.103
	(0.067)	(0.039)	(0.037)	(0.065)
Baseline controls				
SES assets	−0.014	−0.004	−0.001	0.053***
	(0.015)	(0.012)	(0.011)	(0.019)
mother's education (years)	−0.006	0.006	0.013***	0.016***
	(0.006)	(0.004)	(0.004)	(0.005)
husband's education (years)	0.009	−0.003	0.008	0.031***
	(0.007)	(0.004)	(0.006)	(0.008)
Observations	881	881	881	881
R2	0.422	0.838	0.297	0.312
Adjusted R2	0.384	0.828	0.251	0.269

SE= socioemotional skills, MH=mental health. Dependent variables are child outcomes and parental investment factors at 36 months postpartum. Independent variables include an indicator of treatment status (control, treatment, nondepressed), child and maternal factors at 12 months, parental investment factor at 36 months. Maternal mental health and parental investment are interacted with the treatment status. All estimations control for baseline characteristics including mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect, days from baseline and child age in days. Robust and clustered standard errors at the cluster level are reported in paranthesis.

Note: *p<0.1; **p<0.05; ***p<0.01

Appendix

A Measures of Child Development, Parental Background and Investment

The following table provides the full list of measurements for child development, parental skills investment and baseline household characteristics that we were initially interested in.

Latent Factor	Measurements	Baseline	3 months	6 months	12 months	24 months	36 months
Child's Socioemotional Skills (θ_t^S) and (θ_{t+1}^S)	Ages and Stages Questionnaire (ASQ-SE) : all items	NA	NA	✓	✓	✓	✓
	Strengths and Difficulties Questionnaire (SDQ) : all items	NA	NA	NA	NA	NA	✓
Child's Physical Health (θ_t^H) and (θ_{t+1}^H)	Child's weight for age Z-score	NA	✓	✓	✓	✓	✓
	Child's height for age Z-score	NA	✓	✓	✓	✓	✓
	Child's Head Circumference for age Z-score	NA	✓	✓	✓	✓	NA
Child's Cognition (θ_t^C) and (θ_{t+1}^C)	Bayley Scales of Infant Development: Fine Motor	NA	NA	NA	✓	NA	✓
	Bayley Scales of Infant Development: Gross Motor	NA	NA	NA	✓	NA	NA
	Bayley Scales of Infant Development: Cognitive	NA	NA	NA	✓	NA	NA
	Bayley Scales of Infant Development: Expressive	NA	NA	NA	✓	NA	NA
	Bayley Scales of Infant Development: Receptive	NA	NA	NA	✓	NA	✓
Parents' Education at Baseline (P_t^C)	Number of years the mother spent in education	✓	NA	NA	NA	NA	NA
	Number of years the father spent in education	✓	NA	NA	NA	NA	NA
Mothers' Mental Health (P_t^{MH})	Patient Health Questionnaire (PHQ - 9): all items	✓	✓	✓	NA	✓	✓
	Structured Clinical Interview for the DSM (SCID) : all items	✓	✓	✓	✓	✓	✓
	Cohen Perceived Stress Scale (PSS): all items	✓	✓	✓	✓	✓	✓
Mothers' Functioning (P_t^{PH})	WHO Disability Assessment Schedule (WHO-DAS): all items	✓	✓	✓	✓	✓	✓
Parental Investment (I_t) and (I_{t+1})	HOME:Learning Material Subscale	NA	✓	NA	✓	NA	✓
	HOME:Responsivity Subscale	NA	✓	NA	✓	NA	✓
	HOME:Acceptance Subscale	NA	✓	NA	✓	NA	✓
	HOME:Organization Subscale	NA	✓	NA	✓	NA	✓
	HOME:Involvement Subscale	NA	✓	NA	✓	NA	✓
	HOME:Variety Subscale	NA	✓	NA	✓	NA	✓
	Observation of Mother-Child Interaction	NA	NA	NA	NA	✓	✓

Table A1: Possible Measures for Child Development, Parental Background and Investment

B Balance and Attrition

Table A2: Characteristics of Attritors at 6 months

	Attritor characteristics				Attritor characteristics by treatment arm			
	Sample mean	Attritor mean	Diff. (2)-(1)	p-val	Attritor T mean	Attritor C mean	Diff. T-C	p-val
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mother's age	26.617	27.076	0.459	0.208	26.906	26.966	-0.060	0.949
Mother's height (cm)	157.012	156.909	-0.103	0.832	157.323	155.834	1.489	0.214
Mother's weight (kg)	60.378	59.945	-0.434	0.513	58.711	59.417	-0.706	0.737
Mother's waist circ. (in)	37.217	36.976	-0.240	0.393	36.225	36.651	-0.426	0.593
Mother's blood pressure	71.242	73.312	2.071	0.041	69.604	75.220	-5.617	0.036
PHQ total	8.671	8.667	-0.004	0.995	15.094	14.627	0.467	0.483
WHODAS total	10.861	11.298	0.437	0.613	17.302	16.627	0.675	0.709
PSS total	17.670	17.938	0.268	0.705	23.075	23.644	-0.569	0.707
Joint/extended family	0.665	0.627	-0.039	0.340	0.491	0.542	-0.052	0.566
Grandmother present	0.700	0.613	-0.086	0.058	0.472	0.559	-0.088	0.447
Total adults in the hh	5.742	5.804	0.063	0.769	4.792	5.407	-0.614	0.337
People per room	2.348	2.721	0.373	0.012	3.077	2.749	0.328	0.481
Number of girls	0.776	0.809	0.033	0.699	1.075	0.831	0.245	0.227
Number of boys	0.688	0.693	0.005	0.923	1.057	0.712	0.345	0.033
First child	0.292	0.347	0.055	0.074	0.226	0.322	-0.096	0.196
SES asset index	0.041	-0.186	-0.227	0.097	-1.155	-0.440	-0.715	0.011
Mother's education	7.792	7.324	-0.468	0.145	5.547	7.017	-1.470	0.105
Father's education	8.643	8.564	-0.078	0.740	7.679	7.881	-0.202	0.758
Life Events Checklist	3.632	3.653	0.021	0.899	4.377	4.102	0.276	0.623
Observations	929	225	1154		53	59	112	
Joint test (p-value)								0.138

Note: Table shows baseline characteristics and their differences for women who were lost to 6 months follow-up. Columns 1-4 compare the 6 months follow-up sample to attritors at 6 months. Columns 5-8 compares the baseline characteristics of attritors at 6 months by treatment arm. p-value at the bottom of the table comes from the F-test that jointly tests all coefficients with the null hypothesis of attritors in the treatment and control groups being balanced.

Table A3: Characteristics of Attritors at 12 months

	Attritor characteristics				Attritor characteristics by treatment arm			
	Sample mean	Attritor mean	Diff. (2)-(1)	p-val	Attritor T mean	Attritor C mean	Diff. T-C	p-val
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mother's age	26.719	26.650	-0.070	0.850	26.267	27.220	-0.954	0.298
Mother's height (cm)	157.035	156.804	-0.231	0.618	156.948	155.608	1.340	0.214
Mother's weight (kg)	60.442	59.642	-0.800	0.238	57.970	59.758	-1.788	0.422
Mother's waist circ. (in)	37.224	36.931	-0.293	0.315	36.083	37.051	-0.968	0.285
Mother's blood pressure	71.449	72.512	1.063	0.324	70.817	73.153	-2.336	0.386
PHQ total	8.478	9.514	1.036	0.034	14.983	14.864	0.119	0.857
WHODAS total	10.714	11.967	1.253	0.214	16.750	16.966	-0.216	0.905
PSS total	17.589	18.304	0.714	0.305	23.367	23.068	0.299	0.831
Joint/extended family	0.653	0.678	0.024	0.445	0.550	0.627	-0.077	0.317
Grandmother present	0.694	0.636	-0.058	0.166	0.517	0.576	-0.060	0.560
Total adults in the hh	5.747	5.785	0.038	0.866	5.167	5.695	-0.528	0.376
People per room	2.360	2.686	0.326	0.046	3.025	2.824	0.201	0.672
Number of girls	0.762	0.874	0.112	0.178	1.100	0.949	0.151	0.424
Number of boys	0.699	0.645	-0.054	0.414	0.933	0.695	0.238	0.178
First child	0.293	0.346	0.053	0.188	0.217	0.339	-0.122	0.154
SES asset index	0.025	-0.131	-0.156	0.240	-0.917	-0.267	-0.650	0.024
Mother's education	7.737	7.542	-0.195	0.578	6.183	7.237	-1.054	0.209
Father's education	8.643	8.561	-0.082	0.734	7.967	7.966	0.001	0.999
Life Events Checklist	3.629	3.668	0.040	0.833	4.567	3.966	0.601	0.275
Observations	940	214	1154		60	59	119	
Joint test (p-value)								0.498

Note: Table shows baseline characteristics and their differences for women who were lost to 12 months follow-up. Columns 1-4 compare the 12 months follow-up sample to attritors at 12 months. Columns 5-8 compares the baseline characteristics of attritors at 12 months by treatment arm. p-value at the bottom of the table comes from the F-test that jointly tests all coefficients with the null hypothesis of attritors in the treatment and control groups being balanced.

Table A4: Characteristics of Attritors at 24 months

	Attritor characteristics				Attritor characteristics by treatment arm			
	Sample mean	Attritor mean	Diff. (2)-(1)	p-val	Attritor T mean	Attritor C mean	Diff. T-C	p-val
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mother's age	26.638	26.952	0.314	0.411	26.562	27.597	-1.035	0.308
Mother's height (cm)	157.120	156.530	-0.591	0.196	156.705	156.331	0.374	0.744
Mother's weight (kg)	60.489	59.592	-0.897	0.246	58.074	58.863	-0.789	0.684
Mother's waist circ. (in)	37.262	36.838	-0.424	0.180	36.332	36.504	-0.173	0.828
Mother's blood pressure	71.411	72.488	1.077	0.360	69.699	74.433	-4.734	0.085
PHQ total	8.373	9.737	1.364	0.007	15.425	14.940	0.484	0.439
WHODAS total	10.647	12.024	1.377	0.082	16.219	16.851	-0.632	0.704
PSS total	17.435	18.753	1.318	0.058	23.534	23.448	0.086	0.947
Joint/extended family	0.661	0.645	-0.016	0.603	0.548	0.582	-0.034	0.676
Grandmother present	0.695	0.637	-0.058	0.111	0.562	0.567	-0.006	0.954
Total adults in the hh	5.728	5.849	0.121	0.565	5.014	5.851	-0.837	0.139
People per room	2.311	2.815	0.504	0.002	3.054	2.811	0.242	0.603
Number of girls	0.753	0.888	0.135	0.057	1.014	0.985	0.029	0.884
Number of boys	0.687	0.697	0.011	0.866	0.945	0.791	0.154	0.335
First child	0.297	0.323	0.026	0.483	0.233	0.284	-0.051	0.555
SES asset index	0.033	-0.135	-0.168	0.187	-0.788	-0.321	-0.466	0.086
Mother's education	7.746	7.538	-0.209	0.507	6.863	7.045	-0.182	0.833
Father's education	8.731	8.255	-0.476	0.056	7.890	7.194	0.696	0.290
Life Events Checklist	3.579	3.841	0.261	0.132	4.548	4.090	0.458	0.364
Observations	903	251	1154		73	67	140	
Joint test (p-value)								0.046

Note: Table shows baseline characteristics and their differences for women who were lost to 24 months follow-up. Columns 1-4 compare the 24 months follow-up sample (including nondepressed arm) to attritors at 24 months. Columns 5-8 compares the baseline characteristics of attritors at 24 months by treatment arm. p-value at the bottom of the table comes from the F-test that jointly tests all coefficients with the null hypothesis of attritors in the treatment and control groups being balanced.

Table A5: Characteristics of Attritors at 36 months

	Attritor characteristics				Attritor characteristics by treatment arm			
	Sample mean	Attritor mean	Diff. (2)-(1)	p-val	Attritor T mean	Attritor C mean	Diff. T-C	p-val
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mother's age	26.669	26.830	0.161	0.640	26.468	27.437	-0.969	0.317
Mother's height (cm)	157.047	156.806	-0.242	0.658	157.260	155.903	1.357	0.229
Mother's weight (kg)	60.582	59.325	-1.257	0.064	58.739	58.955	-0.216	0.911
Mother's waist circ. (in)	37.262	36.862	-0.400	0.155	36.304	36.980	-0.676	0.350
Mother's blood pressure	71.504	72.121	0.617	0.573	70.532	72.986	-2.453	0.344
PHQ total	8.379	9.645	1.266	0.007	15.130	14.662	0.468	0.446
WHODAS total	10.714	11.725	1.010	0.160	16.299	16.268	0.031	0.982
PSS total	17.553	18.287	0.733	0.310	23.325	22.549	0.775	0.548
Joint/extended family	0.666	0.630	-0.036	0.278	0.571	0.563	0.008	0.919
Grandmother present	0.697	0.634	-0.063	0.094	0.558	0.592	-0.033	0.691
Total adults in the hh	5.763	5.725	-0.038	0.865	5.078	5.676	-0.598	0.304
People per room	2.353	2.647	0.294	0.041	3.013	2.715	0.298	0.443
Number of girls	0.759	0.860	0.101	0.133	1.104	0.859	0.245	0.181
Number of boys	0.701	0.649	-0.052	0.428	0.883	0.732	0.151	0.331
First child	0.290	0.343	0.053	0.115	0.273	0.296	-0.023	0.784
SES asset index	0.038	-0.144	-0.182	0.164	-0.862	-0.449	-0.413	0.159
Mother's education	7.738	7.577	-0.161	0.536	6.714	6.887	-0.173	0.808
Father's education	8.682	8.445	-0.236	0.266	7.948	7.634	0.314	0.600
Life Events Checklist	3.620	3.691	0.071	0.659	4.558	3.915	0.643	0.163
Observations	889	265	1154		77	71	148	
Joint test (p-value)								0.652

Note: Table shows baseline characteristics and their differences for women who were lost to 36 months follow-up. Columns 1-4 compare the 36 months follow-up sample (including nondepressed arm) to attritors at 36 months. Columns 5-8 compares the baseline characteristics of attritors at 36 months by treatment arm. p-value at the bottom of the table comes from the F-test that jointly tests all coefficients with the null hypothesis of attritors in the treatment and control groups being balanced.

Table A6: Attrition Corrected Treatment Effects on Factor Scores

	Adjusted Beta		*Attrition bounds*
	Unweighted	IPW	95% CI
	(1)	(2)	(3)
Maternal Factor Scores			
Mental Health (6m)	0.205***	0.205***	[-0.021 0.394]
	(0.052)	(0.052)	
Mental Health (12m)	0.170***	0.169***	[-0.105 0.385]
	(0.054)	(0.054)	
Mental Health (24m)	−0.002	0.001	[-0.294 0.231]
	(0.057)	(0.058)	
Mental Health (36m)	0.268***	0.265***	[-0.159 0.372]
	(0.078)	(0.077)	
Functioning (6m)	0.182**	0.182**	[-0.052 0.364]
	(0.075)	(0.075)	
Functioning (12m)	0.195***	0.196***	[-0.027 0.406]
	(0.069)	(0.069)	
Functioning (24m)	−0.036	−0.034	[-0.341 0.204]
	(0.072)	(0.074)	
Functioning (36m)	0.287***	0.280***	[-0.200 0.349]
	(0.081)	(0.079)	
Child Factor Scores			
Physical Health (6m)	−0.021	−0.021	[-0.217 0.204]
	(0.079)	(0.079)	
Physical Health (12m)	0.019	0.021	[-0.187 0.287]
	(0.070)	(0.069)	
Physical Health (24m)	−0.100	−0.091	[-0.404 0.171]
	(0.083)	(0.083)	
Physical Health (36m)	−0.166*	−0.160*	[-0.434 0.154]
	(0.088)	(0.089)	
Socioemotional Skills (6m)	0.187***	0.187***	[-0.006 0.375]
	(0.056)	(0.056)	
Socioemotional Skills (12m)	0.389***	0.389***	[0.149 0.601]
	(0.070)	(0.070)	
Socioemotional Skills (24m)	−0.065	−0.060	[-0.347 0.162]
	(0.067)	(0.071)	
Socioemotional Skills (36m)	0.063	0.073	[-0.308 0.291]
	(0.075)	(0.076)	
Cognition (12m)	−0.080	−0.080	[-0.357 0.227]
	(0.083)	(0.084)	
Cognition (36m)	0.065	0.065	[-0.234 0.364]
	(0.075)	(0.073)	
Investment Factor Scores			
Parental Investment (12m)	0.075	0.075	[-0.204 0.309]
	(0.086)	(0.087)	
Parental Investment (36m)	0.111	0.111	[-0.274 0.321]
	(0.076)	(0.078)	

Column 1 reproduces the adjusted treatment effect coefficient on factor scores without attrition correction. Column 2 reports attrition-corrected treatment effect estimates using Inverse Probability of Attrition Weighting (IPAW), where the weights are the inverse of the predicted probability to participate in the respective follow-up based on the baseline covariates. Column 3 shows 95 percent confidence intervals for the treatment effect using attrition bounds that are tightened by child gender and the indicator of whether the baseline PHQ-9 score is above the median (Lee, 2009).
Note: *p<0.1; **p<0.05; ***p<0.01

Table A7: Attrition Corrected Treatment Effects on Factor Scores by Child Gender

	Boys		*Girls*	
	Adjusted Beta	Attrition bounds 95% CI	Adjusted Beta	Attrition bounds 95% CI
	(1)	(2)	(3)	(4)
Maternal Factor Scores				
Mental Health (6m)	0.417*** (0.117)	[0.080 0.634]	0.113 (0.114)	[-0.278 0.312]
Mental Health (12m)	0.393*** (0.111)	[0.034 0.597]	0.178* (0.096)	[-0.344 0.315]
Mental Health (24m)	0.046 (0.113)	[-0.396 0.311]	0.016 (0.129)	[-0.704 0.112]
Mental Health (36m)	0.425*** (0.116)	[-0.093 0.576]	0.273** (0.124)	[-0.388 0.320]
Functioning (6m)	0.324*** (0.106)	[-0.017 0.510]	0.182** (0.075)	[-0.257 0.333]
Functioning (12m)	0.356*** (0.099)	[0.077 0.622]	0.195*** (0.069)	[-0.233 0.399]
Functioning (24m)	−0.066 (0.098)	[-0.580 0.130]	−0.026 (0.139)	[-0.465 0.324]
Functioning (36m)	0.337*** (0.108)	[-0.206 0.489]	0.287*** (0.081)	[-0.380 0.357]
Child Factor Scores				
Physical Health (6m)	−0.052 (0.124)	[-0.200 0.441]	−0.018 (0.102)	[-0.407 0.131]
Physical Health (12m)	−0.059 (0.099)	[-0.239 0.337]	−0.004 (0.108)	[-0.298 0.296]
Physical Health (24m)	−0.116 (0.117)	[-0.451 0.253]	−0.036 (0.124)	[-0.505 0.299]
Physical Health (36m)	−0.137 (0.119)	[-0.440 0.288]	−0.075 (0.089)	[-0.592 0.182]
Socioemotional Skills (6m)	0.250*** (0.079)	[0.037 0.618]	0.120 (0.102)	[-0.251 0.269]
Socioemotional Skills (12m)	0.630*** (0.086)	[0.289 0.873]	0.354*** (0.104)	[-0.103 0.530]
Socioemotional Skills (24m)	−0.163 (0.116)	[-0.509 0.205]	−0.257 (0.219)	[-0.422 0.335]
Socioemotional Skills (36m)	−0.058 (0.117)	[-0.403 0.346]	0.094 (0.096)	[-0.404 0.395]
Cognition (12m)	−0.073 (0.129)	[-0.315 0.308]	−0.133 (0.136)	[-0.520 0.320]
Cognition (36m)	0.206** (0.099)	[-0.220 0.514]	0.072 (0.149)	[-0.419 0.402]
Investment Factor Scores				
Parental Investment (12m)	0.114 (0.098)	[-0.130 0.479]	0.058 (0.135)	[-0.411 0.261]
Parental Investment (36m)	0.197** (0.097)	[-0.243 0.517]	0.210 (0.131)	[-0.486 0.290]

Column 1 and 3 reproduce the adjusted treatment effect coefficient on factor scores separately by child gender without attrition correction. Column 2 and 4 report 95 percent confidence intervals for the treatment effect by child gender using attrition bounds tightened by the indicator of whether the baseline PHQ-9 score is above the median (Lee, 2009).
Note: *p<0.1; **p<0.05; ***p<0.01

Table A8: Baseline Balance By Gender

	Baseline Sample: Boys (N=511)						Baseline Sample: Girls (N=503)					
	Control		T	ND	Diff	p-val	Control		T	ND	Diff	p-val
	Mean	SD	Mean	Mean	T-C		Mean	SD	Mean	Mean	T-C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mother's age	27.339	5.240	27.118	26.126	-0.221	0.762	27.279	4.495	26.460	26.424	-0.819	0.100
Mother's height (cm)	156.407	6.714	157.678	157.018	1.271	0.138	156.633	5.662	157.527	157.070	0.894	0.281
Mother's weight (kg)	61.214	13.604	61.152	59.524	-0.062	0.973	62.139	12.189	59.698	59.972	-2.441	0.139
Mother's waist circ. (in)	37.601	3.975	36.949	37.067	-0.652	0.321	37.821	4.039	36.837	37.151	-0.992	0.044
Mother's blood pressure	72.115	9.857	70.780	71.200	-1.335	0.333	71.760	14.023	71.306	71.759	-0.453	0.732
PHQ total	14.539	3.885	14.437	2.783	-0.102	0.846	14.333	3.346	15.121	2.796	0.788	0.133
WHODAS total	15.538	9.023	16.487	5.379	0.905	0.443	16.450	8.845	16.750	5.528	0.300	0.786
PSS total	23.043	8.276	23.765	12.282	0.721	0.428	22.659	7.221	24.218	12.076	1.559	0.078
Current Major Dep. Episode	0.713	0.454	0.748	0.018	0.035	0.566	0.721	0.450	0.782	0.024	0.061	0.431
Joint/extended family	0.661	0.475	0.563	0.700	-0.098	0.046	0.628	0.485	0.637	0.704	0.009	0.883
Grandmother present	0.643	0.481	0.639	0.682	-0.005	0.948	0.705	0.458	0.677	0.752	-0.028	0.613
Total adults in the hh	5.635	3.044	5.454	5.722	-0.181	0.692	5.721	2.823	5.379	6.260	-0.342	0.391
People per room	2.365	1.218	2.565	2.211	0.199	0.342	2.409	1.359	2.934	2.241	0.525	0.045
Number of girls	0.904	1.116	0.874	0.697	-0.030	0.839	0.783	1.007	0.984	0.600	0.201	0.186
Number of boys	0.817	0.894	0.790	0.574	-0.027	0.822	0.791	0.982	0.855	0.600	0.064	0.621
First child	0.209	0.408	0.261	0.354	0.052	0.311	0.264	0.442	0.210	0.352	-0.054	0.252
SES asset index	-0.323	1.598	-0.136	0.216	0.187	0.359	-0.268	1.756	-0.802	0.611	-0.535	0.049
Mother's education	6.652	4.621	7.529	8.177	0.877	0.187	6.829	4.316	6.403	8.948	-0.426	0.499
Father's education	8.313	3.147	7.958	8.906	-0.355	0.395	8.550	3.264	7.734	9.328	-0.817	0.093
Life Events Checklist	4.061	2.137	4.588	2.989	0.527	0.067	4.163	2.361	4.976	2.712	0.813	0.001
Observations	115		119	277			129		124	250		
Joint test (p-value)						0.412						0.123

T = treatment, ND = non-depressed. Table tests for balance for the baseline characteristics by child gender. Columns 1,3 and 4 show the mean of the mothers of boys in the control, treatment and nondepressed group in the baseline sample, respectively. Columns 7,9 and 10 show the mean of the mothers of girls in the control, treatment and nondepressed group in the baseline sample, respectively. Columns 5 and 11 show the difference in means between nondepressed and depressed group, for mothers of boys and girls, respectively. p-values at the bottom of the table comes from the F-test of overall significance from a regression of the treatment dummy on all the baseline controls.

Table A9: Balance in the Non-depressed Sample

	Control ND Mean (1)	Control ND SD (2)	Treat ND Mean (3)	Diff. (TND-CND) (4)	SE (5)	p-val (6)
Mother's Age	26.170	4.185	26.573	0.403	0.390	0.301
Mother's height (cm)	157.422	6.426	156.794	-0.628	0.516	0.224
Mother's weight (kg)	60.127	10.796	59.652	-0.475	1.103	0.667
Mother's waist circ. (in)	37.092	4.223	37.176	0.084	0.420	0.841
Mother's blood pressure	71.576	9.687	71.757	0.180	0.804	0.822
PHQ Total	2.792	2.438	2.800	0.008	0.293	0.979
WHODAS Total	5.381	6.235	5.841	0.460	0.596	0.440
PSS Total	12.467	6.619	11.963	-0.504	0.722	0.485
Current Major Dep. Episode	0.014	0.117	0.027	0.013	0.012	0.258
Joint/extended family	0.716	0.452	0.698	-0.018	0.044	0.686
Grandmother present	0.727	0.446	0.708	-0.018	0.035	0.600
Total adults in the hh	6.042	3.216	5.929	-0.113	0.256	0.659
People per room	2.260	1.825	2.171	-0.089	0.158	0.572
Number of girls	0.661	0.914	0.664	0.004	0.081	0.965
Number of boys	0.599	0.836	0.522	-0.077	0.069	0.270
First child	0.374	0.485	0.353	-0.021	0.037	0.566
SES asset index	0.365	1.429	0.477	0.112	0.156	0.474
Mother's education	8.176	4.310	8.949	0.773	0.476	0.104
Father's education	9.142	3.223	9.159	0.017	0.332	0.958
Life Events Checklist	2.799	2.197	2.990	0.191	0.267	0.476
Observations	289		295	584		
Joint test (p-value)						0.456

Note: Table tests for baseline balance in the sample of mothers who were not depressed at baseline. Columns 1 and 3 show the mean of the non-depressed mothers in the control and treatment clusters in the baseline sample, respectively. Column 4 shows the difference in means of the non-depressed mothers between treatment and control clusters. p-value at the bottom of the table comes from the F-test that jointly tests all coefficients with the null hypothesis of non-depressed women in the treatment and control clusters being balanced.

C 24 Month Wave

The measurement system at 24 month was different than the adjoining waves: there is no measure of cognitive ability and parental investment was measured using the Observation of Mother-Child Interaction (OMCI), a tool used to capture parental sensitivity and responsiveness, instead of the HOME. As a longitudinal comparison of latent variables requires normalization of the factors on the same measure over time, we decided to exclude the 24 month wave from the main analysis. For completeness,

we report estimates of the treatment effects at 24 months throughout the Appendix Tables. In this section we briefly discuss some of the anomalies that were found at the 24 month wave, where we find null, slightly negative, effects across most outcomes.

As noted in Appendix B, there is evidence of differential attrition in the 24-month follow-up. At the 24-month follow-up, attritors had higher WHODAS and PSS scores, a higher number of girls, and less educated husbands. Although this is unlikely to explain a null treatment effect, to investigate we estimated treatment effects using the fixed sample of 771 mothers who were present at all follow-up points (A22-A25). The treatment effects in this sample are similar to the treatment effects in the full sample, suggesting that the dip in treatment effects at 24 months is not an artifact of differential attrition.

We also investigate whether the dip in the treatment effect at 24 months can be explained by differential fertility, differential shocks to treatment or control clusters, or measurement error, and find that it cannot. The median birth spacing in our sample is 24 months, and the treatment has a marginal effect in reducing fertility (adjusted beta coefficient of -0.08, p-value$<$0.10) but flexibly controlling for post-treatment fertility choices does not change the treatment effect on maternal mental health. It does not seem that different shocks in the treated vs control clusters occur at 24 months as we do not find any differences at this point in the mothers who were not depressed at baseline (who are not treated but live in the same villages as mothers in the intervention). Measurement error is an unlikely explanation because, looking at the estimated factor scores, the variance of the error term and the signal-to-noise ratios in the measurement system are similar across waves. We do find that the gap between the depressed controls and baseline non-depressed disappears for some outcomes at 24 months, suggesting the control group differentially experienced a positive shock in that wave.

D Measurement System and Latent Factor Distributions

D.1 Latent Factor Scores

Following a long history in psychometrics (Spearman, 1904) and a more recent one in economics (Cunha and Heckman, 2008; Cunha et al., 2010; Attanasio et al., 2020a,c), we construct latent factor scores leveraging the correlation structure of the outcomes. Latent factor analysis is a model-based approach that reduces the measurement error and the dimensionality of the outcomes under the assumption that a latent variable exists and explains all of the correlations between related outcomes.

Specifically, assuming dedicated measurements for each latent factor θ, we denote the j-th measure of the child's skill of type k at time t with m^{θ}_{kjdt}, j-th measure of parental skills at t with m^{P}_{jdt} and j-th measure of parental investment at t with m^{I}_{jdt}, where $d = 0$ indicates the control group and $d = 1$ indicates the treatment group. We assume a semi-log relationship linking the observed measures to the unobserved latent trait as follows:

$$m^{\theta}_{kjdt} = \mu^{\theta}_{kjt} + \alpha^{\theta}_{kjt} \ln \theta^{k}_{dt} + \epsilon^{\theta}_{kjt} \tag{A1}$$

$$m^{P}_{jdt} = \mu^{P}_{jt} + \alpha^{P}_{jt} \ln P_{dt} + \epsilon^{P}_{jt} \tag{A2}$$

$$m^{I}_{jdt} = \mu^{I}_{jt} + \alpha^{I}_{jt} \ln I_{dt} + \epsilon^{I}_{jt} \tag{A3}$$

where $(\theta^{k}_{dt}, P_{dt}, I_{dt})$ are the latent factors for child skills, parental outcomes, and parental investment, $(\mu^{\theta}_{kjt}, \mu^{P}_{jt}, \mu^{I}_{jt})$ represent the intercepts, $(\alpha^{\theta}_{kjt}, \alpha^{P}_{jt}, \alpha^{I}_{jt})$ are factor loadings, and $(\epsilon^{\theta}_{kjt}, \epsilon^{P}_{jt}, \epsilon^{I}_{jt})$ are the error terms capturing measurement error, assumed to be normally distributed, with mean zero, independent of the latent factors and of each other.[20] We further assume a dedicated measurement system which means each measure is associ-

[20] We allow the cross-time correlation of the residuals to be non-zero for the measures that are asked at multiple time points.

ated only with one factor. These assumptions make sure that any correlation between observed variables in the data set results from the correlation of the latent variables. Finally, we assume that the same measurement system governs both groups (control, treatment, and nondepressed) and is consistent throughout the study period.

For identification purposes, the scale and the location of the latent log-factors are set by normalizing the measure that has the highest factor loading of each latent factor to one, i.e. $\alpha^{\theta}_{k1t} = \alpha^{P}_{1t} = \alpha^{I}_{1t} = 1$. For longitudinal comparison purposes, we normalize each factor on the same measure at all time points.[21] Regarding the location, since we are interested in the mean comparison between groups and over time, we fix the means of the latent factors in logs to 0 for the control group only at the initial time point (6 months) following Agostinelli and Wiswall (2016). This allows us to capture the growth of the latent factors over time.

Using exploratory factor analysis (EFA), we reduce the number of items contributing to each latent factor by discarding the ones that do not strongly correlate with the underlying latent trait of interest. The details of the EFA are reported in Section D.2 in the appendix. Next, we jointly estimate the measurement system using a maximum likelihood estimator, and predict factor scores for each individual in the sample.

The results of the estimation of the measurement system are reported in Tables A11-A17. To provide summary statistics for the importance of each measure in the system, we report the signal-to-noise ratio.[23] The results indicate that the information contained in each measure of the same factor varies a lot, and that most measures are quite far from a 100% signal-to-noise ratio. This provides a justification for the latent variable approach to modelling child skill formation. Without such an approach, one

[21] For child physical health, we normalize to one the weight-for-age z score; child cognition is normalized on Bayley-III fine motor scale score; socioemotional skills are normalized on the ASQ-SE item 'when upset, whether the baby can calm down within a half hour';[22] maternal mental health is normalized on the SCID item 'current major depressive episode'; maternal functioning is normalized on the WHODAS item 'difficulty affecting day-to-day work'; parental investment is normalized on the HOME subscale of learning materials.

[23] The signal-to-noise ratio, also known as communality, gives the amount of variance of each measure that can be explained by the underlying latent factor.

would fail to capture the variety of aspects of child development in the early years of life.

Latent factor scores are more appropriate as aggregate indices if there are multiple domains, as they result from a multi-dimensional allocation of observed variables influenced by different factors. Indeed, latent factor analysis has been widely used to deal with measurement error problem in modelling child development (See, for example Cunha and Heckman, 2008; Cunha et al., 2010; Attanasio et al., 2020a,c).

D.2 Exploratory Factor Analysis

This section provides the details of exploratory factor analysis (EFA) performed to specify the measurement system described in Tables A11 -A17. EFA consists of two parts: determination of the number of latent factors to be extracted from the set of measures in the data set and specifying the measurement system by allocating each measure to a factor and estimating factor loadings.

D.2.1 Determining the number of latent factors

To select the appropriate number of latent factors for child development, parental investment, and maternal mental health, the following methods are compared: Kaiser's eigenvalue rule, Cattel's scree plot, and Velicer's minimum average partial correlation rule. The resulting number of factors is reported in Table A10. The results support our assumptions of two-three dimensions for child development, two dimensions for maternal skills, and one dimension for parental investment.

Table A10: Results of different methods to determine the number of factors

	Number of Factors according to the following methods:		
	Kaiser's Eigenvalue Rule	Cattell's Scree Plot	Velicer's MAP Rule
Child's Skills at 6 Months	2	2	1
Child's Skills at 12 Months	3	2	1
Child's Skills at 24 Months	2	2	3
Child's Skills at 36 Months	3	2	4
Maternal Skills at 6 Months	3	2	1
Maternal Skills at 12 Months	2	2	1
Maternal Skills at 24 Months	4	2	5
Maternal Skills at 36 Months	3	2	1
Parental Investment at 6 Months	1	2	1
Parental Investment at 12 Months	1	2	1
Parental Investment at 24 Months	3	2	2
Parental Investment at 36 Months	1	2	1

D.2.2 Specifying the Measurement System

Once we have evidence about how many latent factors should be extracted, we need to allocate each measure to a factor in accordance with the dedicated measurement system. To do this, we implement the quartimin rotation method and identify the measures that primarily load on one factor. The reason why we choose this method among others is that since our factors are likely to be correlated, an oblique rotation is more suitable. At this stage, we also discard measures that load on more than one factor or are not strongly related to one factor as such measures would conflict with our assumption of a dedicated measurement system.

Table A11: Maternal Mental Health Measures I: Loadings and Signal-to-noise Ratio

Measurement	**Loading**	% **Signal**		
		Control	Treated	Nondep.
6 months				
scid13: Current major depressive episode(-)	1.000	61.4%	90.5%	63.4%
scid1: Depressed Mode (-)	1.059	57.5%	56.2%	49.5%
scid2: Loss of interest (-)	1.035	57.3%	56.1%	59.3%
scid3: Weight/appetite loss or gain (-)	0.832	37.9%	34.3%	37.3%
scid4: Sleep disturbance (-)	0.858	38.6%	38.9%	37.9%
scid5: Psychomotor agitation or retardation(-)	1.055	61.2%	58.2%	55.2%
scid6: Fatigue or loss of energy (-)	1.025	50.0%	45.5%	33.4%
scid7: Feeling of worthlessness or inapropriate guilt (-)	0.696	30.0%	27.8%	36.3%
scid8: Diminished ability to concentrate or indecisiveness (-)	0.886	44.6%	43.5%	40.5%
scid9: Recurrent thoughts of death or suicidal ideation (-)	0.304	5.3%	7.4%	12.8%
scid10: Symptoms cause significant distress or impairment (-)	1.034	55.2%	55.9%	47.8%
pss3: How often have you felt nervous or stressed? (-)	1.047	53.2%	43.3%	36.3%
phq1: Feeling tired or having little energy. (-)	0.935	42.5%	39.5%	29.2%
phq2: Poor appetite or overeating. (-)	0.766	32.0%	31.2%	25.7%
phq3: Trouble falling or staying asleep (-)	0.705	26.3%	28.3%	26.7%
phq4: Moving/speaking so slowly (-)	0.871	44.0%	38.2%	43.3%
phq5: Trouble concentrating on things(-)	0.831	35.2%	36.8%	32.7%
phq6: Little interest or pleasure in doing things (-)	0.986	48.5%	50.3%	45.9%
phq7: Feeling down, depressed, hopeless (-)	1.077	59.1%	54.8%	47.6%
phq8: Feeling bad about yourself (-)	0.808	38.2%	40.9%	39.7%
12 months				
scid13: Current major depressive episode(-)	1.000	65.0%	57.5%	62.1%
scid1: Depressed Mode (-)	1.059	59.3%	53.7%	42.9%
scid2: Loss of interest (-)	1.035	60.2%	54.7%	47.6%
scid3: Weight/appetite loss or gain (-)	0.832	35.3%	28.3%	29.0%
scid4: Sleep disturbance (-)	0.858	38.9%	32.1%	32.0%
scid5: Psychomotor agitation or retardation(-)	1.055	56.5%	51.9%	46.3%
scid6: Fatigue or loss of energy (-)	1.025	50.5%	42.8%	31.4%
scid7: Feeling of worthlessness or inapropriate guilt (-)	0.696	32.0%	30.0%	34.4%
scid8: Diminished ability to concentrate or indecisiveness (-)	0.886	49.0%	41.4%	45.0%
scid10: Symptoms cause significant distress or impairment (-)	1.034	57.2%	49.6%	50.2%
pss1: In the last month, how often have you been upset? (-)	0.971	49.6%	47.3%	33.6%
pss2: How often have you felt you were unable to control things? (-)	0.968	53.8%	47.2%	34.8%
pss3: How often have you felt nervous or stressed? (-)	1.047	59.1%	56.5%	42.4%
pss4: How often have you felt confident?	0.890	39.4%	61.4%	21.6%
pss5: How often have you felt that things were going your way?	0.903	37.2%	39.9%	26.5%
pss8: How often have you felt that you were on top of things?	0.874	39.4%	35.1%	24.0%
pss10: How often have you felt difficulties piling up?(-)	0.926	44.7%	40.7%	31.2%

Note: This table reports the factor loadings of the measures allowed to load on the maternal mental health factor along with the fraction of variance in each measure that is explained by the variance of the underlying latent factor for the control, treatment and nondepressed group separately. All measures that were negatively worded in the follow-up surveys are reverse coded so that higher score means higher level of underlying skill.

Table A12: Maternal Mental Health Measures II: Loadings and Signal-to-noise Ratio

Measurement	**Loading**	% **Signal**		
		Control	Treated	Nondep.
24 months				
scid13: Current major depressive episode(-)	1.000	25.2%	25.2%	15.9%
scid1: Depressed Mode (-)	1.059	46.5%	44.9%	32.0%
scid2: Loss of interest (-)	1.035	21.9%	34.0%	18.5%
scid3: Weight/appetite loss or gain (-)	0.832	51.7%	63.8%	37.9%
scid4: Sleep disturbance (-)	0.858	80.5%	65.6%	34.3%
scid5: Psychomotor agitation or retardation(-)	1.055	41.3%	58.2%	26.2%
scid6: Fatigue or loss of energy (-)	1.025	62.5%	65.0%	61.1%
scid7: Feeling of worthlessness or inapropriate guilt (-)	0.696	66.6%	54.2%	29.3%
scid8: Diminished ability to concentrate or indecisiveness (-)	0.886	49.3%	46.4%	33.3%
scid10: Symptoms cause significant distress or impairment (-)	1.034	32.5%	25.5%	27.9%
phq2: Poor appetite or overeating. (-)	0.766	58.4%	82.8%	43.3%
phq3: Trouble falling or staying asleep (-)	0.705	77.3%	78.8%	44.4%
phq4: Moving/speaking so slowly (-)	0.871	59.7%	58.1%	32.4%
phq6: Little interest or pleasure in doing things (-)	0.986	60.6%	26.2%	45.9%
phq7: Feeling down, depressed, hopeless (-)	1.077	55.8%	46.1%	39.7%
phq8: Feeling bad about yourself (-)	0.808	60.8%	40.9%	26.2%
36 months				
scid13: Current major depressive episode (-)	1.000	66.6%	56.0%	58.8%
scid1: Depressed Mode (-)	1.059	62.8%	54.0%	56.9%
scid5: Psychomotor agitation or retardation(-)	1.055	69.4%	57.3%	64.5%
scid6: Fatigue or loss of energy (-)	1.025	59.1%	50.9%	49.9%
scid10: Symptoms cause significant distress or impairment (-)	1.034	68.8%	54.4%	59.0%
pss1: In the last month, how often have you been upset? (-)	0.971	62.9%	52.3%	53.5%
pss2: How often have you felt you were unable to control things? (-)	0.968	62.8%	54.5%	52.4%
pss3: How often have you felt nervous or stressed? (-)	1.047	71.7%	59.8%	56.8%
pss4: How often have you felt confident?	0.890	51.9%	45.6%	39.6%
pss5: How often have you felt that things were going your way?	0.903	52.2%	46.9%	35.6%
pss6: How often have you felt that you cannot cope with things?(-)	0.939	51.3%	41.8%	35.9%
pss8: How often have you felt that you were on top of things?	0.874	39.4%	48.3%	38.9%
pss10: How often have you felt difficulties piling up? (-)	0.926	53.0%	50.4%	38.8%
phq1: Feeling tired or having little energy. (-)	0.935	47.5%	39.1%	38.7%
phq3: Trouble falling or staying asleep (-)	0.705	33.1%	25.2%	30.1%
phq4: Moving/speaking so slowly (-)	0.871	51.2%	38.2%	50.1%
phq5: Trouble concentrating on things (-)	0.831	42.1%	32.1%	32.9%
phq6: Little interest or pleasure in doing things (-)	0.986	61.7%	51.3%	59.7%
phq7: Feeling down, depressed, hopeless (-)	1.077	77.2%	60.8%	58.5%
phq8: Feeling bad about yourself (-)	0.808	47.6%	40.9%	46.5%
gad1: Feeling nervous, anxious or on edge. (-)	0.988	65.2%	54.6%	56.0%
gad2: Not being able to stop or control worrying. (-)	0.965	68.7%	54.5%	57.9%
gad3: Worrying too much about different things. (-)	0.906	59.8%	59.9%	51.5%
gad4: Trouble relaxing (-)	0.919	38.2%	60.9%	57.9%
gad5: Being so restless it's hard to sit still. (-)	0.916	59.8%	58.7%	57.9%
gad6: Becoming easily annoyed or irritable. (-)	0.967	56.7%	54.4%	51.4%
gad7: Feeling afraid as if something awful might happen. (-)	0.972	60.8%	45.2%	55.1%

Note: This table reports the factor loadings of the measures allowed to load on the maternal mental health factor along with the fraction of variance in each measure that is explained by the variance of the underlying latent factor for the control, treatment and nondepressed group separately. All measures that were negatively worded in the follow-up surveys are reverse coded so that higher score means higher level of underlying skill.

Table A13: Maternal Functioning Measures: Loadings and Signal-to-noise Ratio

Measurement	**Loading**	% **Signal**		
		Control	Treated	Nondep.
6 months				
whodas12: Difficulty affecting day-to-day work.(-)	1.000	69.5%	61.1%	62.4%
whodas2: Difficulty standing for long periods (-)	0.949	55.1%	55.7%	36.8%
whodas3: Difficulty taking care of household responsibilities (-)	1.032	68.7%	64.2%	50.9%
whodas4: Difficulty learning a new task (-)	0.820	55.1%	46.5%	35.5%
whodas5: Difficulty joining in community activities (-)	0.894	54.5%	45.4%	46.7%
whodas6: Difficulty concentrating (-)	0.881	58.2%	53.4%	41.5%
whodas7: Difficulty walking a long distance (-)	0.917	52.5%	49.9%	27.0%
whodas8: Difficulty washing your whole body (-)	0.612	31.0%	26.4%	31.2%
whodas9: Difficulty getting dressed (-)	0.588	27.9%	20.5%	39.1%
whodas10: Difficulty dealing with people you do not know (-)	0.797	39.1%	44.9%	31.7%
whodas11: Dealing with maintaining a friendship (-)	0.741	37.7%	37.7%	32.1%
whodas13: How much have you been affected by your health problems? (-)	0.986	63.7%	58.3%	45.6%
12 months				
whodas12: Difficulty affecting day-to-day work.(-)	1.000	67.4%	63.3%	66.6%
whodas2: Difficulty standing for long periods (-)	0.949	56.6%	49.9%	43.8%
whodas3: Difficulty taking care of household responsibilities (-)	1.032	70.1%	64.5%	61.6%
whodas4: Difficulty learning a new task (-)	0.820	50.3%	43.5%	42.0%
whodas5: Difficulty joining in community activities (-)	0.894	52.7%	48.4%	46.2%
whodas6: Difficulty concentrating (-)	0.881	55.3%	52.7%	55.1%
whodas7: Difficulty walking a long distance (-)	0.917	55.8%	43.5%	41.8%
whodas8: Difficulty washing your whole body (-)	0.612	29.5%	33.6%	41.6%
whodas9: Difficulty getting dressed (-)	0.588	27.5%	30.9%	32.4%
whodas10: Difficulty dealing with people you do not know (-)	0.797	41.8%	36.9%	34.9%
whodas13: How much have you been affected by your health problems? (-)	0.986	62.6%	52.9%	55.5%
24 months				
whodas12: Difficulty affecting day-to-day work.(-)	1.000	67.4%	68.4%	71.6%
whodas2: Difficulty standing for long periods (-)	0.949	59.5%	57.0%	57.2%
whodas3: Difficulty taking care of household responsibilities (-)	1.032	69.8%	70.2%	74.2%
whodas4: Difficulty learning a new task (-)	0.820	47.7%	34.3%	62.6%
whodas5: Difficulty joining in community activities (-)	0.894	55.8%	54.9%	57.4%
whodas6: Difficulty concentrating (-)	0.881	53.0%	44.2%	61.8%
whodas7: Difficulty walking a long distance (-)	0.917	55.5%	51.4%	48.6%
whodas8: Difficulty washing your whole body (-)	0.612	27.2%	21.9%	32.2%
whodas9: Difficulty getting dressed (-)	0.588	25.1%	14.4%	13.6%
whodas10: Difficulty dealing with people you do not know (-)	0.797	48.9%	43.0%	47.5%
whodas11: Dealing with maintaining a friendship (-)	0.741	36.1%	32.8%	37.3%
whodas13: How much have you been affected by your health problems? (-)	0.986	66.8%	59.5%	62.1%
36 months				
whodas12: Difficulty affecting day-to-day work.(-)	1.000	82.2%	75.7%	77.7%
whodas2: Difficulty standing for long periods (-)	0.949	66.0%	54.1%	50.7%
whodas3: Difficulty taking care of household responsibilities (-)	1.032	78.7%	70.5%	69.9%
whodas4: Difficulty learning a new task (-)	0.820	58.2%	51.9%	54.0%
whodas5: Difficulty joining in community activities (-)	0.894	66.4%	61.2%	65.6%
whodas6: Difficulty concentrating (-)	0.881	71.8%	65.5%	64.6%
whodas7: Difficulty walking a long distance (-)	0.917	64.1%	56.7%	52.1%
whodas8: Difficulty washing your whole body (-)	0.612	32.1%	31.1%	33.5%
whodas9: Difficulty getting dressed (-)	0.588	30.3%	29.9%	43.6%
whodas10: Difficulty dealing with people you do not know (-)	0.797	53.2%	44.5%	48.2%
whodas11: Dealing with maintaining a friendship (-)	0.741	46.2%	44.5%	38.1%
whodas13: How much have you been affected by your health problems? (-)	0.986	76.5%	69.8%	70.5%

Note: This table reports the factor loadings of the measures allowed to load on the maternal functioning factor along with the fraction of variance in each measure that is explained by the variance of the underlying latent factor for the control, treatment and nondepressed group separately. All measures that were negatively worded in the follow-up surveys are reverse coded so that higher score means higher level of underlying skill.

Table A14: Socioemotional Measures of Child: Loadings and Signal-to-noise Ratio

Measurement	**Loading**	% **Signal**		
		Control	Treated	Nondep.
6 months				
asq1:Baby calms down within a half hour.	1.000	31.2%	22.0%	16.5%
asq6:Baby lets you know when she is hungry/sick.	0.391	4.8%	2.0%	2.0%
asq8:Baby is able to calm herself down.(-)	0.949	27.5%	17.2%	13.8%
asq9:Baby cries for a long period of time. (-)	1.130	34.8%	31.4%	26.7%
asq10:Baby's body is relaxed.	0.878	21.8%	5.2%	17.5%
asq11:Baby has trouble sucking.(-)	0.508	7.5%	2.5%	3.4%
asq14:Baby has an eating problem. (-)	0.575	11.6%	7.6%	5.1%
asq16:Baby has trouble falling asleep. (-)	0.700	17.1%	5.5%	8.80%
asq17:Baby sleeps at least 10 hours a day.	0.720	18.7%	6.5%	11.9%
asq18:Baby gets constipated or have diarrhea. (-)	0.654	14.2%	4.8%	5.5%
asq19:Someone expressed concerns about baby's behaviour. (-)	0.601	12.7%	3.6%	4.0%
12 months				
asq1:Baby calms down within a half hour.	1.000	37.2%	34.5%	22.3%
asq3:Baby likes to be picked up.	0.396	5.7%	9.0%	1.1%
asq4:Baby stiffens when picked up. (-)	0.482	8.3%	5.8%	4.3%
asq8:Baby is able to calm herself down.	0.949	32.6%	23.9%	15.4%
asq9:Baby cries for a long time.(-)	1.130	46.0%	51.1%	38.1%
asq10:Baby's body is relaxed.	0.878	24.7%	30.6%	22.9%
asq14:Baby has an eating problem. (-)	0.575	10.8%	8.6%	8.3%
asq16:Baby has a problem falling asleep. (-)	0.700	16.3%	30.1%	13.1%
asq17:Baby sleeps at least 10 hours a day.	0.720	16.5%	14.5%	12.5%
asq18:Baby gets constipated or have diarrhea.(-)	0.654	13.2%	10.5%	7.9%
asq19:Someone expressed concerns about baby's behaviour. (-)	0.601	12.4%	11.4%	4.6%
asq20:Concerns about baby's eating/sleeping behaviour. (-)	0.495	8.5%	6.6%	4.1%
24 months				
asq8:Child calms down within 15 minutes.	1.000	44.0%	46.4%	78.5%
asq3:Child laughs or smile when you play with her.	1.539	98.6%	76.2%	95.2%
asq4:Child's body is relaxed.	0.878	65.8%	66.1%	79.6%
asq6:Child greets familiar adults.	1.581	70.2%	87.0%	92.7%
asq10:Child is interested in surroundings.	1.131	56.9%	87.4%	89.4%
asq12:You and your child enjoy mealtimes together.	1.359	69.3%	96.2%	78.4%
asq19:Child lets you know how she feels.	0.964	35.5%	35.6%	52.1%
asq20:Child checks to make sure you are near.	1.024	32.7%	40.0%	50.0%
asq22:Child likes to hear stories/songs.	0.891	32.7%	46.0%	49.4%
36 months				
asq5:Child calms down within 15 minutes.	1.000	28.1%	37.2%	12.1%
asq3:Child plays/talks with adults she knows well.	0.810	20.1%	25.4%	17.2%
asq7:Child can settle herself down.	1.565	65.2%	63.0%	35.0%
asq8:Child easily moves from one activity to next.	1.036	28.7%	36.3%	9.3%
asq9:Child seems happy.	1.710	72.0%	58.0%	49.2%
asq10:Child is interested in surroundings.	1.131	33.3%	29.6%	13.5%
asq11:Child does what you ask her to do.	1.351	39.1%	35.4%	22.0%
asq13:Child can stay with an activity for 5 min.	0.993	25.3%	36.6%	21.4%
asq14:You and your child enjoy mealtimes together.	1.359	43.9%	35.2%	24.7%
sdq14:Generally liked by other children	0.561	7.5%	7.5%	4.8%
sdq25:Good attention span.	0.666	10.4%	9.1%	4.0%

Note: This table reports the factor loadings of the measures allowed to load on the socioemotional factor of the child along with the fraction of variance in each measure that is explained by the variance of the underlying latent factor for the control, treatment and nondepressed group separately. All measures that were negatively worded in the follow-up surveys are reverse coded so that higher score means higher level of underlying skill.

Table A15: Physical Health Measures of Child: Loadings and Signal-to-noise Ratio

Measurement	**Loading**	% **Signal**		
		Control	Treated	Nondep.
6 months				
Weight for age z-score	1.000	75.0%	62.8%	60.9%
Height for age z-score	0.819	43.9%	43.4%	42.8%
Head circumference for age z-score	0.709	34.6%	31.9%	32.4%
12 months				
Weight for age z-score	1.000	68.9%	58.9%	60.8%
Height for age z-score	0.819	53.6%	46.8%	25.7%
Head circumference for age z-score	0.709	27.0%	24.1%	29.8%
24 months				
Weight for age z-score	1.000	66.5%	75.1%	67.7%
Height for age z-score	0.818	44.1%	47.5%	45.3%
Head circumference for age z-score	0.709	31.0%	26.4%	28.3%
36 months				
Weight for age z-score	1.000	78.0%	87.9%	82.8%
Height for age z-score	0.819	53.6%	45.9%	45.8%

Note: This table reports the factor loadings of the measures allowed to load on the physical health factor of the child along with the fraction of variance in each measure that is explained by the variance of the underlying latent factor for the control, treatment and nondepressed group separately. Z-scores are calculated based on the WHO Child Growth Standards.

Table A16: Cognitive Measures of Child: Loadings and Signal-to-noise Ratio

Measurement	**Loading**	% **Signal**		
		Control	Treated	Nondep.
12 months				
Bayley: Fine motor scaled score	1.000	57.5%	67.3%	55.4%
Bayley: Receptive scaled score	0.679	28.2%	35.0%	22.0%
Bayley: Cognitive scaled score	0.949	48.2%	69.7%	60.1%
Bayley: Expressive scaled score	0.648	23.7%	38.0%	27.8%
Bayley: Gross motor scaled score	0.639	23.6%	31.0%	20.0%
36 months				
Bayley: Fine motor scaled score	1.000	44.3%	49.4%	49.8%
Bayley: Receptive scaled score	0.679	20.2%	19.0%	18.5%

Note: This table reports the factor loadings of the measures allowed to load on the cognition factor of the child along with the fraction of variance in each measure that is explained by the variance of the underlying latent factor for the control,treatment and nondepressed group separately. Bayley scaled scores are calculated from the raw scores such that they have mean=10 and SD=3.

Table A17: Parental Investment Measures: Loadings and Signal-to-noise Ratio

Measurement	**Loading**	% **Signal**		
		Control	Treated	Nondep.
6 months				
Maternal Postnatal Attachment Score	1.000	41.4%	37.5%	45.9%
Maternal Self-Efficacy Score	0.869	35.5%	29.2%	38.2%
12 months				
HOME: Learning Material	1.000	63.0%	59.1%	55.4%
HOME: Responsivity	0.284	5.1%	6.4%	5.1%
HOME: Organization	0.602	23.6%	25.8%	20.4%
HOME: Involvement	0.872	46.7%	49.2%	44.5%
HOME: Variety	0.535	17.4%	11.9%	14.4%
24 months				
Omci2: Mom shows negative affect for child (-)	1.000	85.3%	69.2%	61.9%
Omci1: Mom shows positive affect for child.	0.291	9.7%	3.5%	7.9%
Omci3: Mom loses attention towards the child. (-)	0.436	13.5%	9.1%	10.1%
Omci5: Mom shows negative touch. (-)	0.836	47.1%	25.4%	34.6%
Omci7: Mom expresses negative verbal statement.(-)	0.708	32.4%	26.1%	38.7%
Omci8: Mom shows intrusiveness. (-)	0.534	13.5%	28.8%	13.4%
36 months				
HOME: Learning Material	1.000	57.7%	55.5%	58.6%
HOME: Acceptance	0.158	1.5%	1.9%	1.5%
HOME: Organization	0.602	21.3%	20.8%	20.9%
HOME: Involvement	0.872	48.3%	49.3%	41.2%
HOME: Variety	0.535	17.1%	18.9%	14.4%

Note: This table reports the factor loadings of the measures allowed to load on the parental investment factor along with the fraction of variance in each measure that is explained by the variance of the underlying latent factor for the control, treatment and nondepressed group separately. Maternal postnatal attachment score is a sum score from a 19 item questionnaire assessing mother-infant attachment. Maternal self-efficacy score is a sum score from a 10 item questionnaire measuring mother's ability to care for her child. Items reported under 12 and 36 months are used to estimate the longitudinal investment factor model. Items at 6 and 24 months are used to estimate investment factors at these follow-up points for descriptive purposes.

D.3 Estimated Latent Factor Correlations

The following figures provide the correlations between the estimated latent factors at 6, 12 and 36 months in control and the treatment groups separately.

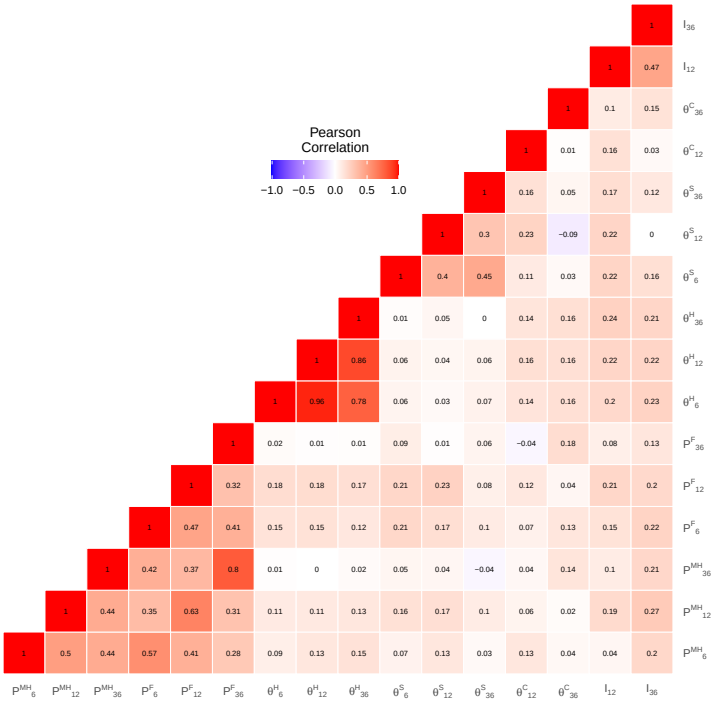


Figure A1: Estimated Latent Factor Correlations: Control Group

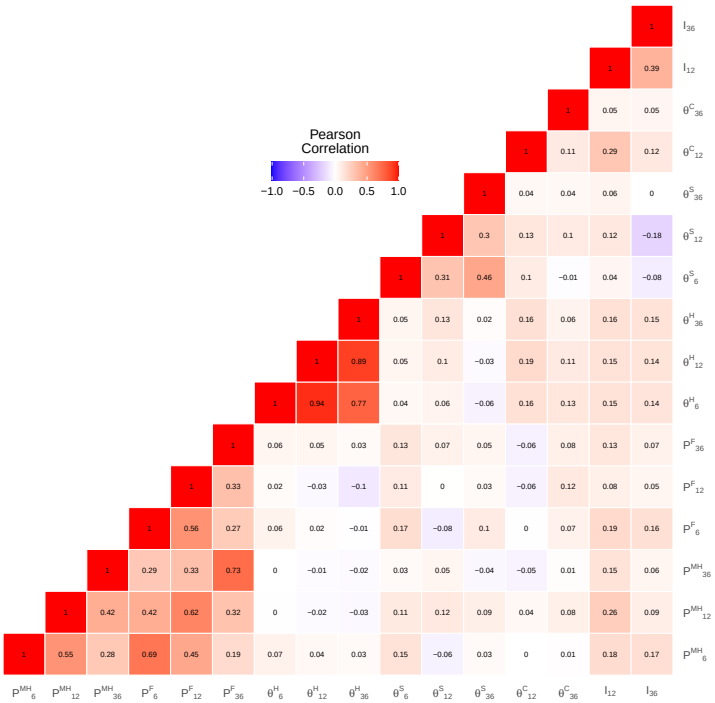


Figure A2: Estimated Latent Factor Correlations: Treatment Group

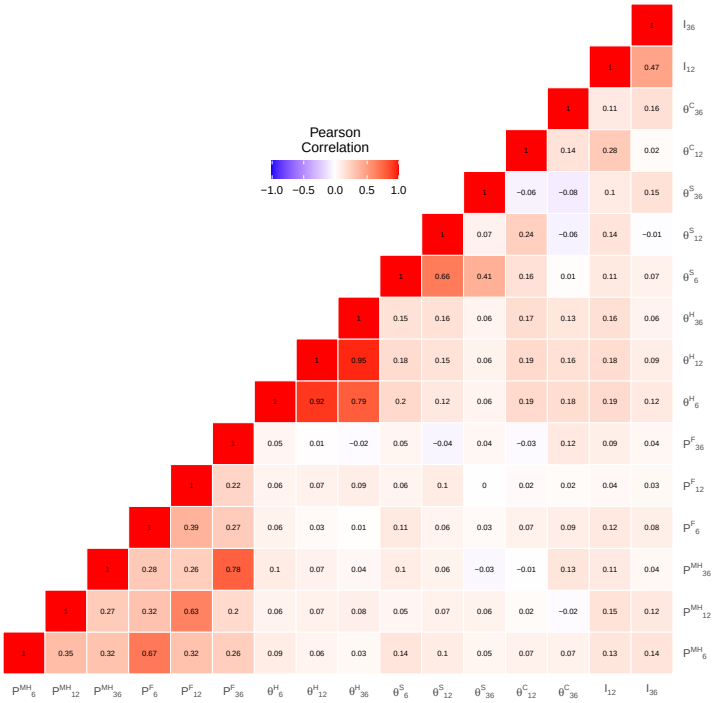


Figure A3: Estimated Latent Factor Correlations: Nondepressed Group

E Reduced Form Outputs

Table A18: Trajectory of Maternal Measures

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val	N
	Mean	SD	Mean	Mean	(T-C)	Beta			
6 Months									
PHQ Total	6.842	6.263	6.074	3.159	-0.768	-1.116	0.452	0.014	929
PHQ Categorized									929
Minimal (0-4)	0.447	0.498	0.491	0.732	0.044	0.060	0.037	0.106	929
Mild (5-9)	0.241	0.429	0.265	0.180	0.024	0.035	0.034	0.301	929
Moderate (10-14)	0.149	0.357	0.122	0.049	-0.027	-0.042	0.035	0.228	929
Moderately Severe (15-19)	0.127	0.334	0.087	0.032	-0.054	-0.050	0.024	0.041	929
Severe (20+)	0.035	0.184	0.035	0.006	0.000	-0.003	0.011	0.752	929
PSS Total	17.219	9.369	15.887	11.270	-1.332	-1.520	0.648	0.019	929
Current Major Dep. Episode	0.225	0.418	0.179	0.060	-0.046	-0.071	0.028	0.011	926
Remission	0.447	0.498	0.491		0.044	0.060	0.037	0.106	458
Recovery	0.452	0.499	0.583		0.131	0.128	0.036	0.000	458
Mental Health Index	**0**	**1**	**0.142**	**0.516**	**0.142**	**0.205**	**0.056**	**0.000**	929
Mental Health Factor	**0**	**1**	**0.160**	**0.648**	**0.160**	**0.205**	**0.052**	**0.000**	929
Whodas Total	7.623	9.420	6.683	2.943	-0.940	-1.652	0.807	0.041	926
Functioning Index	**0**	**1**	**0.136**	**0.459**	**0.136**	**0.184**	**0.079**	**0.019**	929
Functioning Factor	**0**	**1**	**0.108**	**0.547**	**0.108**	**0.182**	**0.075**	**0.015**	929
Mother Index	**0**	**1**	**0.168**	**0.531**	**0.168**	**0.211**	**0.061**	**0.001**	929
12 Months									
PSS Total	17.724	9.534	17.309	12.031	-0.414	-1.169	0.743	0.116	940
Current Major Dep. Episode	0.303	0.460	0.256	0.101	-0.047	-0.091	0.036	0.011	938
Mental Health Index	**0**	**1**	**0.103**	**0.478**	**0.103**	**0.135**	**0.067**	**0.044**	940
Mental Health Factor	**0**	**1**	**0.098**	**0.650**	**0.098**	**0.170**	**0.054**	**0.002**	940
Whodas Total	7.175	9.008	5.843	3.333	-1.332	-1.878	0.731	0.010	940
Functioning Index	**0**	**1**	**0.192**	**0.378**	**0.192**	**0.248**	**0.059**	**0.000**	940
Functioning Factor	**0**	**1**	**0.159**	**0.471**	**0.159**	**0.195**	**0.069**	**0.005**	940
Mother Index	**0**	**1**	**0.165**	**0.457**	**0.164**	**0.214**	**0.071**	**0.002**	940
24 Months									
PHQ Total	6.782	6.152	6.829	3.951	0.047	0.052	0.478	0.913	903
PHQ Categorized									903
Minimal (0-4)	0.445	0.498	0.424	0.666	-0.022	-0.025	0.034	0.458	903
Mild (5-9)	0.291	0.455	0.333	0.218	0.042	0.028	0.034	0.414	903
Moderate (10-14)	0.141	0.349	0.129	0.072	-0.012	-0.001	0.029	0.966	903
Moderately Severe (15-19)	0.064	0.245	0.057	0.027	-0.006	0.005	0.020	0.792	903
Severe (20+)	0.059	0.236	0.057	0.017	-0.002	-0.007	0.017	0.692	903
PSS Total	14.027	8.257	15.724	10.645	1.697	1.129	0.633	0.075	903
Current Major Dep. Episode	0.251	0.435	0.254	0.106	0.002	0.012	0.033	0.713	900
Mental Health Index	**0**	**1**	**-0.139**	**0.328**	**-0.139**	**-0.033**	**0.051**	**0.515**	903
Mental Health Factor	**0**	**1**	**0.028**	**0.532**	**0.028**	**-0.002**	**0.057**	**0.970**	903
Whodas Total	7.532	8.476	7.757	4.230	0.225	0.503	0.648	0.437	903
Functioning Index	**0**	**1**	**-0.087**	**0.303**	**-0.087**	**-0.095**	**0.077**	**0.219**	903
Functioning Factor	**0**	**1**	**-0.013**	**0.406**	**-0.013**	**-0.036**	**0.072**	**0.616**	903
Mother Index	**0**	**1**	**-0.170**	**0.302**	**-0.170**	**-0.071**	**0.061**	**0.240**	903
36 Months									
PHQ Total	6.481	6.254	5.845	3.441	-0.637	-1.737	0.505	0.001	889
PHQ Categorized									889
Minimal (0-4)	0.509	0.501	0.534	0.730	0.025	0.071	0.039	0.067	889
Mild (5-9)	0.241	0.429	0.218	0.139	-0.024	-0.022	0.030	0.458	889
Moderate (10-14)	0.097	0.297	0.150	0.090	0.053	0.061	0.021	0.004	889
Moderately Severe (15-19)	0.106	0.309	0.068	0.034	-0.039	-0.056	0.021	0.009	889
Severe (20+)	0.046	0.211	0.029	0.006	-0.017	-0.055	0.019	0.004	889
PSS Total	14.931	9.731	13.971	9.857	-0.960	-2.855	0.885	0.001	889
GAD Total	5.542	6.437	4.644	3.028	-0.899	-2.571	0.632	0.000	623
GAD Total >10	0.165	0.372	0.113	0.070	-0.052	-0.089	0.038	0.019	623
Current Major Dep. Episode	0.213	0.410	0.160	-0.102	0.043	-0.119	0.035	0.001	889
Mental Health Index	**0**	**1**	**0.168**	**0.425**	**0.168**	**0.325**	**0.090**	**0.000**	889
Mental Health Factor	**0**	**1**	**0.133**	**0.556**	**0.133**	**0.268**	**0.078**	**0.001**	889
Whodas Total	6.778	9.444	5.874	3.338	-0.904	-2.790	0.867	0.001	889
Functioning Index	**0**	**1**	**0.066**	**0.317**	**0.066**	**0.220**	**0.074**	**0.003**	889
Functioning Factor	**0**	**1**	**0.112**	**0.376**	**0.112**	**0.287**	**0.081**	**0.000**	889
Mother Index	**0**	**1**	**0.128**	**0.372**	**0.128**	**0.291**	**0.092**	**0.001**	889

Note: Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with the (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (splitted by gender), whether the index child is the first child, parental education (in years), asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Mental Health Index : all PHQ items + all PSS items + all SCID items + all GAD items whenever available. Functioning Index : all Whodas items. Mother Index : all PHQ items + all PSS items + all SCID items + all GAD items + all Whodas items whenever available. Remission: Proportion of depressed at baseline having PHQ Total<5 at 3 or 6 months. Recovery: Proportion of depressed at baseline having PHQ Total<5 at 3 and 6 months.

Table A19: Trajectory of Child Measures I

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val	N
	Mean	SD	Mean	Mean	(T-C)	Beta			
6 Months									
Weight for age z-score	-0.857	1.140	-0.903	-0.892	-0.046	-0.140	0.123	0.254	923
Height for age z-score	0.086	1.688	0.278	0.053	0.192	0.063	0.177	0.720	920
Head Circ. for age z-score	-0.809	1.044	-0.882	-0.813	-0.073	-0.133	0.099	0.178	923
Child Health Index	**0**	**1**	**0.001**	**-0.020**	**0.001**	**-0.055**	**0.067**	**0.419**	929
Child Health Factor	**0**	**1**	**-0.016**	**-0.034**	**-0.016**	**-0.021**	**0.079**	**0.792**	929
ASQ-SE Total	9.512	13.247	9.677	9.302	0.165	0.045	1.217	0.971	852
ASQ-SE Self-regulation	3.902	6.906	3.848	4.000	-0.055	-0.507	0.600	0.398	852
ASQ-SE Communication	0.366	1.711	0.461	0.547	0.095	0.061	0.196	0.757	852
ASQ-SE Adaptive Func.	3.805	6.275	4.078	3.651	0.273	-0.579	0.521	0.266	852
ASQ-SE Affect	0.415	1.839	0.691	0.442	0.277	0.407	0.169	0.016	852
ASQ-SE Interaction	0.829	2.581	0.599	0.477	-0.230	-0.636	0.237	0.007	852
Child SE Index	**0**	**1**	**-0.034**	**0.041**	**-0.034**	**-0.049**	**0.073**	**0.495**	852
Child SE Factor	**0**	**1**	**0.167**	**0.100**	**0.167**	**0.187**	**0.056**	**0.001**	852
Child Index	**0**	**1**	**-0.028**	**0.033**	**-0.028**	**-0.067**	**0.073**	**0.357**	929
12 Months									
Weight for age z-score	-0.795	1.128	-0.751	-0.769	0.044	0.208	0.122	0.088	934
Height for age z-score	-0.782	1.312	-0.713	-0.784	0.069	0.119	0.108	0.273	934
Head Circ. for age z-score	-0.849	1.000	-0.951	-0.911	-0.102	-0.110	0.095	0.247	938
Child Health Index	**0**	**1**	**0.012**	**-0.016**	**0.012**	**-0.031**	**0.063**	**0.623**	940
Child Health Factor	**0**	**1**	**0.044**	**0.035**	**0.044**	**0.019**	**0.070**	**0.784**	940
ASQ-SE Total	11.689	13.958	9.731	10.112	-1.958	-1.795	1.002	0.073	940
ASQ-SE Self-regulation	5.022	8.799	3.655	4.427	-1.367	-1.633	0.604	0.007	940
ASQ-SE Communication	0.504	2.117	0.717	0.450	0.213	0.474	0.205	0.021	940
ASQ-SE Adaptive Func.	5.219	6.240	4.596	4.233	-0.623	-0.450	0.415	0.278	940
ASQ-SE Affect	0.307	1.452	0.224	0.368	-0.083	0.026	0.120	0.827	940
ASQ-SE Interaction	0.439	1.825	0.359	0.317	-0.080	-0.143	0.117	0.219	940
Child SE Index	**0**	**1**	**0.106**	**0.050**	**0.106**	**0.105**	**0.057**	**0.064**	940
Child SE Factor	**0**	**1**	**0.417**	**0.315**	**0.417**	**0.389**	**0.070**	**0.000**	940
Bayley Cognitive (scaled)	9.196	2.249	9.276	9.430	0.081	0.022	0.182	0.904	923
Bayley Receptive (scaled)	7.942	1.373	7.949	7.969	0.007	-0.141	0.111	0.205	923
Bayley Expressive (scaled)	9.076	1.634	8.954	9.212	-0.122	-0.145	0.154	0.346	923
Bayley Fine motor (scaled)	9.036	1.724	8.908	9.012	-0.128	-0.265	0.170	0.118	923
Bayley Gross motor (scaled)	8.209	2.217	8.120	8.096	-0.089	0.065	0.221	0.768	923
Child Cog Index	**0**	**1**	**-0.038**	**0.038**	**-0.038**	**-0.050**	**0.070**	**0.471**	940
Child Cog Factor	**0**	**1**	**-0.059**	**0.069**	**-0.059**	**-0.080**	**0.083**	**0.334**	940
Child Index	**0**	**1**	**0.096**	**0.051**	**0.096**	**0.069**	**0.050**	**0.169**	940

Note: SE=socioemotional skills. Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. All estimations control for child gender and age (in days). Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Health Index : weight for age + height for age + head circumference for age z-scores. SE index : all ASQ-SE items. Cog Index : all Bayley-III subscales. Child Index : all anthropometrics + all ASQ-SE items + all Bayley-III items whenever available.

Table A20: Trajectory of Child Measures II

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val	N
	Mean	SD	Mean	Mean	(T-C)	Beta			
24 Months									
Weight for age z-score	-0.911	1.045	-1.003	-0.847	-0.092	-0.058	0.077	0.453	895
Height for age z-score	-1.149	1.183	-1.133	-1.045	0.017	-0.007	0.099	0.941	900
Head Circ. for age z-score	-0.852	0.875	-0.975	-0.964	-0.123	-0.166	0.083	0.044	901
Child Health Index	**0**	**1**	**-0.097**	**0.004**	**-0.097**	**-0.082**	**0.077**	**0.290**	903
Child Health Factor	**0**	**1**	**-0.130**	**0.053**	**-0.130**	**-0.100**	**0.083**	**0.227**	903
ASQ-SE Total	12.237	23.633	13.900	15.764	1.662	1.232	1.346	0.360	899
ASQ-SE Self-regulation	2.591	5.623	2.738	2.717	0.147	0.144	0.334	0.667	903
ASQ-SE Compliance	0.182	1.339	0.286	0.486	0.104	0.112	0.104	0.284	903
ASQ-SE Communication	0.841	4.065	0.833	1.438	-0.008	0.028	0.245	0.910	903
ASQ-SE Adaptive Func.	1.250	3.046	1.286	1.522	0.036	-0.166	0.201	0.408	903
ASQ-SE Autonomy	0.250	1.528	0.381	0.581	0.131	0.122	0.097	0.211	903
ASQ-SE Affect	0.932	3.533	0.952	1.353	0.021	-0.026	0.283	0.925	903
ASQ-SE Interaction	5.982	9.841	7.225	7.516	1.243	1.150	0.615	0.061	899
Child SE Index	**0**	**1**	**-0.043**	**-0.162**	**-0.043**	**0.054**	**0.071**	**0.453**	903
Child SE Factor	**0**	**1**	**-0.050**	**-0.217**	**-0.050**	**-0.065**	**0.067**	**0.334**	903
Child Index	**0**	**1**	**-0.071**	**-0.128**	**-0.071**	**0.030**	**0.074**	**0.681**	903
36 Months									
Weight for age z-score	-0.951	1.030	-1.056	-0.939	-0.105	-0.160	0.098	0.101	881
Height for age z-score	-0.846	1.012	-0.925	-0.778	-0.079	-0.176	0.123	0.152	885
Child Health Index	**0**	**1**	**-0.099**	**0.045**	**-0.099**	**-0.120**	**0.090**	**0.182**	889
Child Health Factor	**0**	**1**	**-0.137**	**0.041**	**-0.137**	**-0.166**	**0.088**	**0.060**	889
ASQ-SE Total	41.181	19.526	41.189	38.576	0.009	-1.450	1.637	0.376	889
ASQ-SE Self-regulation	19.630	10.120	18.689	17.944	-0.940	-1.321	0.732	0.071	889
ASQ-SE Compliance	0.602	2.071	0.728	0.685	0.126	0.136	0.196	0.486	889
ASQ-SE Communication	0.741	2.294	0.947	0.642	0.206	-0.117	0.260	0.653	889
ASQ-SE Adaptive Func.	2.940	4.874	3.617	3.062	0.677	0.312	0.623	0.616	889
ASQ-SE Autonomy	10.069	2.872	9.515	9.839	-0.555	-0.382	0.207	0.065	889
ASQ-SE Affect	0.810	3.150	0.801	0.450	-0.009	-0.223	0.380	0.557	889
ASQ-SE Interaction	6.389	5.491	6.893	5.953	0.504	0.143	0.275	0.603	889
SDQ Total	14.718	6.127	14.733	13.687	0.015	0.262	0.331	0.428	889
Boi Total	18.617	11.174	18.124	20.021	-0.493	0.291	0.357	0.415	889
Child SE Index	**0**	**1**	**-0.022**	**0.240**	**-0.022**	**0.012**	**0.076**	**0.875**	889
Child SE Factor	**0**	**1**	**0.058**	**0.108**	**0.058**	**0.063**	**0.075**	**0.400**	889
Bayley Receptive (scaled)	9.977	2.600	10.417	10.413	0.440	0.390	0.206	0.058	886
Bayley Fine motor (scaled)	11.377	4.117	11.422	11.308	0.045	0.041	0.286	0.885	886
Child Cog Index	**0**	**1**	**0.092**	**0.074**	**0.092**	**0.090**	**0.074**	**0.225**	889
Child Cog Factor	**0**	**1**	**0.047**	**-0.020**	**0.047**	**0.065**	**0.075**	**0.386**	889
Child Index	**0**	**1**	**-0.034**	**0.242**	**-0.034**	**-0.005**	**0.079**	**0.953**	889

Note: SE=socioemotional skills. Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. All estimations control for child gender and age (in days). Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Health Index : weight for age + height for age + head circumference for age z-scores. SE index : all ASQ-SE items + all SDQ items + all Boi items. Cog Index : all Bayley-III subscales. Child Index : all anthropometrics + all ASQ-SE items + all SDQ items + all Bayley-III items whenever available.

Table A21: Trajectory of Parental Investment

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val	N
	Mean	SD	Mean	Mean	(T-C)	Beta			
6 Months									
MPAS Total	86.354	6.146	86.166	87.397	-0.188	0.302	0.624	0.629	929
MSES Total	36.886	3.710	37.265	37.726	0.379	0.229	0.264	0.387	929
Investment Index	**0**	**1**	**0.083**	**0.180**	**0.083**	**0.095**	**0.065**	**0.145**	929
Investment Factor	**0**	**1**	**0.060**	**0.417**	**0.060**	**0.076**	**0.057**	**0.187**	929
12 Months									
HOME Total	30.680	5.683	31.099	32.419	0.419	0.639	0.499	0.200	940
HOME Responsivity	9.732	1.434	9.865	9.787	0.133	0.226	0.114	0.047	940
HOME Acceptance	6.088	1.389	6.224	6.192	0.136	0.152	0.126	0.226	940
HOME Organization	3.434	1.417	3.556	3.775	0.122	0.153	0.142	0.281	940
HOME Learning Mat.	4.728	2.643	4.798	5.487	0.070	0.176	0.256	0.493	940
HOME Involvement	3.886	1.453	3.892	4.264	0.006	0.001	0.128	0.995	940
HOME Variety	2.811	0.582	2.762	2.914	-0.049	-0.069	0.066	0.298	940
Investment Index	**0**	**1**	**0.131**	**0.262**	**0.131**	**0.142**	**0.075**	**0.059**	940
Investment Factor	**0**	**1**	**0.062**	**0.448**	**0.062**	**0.075**	**0.086**	**0.382**	940
24 Months									
OMCI Total	37.374	4.641	37.074	38.161	-0.267	-0.146	0.409	0.721	885
Investment Index	**0**	**1**	**-0.076**	**0.166**	**-0.076**	**-0.045**	**0.084**	**0.592**	889
Investment Factor	**0**	**1**	**0.012**	**0.035**	**0.012**	**-0.031**	**0.083**	**0.710**	889
36 Months									
HOME Total	37.347	4.494	37.607	38.582	0.260	0.279	0.366	0.446	889
HOME Responsivity	10.472	0.899	10.437	10.497	-0.035	-0.040	0.065	0.535	889
HOME Acceptance	6.759	1.204	6.898	6.919	0.139	0.173	0.095	0.068	889
HOME Organization	5.028	0.935	5.049	5.148	0.021	-0.002	0.075	0.982	889
HOME Learning Mat.	6.435	2.451	6.505	7.004	0.070	0.134	0.222	0.546	889
HOME Involvement	5.065	1.303	5.121	5.313	0.057	0.039	0.090	0.665	889
HOME Variety	3.588	0.847	3.597	3.702	0.009	-0.025	0.052	0.625	889
OMCI Total	40.958	3.992	41.362	41.353	0.403	0.261	0.390	0.503	886
Investment Index	**0**	**1**	**0.060**	**0.179**	**0.060**	**0.079**	**0.071**	**0.264**	889
Investment Factor	**0**	**1**	**0.067**	**0.361**	**0.067**	**0.111**	**0.076**	**0.143**	889

Note: MPAS : Maternal Postnatal Attachment Scale, MSES : Maternal Self-Efficacy Scale, OMCI: Observation for Mother Child Interaction. Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with the (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. All estimations control for child gender and age (in days). Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Investment Index : all MPAS items +all MSES items at 6 months, all HOME items at 12 and 36 months, all OMCI items at 24 months.

F Treatment Effects on the Fixed Subset

The following tables present the estimated treatment effects for the fixed subset of mothers who were present at 6, 12, 24, and 36 months follow-up waves. (N=771).

Table A22: Trajectory of Maternal Measures for the Fixed Subset (N=771)

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val
	Mean	SD	Mean	Mean	(T-C)	Beta		
6 Months								
PHQ Total	6.590	6.141	5.995	3.261	-0.596	-0.897	0.404	0.026
PHQ Categorized								
Minimal (0-4)	0.463	0.500	0.516	0.722	0.054	0.072	0.031	0.020
Mild (5-9)	0.234	0.425	0.255	0.188	0.021	0.017	0.034	0.610
Moderate (10-14)	0.144	0.352	0.109	0.045	-0.035	-0.039	0.029	0.177
Moderately Severe (15-19)	0.133	0.340	0.082	0.038	-0.051	-0.048	0.022	0.030
Severe (20+)	0.027	0.161	0.038	0.008	0.011	-0.003	0.012	0.825
PSS Total	16.761	9.334	15.701	11.318	-1.060	-1.647	0.537	0.002
Current Major Dep. Episode	0.209	0.407	0.168	0.065	-0.040	-0.071	0.025	0.005
Remission	0.463	0.500	0.516		0.054	0.072	0.031	0.020
Recovery	0.457	0.500	0.592		0.135	0.147	0.032	0.000
Mental Health Index	**0**	**1**	**0.098**	**0.420**	**0.098**	**0.156**	**0.078**	**0.045**
Mental Health Factor	**0**	**1**	**0.142**	**0.580**	**0.142**	**0.196**	**0.059**	**0.001**
Whodas Total	7.574	9.551	6.337	2.940	-1.238	-1.820	0.711	0.010
Functioning Index	**0**	**1**	**0.182**	**0.433**	**0.182**	**0.225**	**0.080**	**0.005**
Functioning Factor	**0**	**1**	**0.127**	**0.514**	**0.127**	**0.190**	**0.073**	**0.010**
Mother Index	**0**	**1**	**0.159**	**0.449**	**0.159**	**0.210**	**0.079**	**0.008**
12 Months								
PSS Total	16.851	9.384	16.897	11.935	0.046	-0.282	0.647	0.663
Current Major Dep. Episode	0.266	0.443	0.266	0.093	0.000	-0.008	0.026	0.746
Mental Health Index	**0**	**1**	**0.053**	**0.392**	**0.053**	**0.045**	**0.058**	**0.444**
Mental Health Factor	**0**	**1**	**0.033**	**0.572**	**0.033**	**0.026**	**0.053**	**0.624**
Whodas Total	6.590	8.605	5.630	3.135	-0.960	-1.713	0.562	0.002
Functioning Index	**0**	**1**	**0.194**	**0.379**	**0.194**	**0.280**	**0.064**	**0.000**
Functioning Factor	**0**	**1**	**0.116**	**0.428**	**0.116**	**0.186**	**0.057**	**0.001**
Mother Index	**0**	**1**	**0.174**	**0.397**	**0.174**	**0.208**	**0.064**	**0.001**
24 Months								
PHQ Total	6.697	5.823	6.848	3.810	0.151	-0.117	0.418	0.779
PHQ Categorized								
Minimal (0-4)	0.431	0.497	0.435	0.682	0.004	0.028	0.033	0.396
Mild (5-9)	0.303	0.461	0.315	0.203	0.012	-0.020	0.034	0.548
Moderate (10-14)	0.154	0.362	0.136	0.078	-0.018	-0.007	0.028	0.813
Moderately Severe (15-19)	0.064	0.245	0.054	0.025	-0.009	-0.005	0.022	0.836
Severe (20+)	0.048	0.214	0.060	0.013	-0.012	0.004	0.011	0.735
PSS Total	13.489	7.946	15.870	10.426	2.380	1.712	0.658	0.009
Current Major Dep. Episode	0.246	0.432	0.246	0.101	0.000	0.004	0.033	0.396
Mental Health Index	**0**	**1**	**-0.178**	**0.334**	**-0.178**	**-0.081**	**0.062**	**0.195**
Mental Health Factor	**0**	**1**	**0.005**	**0.515**	**0.005**	**-0.009**	**0.062**	**0.889**
Whodas Total	7.339	8.350	7.913	3.892	0.514	0.561	0.581	0.335
Functioning Index	**0**	**1**	**-0.039**	**0.390**	**-0.039**	**-0.059**	**0.073**	**0.422**
Functioning Factor	**0**	**1**	**-0.050**	**0.449**	**-0.050**	**-0.057**	**0.067**	**0.395**
Mother Index	**0**	**1**	**-0.169**	**0.360**	**-0.169**	**-0.096**	**0.067**	**0.152**
36 Months								
PHQ Total	5.995	5.889	5.918	3.461	-0.076	-0.970	0.411	0.018
PHQ Categorized								
Minimal (0-4)	0.537	0.500	0.527	0.734	-0.010	0.036	0.034	0.290
Mild (5-9)	0.239	0.428	0.217	0.128	-0.022	-0.014	0.031	0.643
Moderate (10-14)	0.090	0.288	0.152	0.095	0.062	0.051	0.018	0.005
Moderately Severe (15-19)	0.101	0.302	0.071	0.035	-0.030	-0.062	0.016	0.000
Severe (20+)	0.032	0.176	0.033	0.008	0.001	-0.011	0.014	0.459
PSS Total	14.399	9.681	13.832	9.817	-0.567	-1.967	0.770	0.011
GAD Total	5.188	6.162	4.607	3.068	-0.581	-1.917	0.503	0.000
GAD Total >10	0.176	0.381	0.130	0.085	-0.045	-0.072	0.033	0.027
Current Major Dep. Episode	0.191	0.395	0.158	0.093	-0.034	-0.096	0.029	0.001
Mental Health Index	**0**	**1**	**0.163**	**0.401**	**0.163**	**0.306**	**0.096**	**0.001**
Mental Health Factor	**0**	**1**	**0.051**	**0.451**	**0.051**	**0.190**	**0.071**	**0.008**
Whodas Total	5.915	8.576	5.815	3.391	-0.100	-1.551	0.626	0.013
Functioning Index	**0**	**1**	**0.009**	**0.281**	**0.009**	**0.161**	**0.076**	**0.033**
Functioning Factor	**0**	**1**	**0.017**	**0.310**	**0.017**	**0.186**	**0.073**	**0.011**
Mother Index	**0**	**1**	**0.159**	**0.384**	**0.159**	**0.325**	**0.096**	**0.001**

Note: Table shows treatment effects on the reported items and Anderson indices for the subset of mothers who were present at all four waves (N=771). Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Mental Health Index : all PHQ items + all PSS items + all SCID items + all GAD items whenever available. Functioning Index : all Whodas items. Mother Index : all PHQ items + all PSS items + all SCID items + all GAD items + all Whodas items whenever available. Remission: Proportion of depressed at baseline having PHQ Total<5 at 3 or 6 months. Recovery: Proportion of depressed at baseline having PHQ Total<5 at 3 and 6 months.

Table A23: Trajectory of Child Measures for the Fixed Subset I (N=771)

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val
	Mean	SD	Mean	Mean	(T-C)	Beta		
6 Months								
Weight for age z-score	-0.806	1.099	-0.885	-0.882	-0.080	-0.132	0.086	0.125
Height for age z-score	0.098	1.625	0.323	0.080	0.224	0.020	0.124	0.873
Head Circ. for age z-score	-0.801	1.035	-0.840	-0.826	-0.039	-0.139	0.087	0.110
Child Health Index	**0**	**1**	**0.027**	**-0.040**	**0.027**	**-0.090**	**0.075**	**0.229**
Child Health Factor	**0**	**1**	**-0.012**	**-0.068**	**-0.012**	**-0.090**	**0.076**	**0.234**
ASQ-SE Total	9.940	13.777	9.600	9.288	-0.340	0.533	1.270	0.674
ASQ-SE Self-regulation	4.077	7.085	3.857	4.000	-0.220	-0.092	0.647	0.888
ASQ-SE Communication	0.268	1.369	0.457	0.548	0.189	0.366	0.155	0.018
ASQ-SE Adaptive Func.	4.137	6.589	3.857	3.658	-0.280	-0.265	0.525	0.614
ASQ-SE Affect	0.387	1.730	0.714	0.411	0.327	0.542	0.164	0.001
ASQ-SE Interaction	0.893	2.698	0.543	0.397	-0.350	-0.538	0.251	0.032
Child SE Index	**0**	**1**	**0.073**	**0.160**	**0.073**	**0.021**	**0.068**	**0.759**
Child SE Factor	**0**	**1**	**0.174**	**0.037**	**0.174**	**0.208**	**0.069**	**0.003**
Child Index	**0**	**1**	**0.080**	**0.152**	**0.080**	**-0.001**	**0.066**	**0.987**
12 Months								
Weight for age z-score	-0.797	1.154	-0.736	-0.778	0.061	0.079	0.096	0.409
Height for age z-score	-0.817	1.308	-0.726	-0.765	0.092	0.051	0.084	0.544
Head Circ. for age z-score	-0.819	1.000	-0.951	-0.936	-0.132	-0.224	0.085	0.009
Child Health Index	**0**	**1**	**-0.015**	**-0.035**	**-0.015**	**-0.058**	**0.082**	**0.478**
Child Health Factor	**0**	**1**	**0.033**	**-0.013**	**0.033**	**0.007**	**0.074**	**0.929**
ASQ Total	11.489	14.373	9.538	9.737	-1.951	-1.949	0.949	0.040
ASQ-SE Self-regulation	5.226	8.967	3.451	4.060	-1.815	-2.126	0.579	0.000
ASQ-SE Communication	0.452	2.051	0.734	0.489	0.282	0.185	0.116	0.111
ASQ-SE Adaptive Func.	4.920	6.364	4.538	4.286	-0.382	0.107	0.432	0.804
ASQ-SE Affect	0.293	1.385	0.190	0.326	-0.102	-0.160	0.119	0.177
ASQ-SE Interaction	0.372	1.674	0.408	0.276	0.035	0.079	0.121	0.515
Child SE Index	**0**	**1**	**0.115**	**0.099**	**0.115**	**0.137**	**0.059**	**0.020**
Child SE Factor	**0**	**1**	**0.424**	**0.374**	**0.424**	**0.417**	**0.078**	**0.000**
Bayley Cognitive (scaled)	9.414	2.150	9.339	9.466	-0.075	-0.058	0.215	0.786
Bayley Receptive (scaled)	8.032	1.347	7.983	7.959	-0.049	-0.109	0.095	0.252
Bayley Expressive (scaled)	9.215	1.513	9.006	9.244	-0.209	-0.242	0.131	0.065
Bayley Fine motor (scaled)	9.199	1.597	8.878	9.079	-0.321	-0.390	0.140	0.005
Bayley Gross motor (scaled)	8.333	2.107	8.206	8.206	-0.128	-0.159	0.203	0.433
Child Cog Index	**0**	**1**	**-0.121**	**-0.038**	**-0.121**	**-0.165**	**0.095**	**0.082**
Child Cog Factor	**0**	**1**	**-0.161**	**-0.015**	**-0.161**	**-0.205**	**0.104**	**0.048**
Child Index	**0**	**1**	**0.082**	**0.079**	**0.082**	**0.074**	**0.057**	**0.196**

Note: SE=socioemotional skills. Table shows treatment effects on the reported items and Anderson indices for the subset of mothers who were present at all four waves (N=771). Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. All estimations control for child gender and age (in days). Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Mental Health Index : all PHQ items + all PSS items + all SCID items + all GAD items whenever available. Physical Health Index : all Whodas items. Mother Index : all PHQ items + all PSS items + all SCID items + all GAD items + all Whodas items whenever available.

Table A24: Trajectory of Child Measures for the Fixed Subset II (N=771)

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val
	Mean	SD	Mean	Mean	(T-C)	Beta		
24 Months								
Weight for age z-score	-0.861	1.010	-1.007	-0.844	-0.146	-0.146	0.073	0.045
Height for age z-score	-1.097	1.223	-1.146	-0.994	-0.050	-0.066	0.095	0.485
Head Circ. for age z-score	-0.782	0.874	-0.938	-0.956	-0.156	-0.230	0.085	0.007
Child Health Index	**0**	**1**	**-0.149**	**-0.039**	**-0.149**	**-0.183**	**0.080**	**0.023**
Child Health Factor	**0**	**1**	**-0.179**	**-0.017**	**-0.179**	**-0.198**	**0.085**	**0.020**
ASQ-SE Total	10.856	20.434	12.596	12.103	1.740	1.807	1.184	0.127
ASQ-SE Self-regulation	2.473	5.509	2.554	2.318	0.081	0.220	0.367	0.549
ASQ-SE Compliance	0.106	1.029	0.217	0.301	0.111	0.176	0.069	0.011
ASQ-SE Communication	0.665	3.539	0.571	0.777	-0.094	0.047	0.187	0.801
ASQ-SE Adaptive Func.	1.170	2.918	1.277	1.103	0.107	-0.045	0.250	0.856
ASQ-SE Autonomy	0.213	1.447	0.326	0.426	0.113	0.147	0.077	0.058
ASQ-SE Affect	0.771	3.114	0.761	0.802	-0.010	0.008	0.248	0.973
ASQ-SE Interaction	5.321	8.561	6.694	6.247	1.373	1.347	0.526	0.011
Child SE Index	**0**	**1**	**0.125**	**0.117**	**0.125**	**0.157**	**0.069**	**0.023**
Child SE Factor	**0**	**1**	**-0.047**	**-0.111**	**-0.047**	**-0.122**	**0.057**	**0.032**
Child Index	**0**	**1**	**0.085**	**0.111**	**0.085**	**0.109**	**0.072**	**0.133**
36 Months								
Weight for age z-score	-0.916	1.016	-1.058	-0.967	-0.141	-0.167	0.100	0.095
Height for age z-score	-0.859	1.020	-0.919	-0.788	-0.061	-0.091	0.103	0.375
Child Health Index	**0**	**1**	**-0.121**	**-0.006**	**-0.121**	**-0.157**	**0.099**	**0.113**
Child Health Factor	**0**	**1**	**-0.158**	**-0.019**	**-0.158**	**-0.196**	**0.100**	**0.049**
ASQ-SE Total	40.718	17.570	40.625	38.784	-0.093	-0.490	1.438	0.733
ASQ-SE Self-regulation	19.255	9.728	18.397	18.083	-0.859	-0.988	0.616	0.108
ASQ-SE Compliance	0.612	2.074	0.788	0.639	0.176	0.272	0.177	0.123
ASQ-SE Communication	0.691	2.206	0.761	0.614	0.069	-0.009	0.265	0.974
ASQ-SE Adaptive Func.	2.952	4.646	3.451	2.982	0.499	0.204	0.506	0.688
ASQ-SE Autonomy	10.160	2.780	9.511	9.850	-0.649	-0.616	0.157	0.000
ASQ-SE Affect	0.612	2.375	0.842	0.414	0.231	0.415	0.249	0.095
ASQ-SE Interaction	6.436	5.429	6.875	6.203	0.439	0.232	0.383	0.545
SDQ Total	14.649	6.279	14.467	13.424	-0.182	0.054	0.307	0.859
Boi Total	24.883	3.754	24.875	25.000	-0.008	-0.065	0.341	0.848
Child SE Index	**0**	**1**	**0.102**	**0.254**	**0.102**	**0.087**	**0.089**	**0.324**
Child SE Factor	**0**	**1**	**0.038**	**0.133**	**0.038**	**-0.012**	**0.073**	**0.869**
Bayley Receptive (scaled)	10.016	2.593	10.412	10.303	0.396	0.332	0.229	0.148
Bayley Fine motor (scaled)	11.610	4.109	11.500	11.246	-0.110	-0.021	0.290	0.943
Child Cog Index	**0**	**1**	**0.055**	**-0.005**	**0.055**	**0.055**	**0.080**	**0.496**
Child Cog Factor	**0**	**1**	**0.016**	**-0.085**	**0.016**	**0.039**	**0.079**	**0.624**
Child Index	**0**	**1**	**0.079**	**0.240**	**0.079**	**0.061**	**0.088**	**0.493**

Note: SE=socioemotional skills. Table shows treatment effects on the reported items and Anderson indices for the subset of mothers who were present at all four waves (N=771). Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. All estimations control for child gender and age (in days). Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Mental Health Index : all PHQ items + all PSS items + all SCID items + all GAD items whenever available. Physical Health Index : all Whodas items. Mother Index : all PHQ items + all PSS items + all SCID items + all GAD items + all Whodas items whenever available.

Table A25: Trajectory of Parental Investment for the Fixed Subset (N=771)

Measurement	Control		Treatment	Nondep.	Diff.	Adjusted	SE	p-val
	Mean	SD	Mean	Mean	(T-C)	Beta		
6 Months								
MPAS Total	86.296	6.345	86.221	87.543	-0.075	0.007	0.362	0.984
MSES Total	36.963	3.650	37.201	37.840	0.238	0.083	0.228	0.718
Investment Index	**0**	**1**	**0.135**	**0.226**	**0.135**	**0.111**	**0.056**	**0.047**
Investment Factor	**0**	**1**	**0.039**	**0.417**	**0.039**	**0.034**	**0.049**	**0.485**
12 Months								
HOME Total	30.803	5.761	31.212	32.534	0.409	0.748	0.451	0.098
HOME Responsivity	9.644	1.504	9.853	9.810	0.210	0.244	0.128	0.056
HOME Acceptance	6.112	1.427	6.277	6.216	0.165	0.270	0.105	0.010
HOME Organization	3.505	1.358	3.489	3.772	-0.016	0.000	0.105	0.998
HOME Learning Mat.	4.793	2.555	4.913	5.589	0.120	0.269	0.192	0.161
HOME Involvement	3.894	1.477	3.929	4.238	0.036	0.056	0.114	0.625
HOME Variety	2.856	0.523	2.750	2.910	-0.106	-0.091	0.068	0.179
Investment Index	**0**	**1**	**0.153**	**0.281**	**0.153**	**0.158**	**0.099**	**0.112**
Investment Factor	**0**	**1**	**0.039**	**0.419**	**0.039**	**0.091**	**0.082**	**0.271**
24 Months								
OMCI Total	37.396	4.699	36.921	38.213	-0.475	-0.360	0.428	0.401
Investment Index	**0**	**1**	**-0.095**	**0.189**	**-0.095**	**-0.078**	**0.086**	**0.360**
Investment Factor	**0**	**1**	**0.006**	**0.100**	**0.006**	**-0.028**	**0.082**	**0.736**
36 Months								
HOME Total	37.601	4.261	37.647	38.496	0.046	0.406	0.371	0.274
HOME Responsivity	10.473	0.933	10.418	10.486	-0.055	-0.055	0.089	0.536
HOME Acceptance	5.016	0.956	5.043	5.143	0.028	0.186	0.099	0.060
HOME Organization	5.016	0.956	5.043	5.143	0.028	0.082	0.063	0.197
HOME Learning Mat.	6.553	2.315	6.473	6.952	-0.080	0.108	0.213	0.612
HOME Involvement	5.096	1.280	5.158	5.288	0.062	0.115	0.094	0.222
HOME Variety	3.638	0.851	3.625	3.719	-0.013	-0.029	0.049	0.548
OMCI Total	41.027	4.034	41.344	41.539	0.318	0.234	0.356	0.510
Investment Index	**0**	**1**	**0.191**	**0.313**	**0.191**	**0.236**	**0.071**	**0.001**
Investment Factor	**0**	**1**	**0.0126**	**0.296**	**0.026**	**0.111**	**0.075**	**0.137**

Note: MPAS : Maternal Postnatal Attachment Scale, MSES : Maternal Self-Efficacy Scale, OMCI: Observation for Mother Child Interaction. Adjusted coefficients are obtained from the regressions of items on the treatment indicator and its interactions with (demeaned) baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. All estimations control for child gender and age (in days). Robust and clustered standard errors at the cluster level are reported in the SE column. Reported p-values and standard errors refer to the adjusted beta coefficient. Anderson indices and factor scores are coded so that higher score always indicates better outcome. Investment Index : all MPAS items +all MSES items at 6 months, all HOME items at 12 and 36 months, all OMCI items at 24 months.

G Randomization Inference

Table A26: Randomization Inference on Aggregate Maternal Outcomes

	Adjusted Beta	SE	p-val	RI p-val
Mental Health Factor (6m)	0.205	0.052	0.000	0.003
Functioning Factor (6m)	0.182	0.075	0.015	0.038
Mental Health Factor (12m)	0.170	0.054	0.002	0.007
Functioning Factor (12m)	0.195	0.069	0.005	0.022
Mental Health Factor (24m)	-0.002	0.057	0.970	0.967
Functioning Factor (24m)	-0.036	0.072	0.616	0.665
Mental Health Factor (36m)	0.268	0.078	0.001	0.006
Functioning Factor (36m)	0.287	0.081	0.000	0.006

Note: p-values reported in the last column are computed using randomization inference based on Young (2019) with the randomization permuted at the cluster level.

Table A27: Randomization Inference on Aggregate Child and Investment Outcomes

	Adjusted Beta	SE	p-val	RI p-val
Child Health Factor (6m)	-0.021	0.079	0.792	0.811
Child SE Factor (6m)	0.187	0.056	0.001	0.007
Investment Factor (6m)	0.076	0.057	0.187	0.264
Child Health Factor (12m)	0.019	0.070	0.784	0.795
Child SE Factor (12m)	0.389	0.070	0.000	0.001
Child Cog Factor (12m)	-0.080	0.083	0.334	0.411
Investment Factor (12m)	0.075	0.086	0.382	0.443
Child Health Factor (24m)	-0.100	0.083	0.227	0.287
Child SE Factor (24m)	-0.065	0.067	0.334	0.438
Investment Factor (24m)	-0.031	0.083	0.710	0.744
Child Health Factor (36m)	-0.166	0.088	0.060	0.104
Child SE Factor (36m)	0.063	0.075	0.400	0.464
Child Cog Factor (36m)	0.065	0.075	0.386	0.422
Investment Factor (36m)	0.111	0.076	0.143	0.222

Note: p-values reported in the last column are computed using randomization inference based on Young (2019) with the randomization permuted at the cluster level.

H Heterogeneity in Treatment Effects

Figure A4: Coefficient Plots of Indices (Boys)

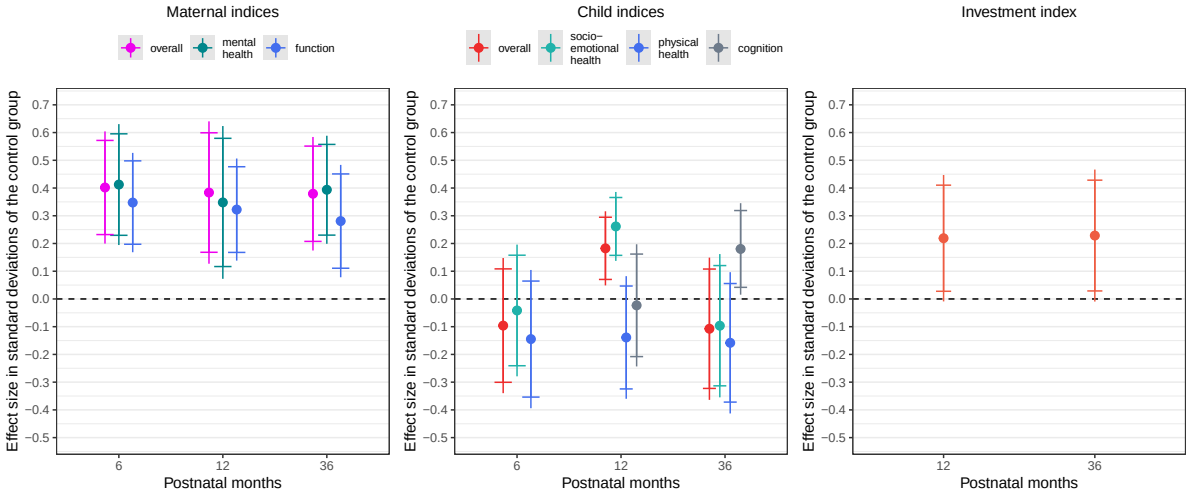


Figure A5: Coefficient Plots of Indices (Girls)

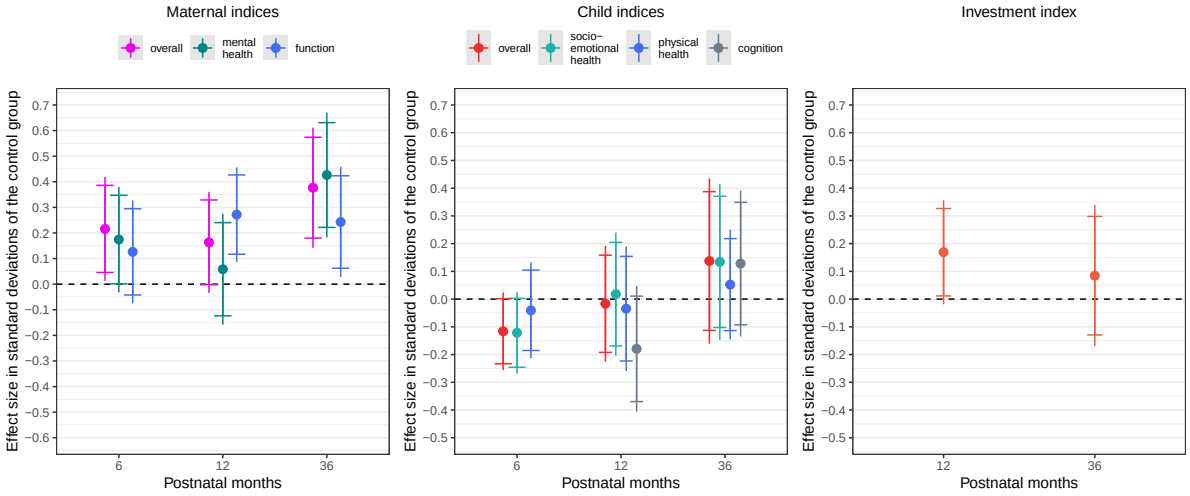
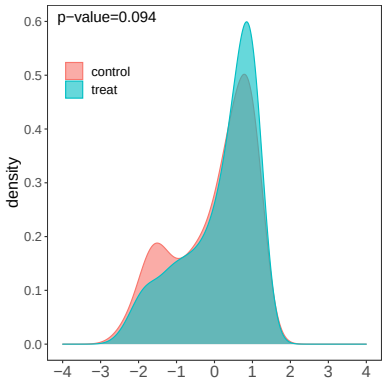
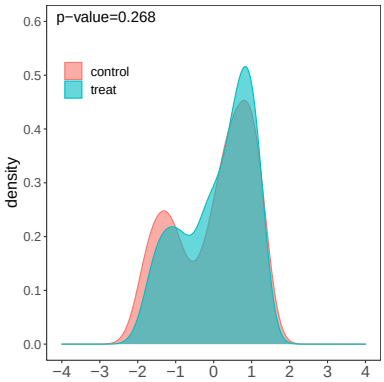


Figure A6: Kernel Densities of Latent Factors

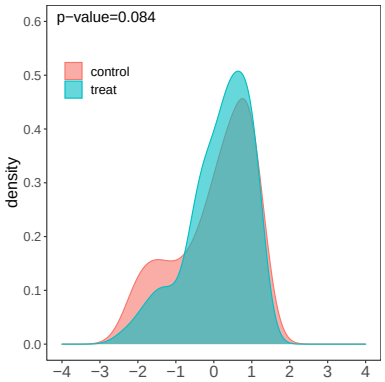
(a) Maternal mental health, 6 months



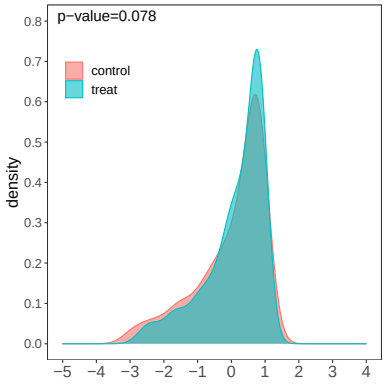
(b) Maternal mental health, 12 months



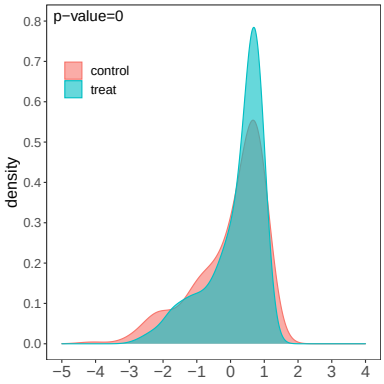
(c) Maternal mental health, 36 months



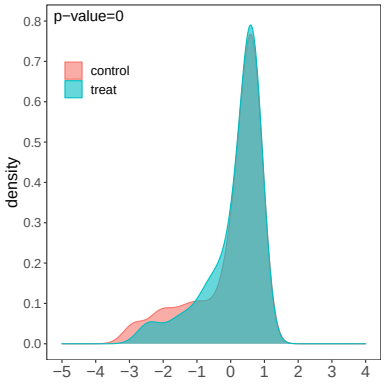
(d) Maternal func., 6 months



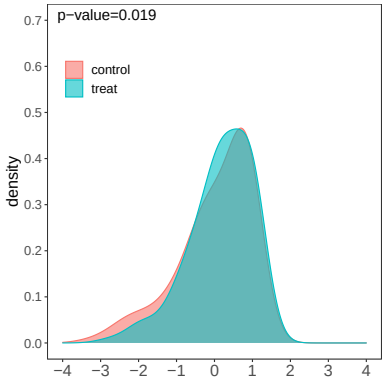
(e) Maternal func., 12 months



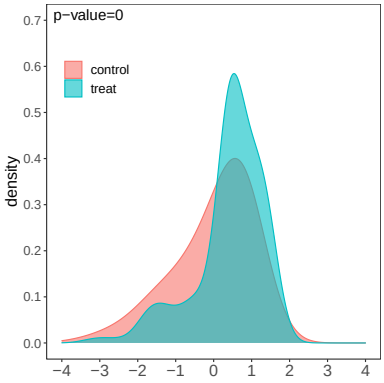
(f) Maternal func., 36 months



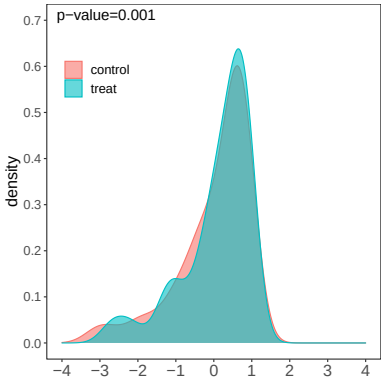
(g) Children's socioemotional skills, 6 months



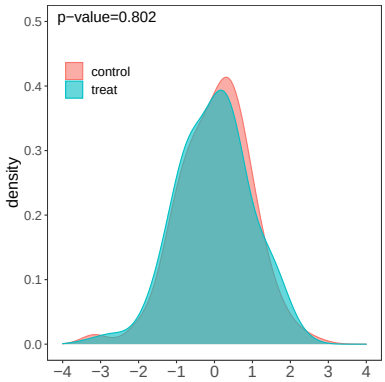
(h) Children's socioemotional skills, 12 months



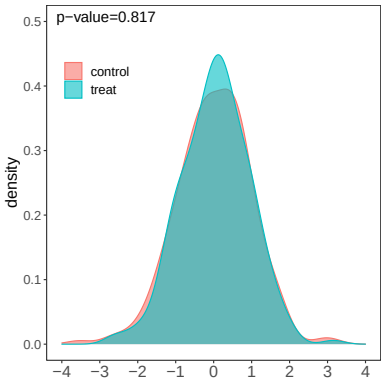
(i) Children's socioemotional skills, 36 months



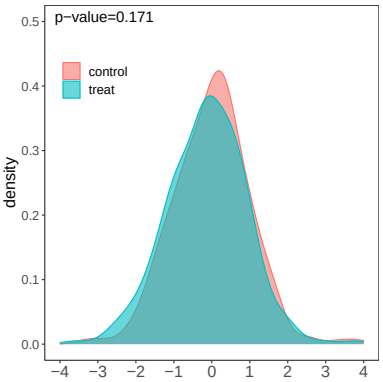
(j) Children's physical health, 6 months



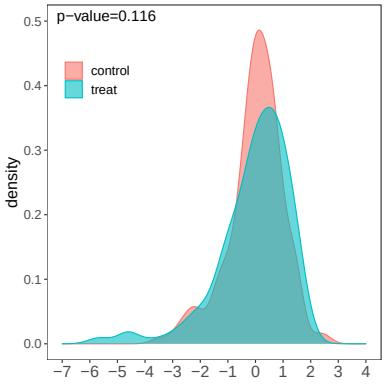
(k) Children's physical health, 12 months



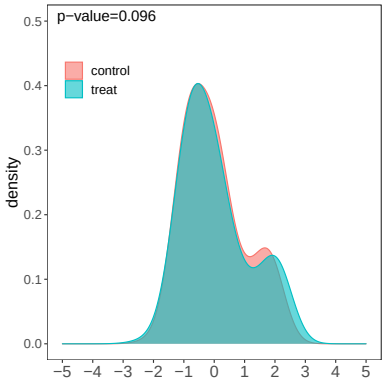
(l) Children's physical health, 36 months



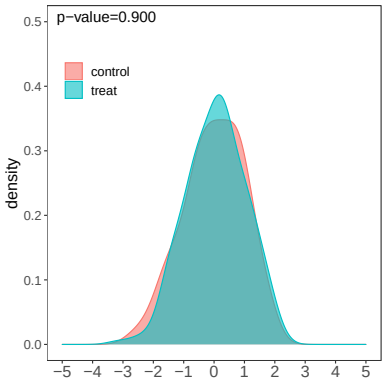
(m) Children's cognition, 12 months



(n) Children's cognition, 36 months



(o) Parental investment, 12 months



(p) Parental investment, 36 months

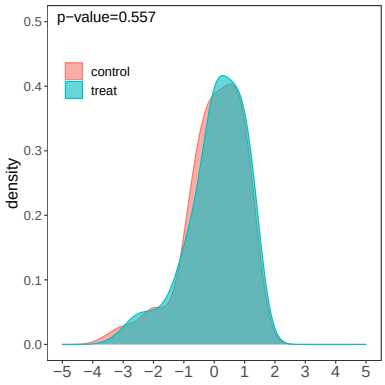
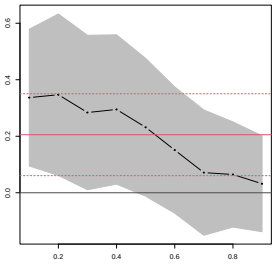
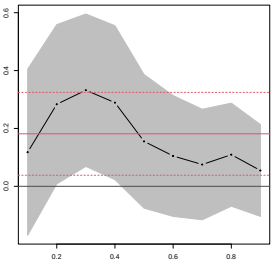


Figure A7: Quantile Treatment Effects on Latent Factors

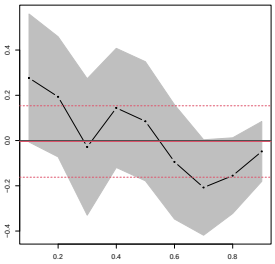
(a) Maternal mental health, 6 months



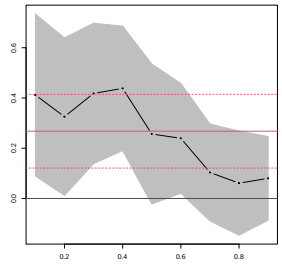
(b) Maternal mental health, 12 months



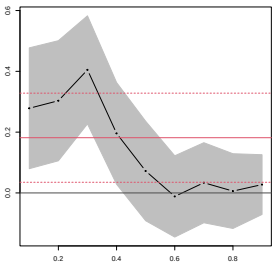
(c) Maternal mental health, 24 months



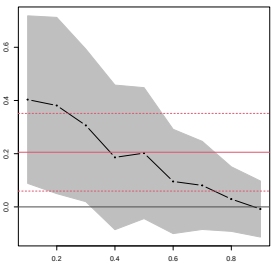
(d) Maternal mental health, 36 months



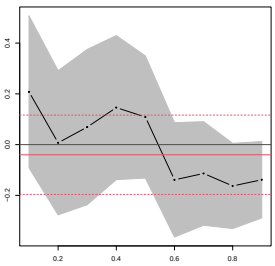
(e) Maternal func., 6 months



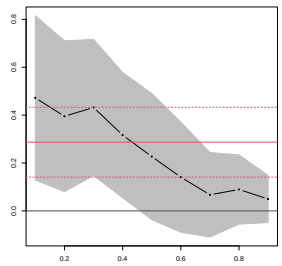
(f) Maternal func. 12 months



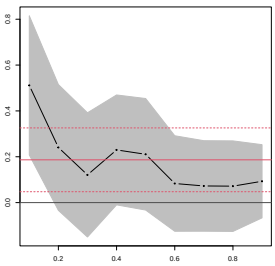
(g) Maternal func. 24 months



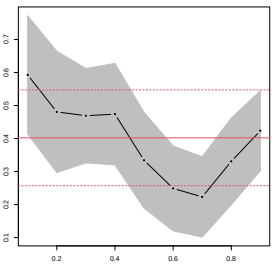
(h) Maternal func. 36 months



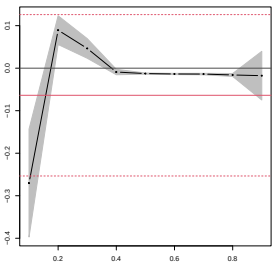
(i) Children's socioemotional skills, 6 months



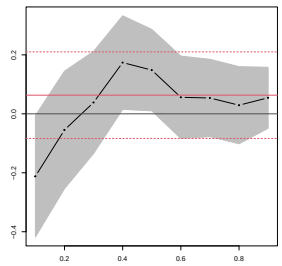
(j) Children's socioemotional skills, 12 months



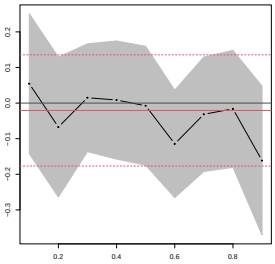
(k) Children's socioemotional skills, 24 months



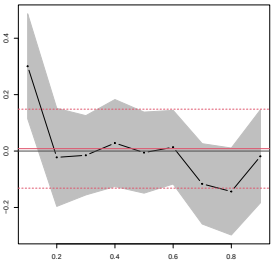
(l) Children's socioemotional skills, 36 months



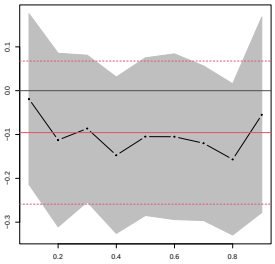
(m) Children's physical health, 6 months



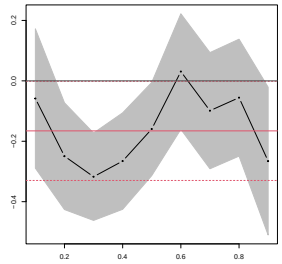
(n) Children's physical health, 12 months



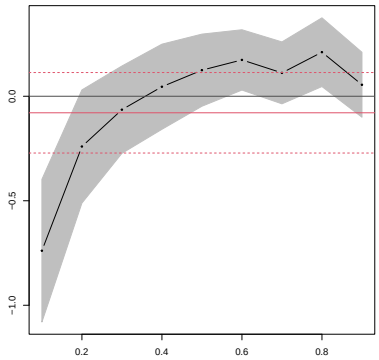
(o) Children's physical health, 24 months



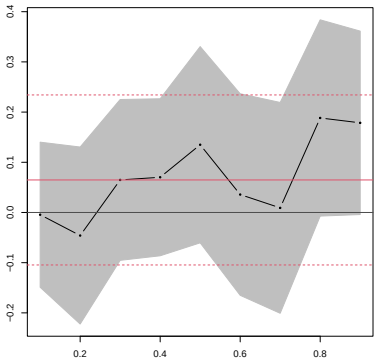
(p) Children's physical health, 36 months



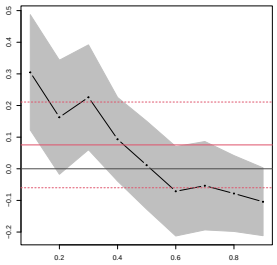
(q) Children's cognition, 12 months



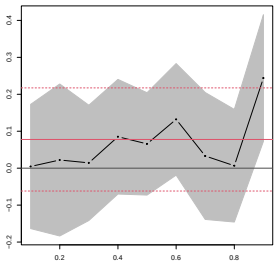
(r) Children's cognition, 36 months



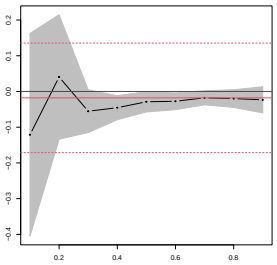
(s) Parental investment, 6 months



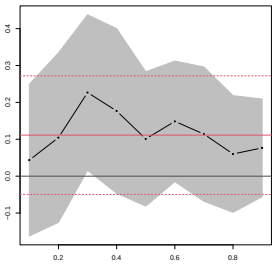
(t) Parental investment, 12 months



(u) Parental investment, 24 months



(v) Parental investment, 36 months



Note: Quantile treatment effects of THPP+ intervention on latent factors. 95 % confidence intervals are calculated by bootstrapping using 1000 replications and clustering at the level of randomization.

Table A28: Heterogeneity in treatment effects for maternal mental health

	Coefficient on		
	treatment	baseline characteristic	treat x baseline characteristic
	(1)	(2)	(3)
Baseline characteristic: index child is female			
mental health (6m)	0.422***	0.065	−0.413***
	(0.095)	(0.114)	(0.154)
mental health (12m)	0.338***	0.108	−0.254
	(0.099)	(0.109)	(0.160)
mental health (24m)	−0.056	−0.095	0.096
	(0.118)	(0.184)	(0.205)
mental health (36m)	0.364**	0.100	−0.222
	(0.145)	(0.111)	(0.173)
Baseline characteristic: first child			
mental health (6m)	0.172**	0.051	0.148
	(0.086)	(0.165)	(0.186)
mental health (12m)	0.175**	−0.075	0.132
	(0.088)	(0.169)	(0.212)
mental health (24m)	−0.081	−0.230	0.293
	(0.092)	(0.171)	(0.219)
mental health (36m)	0.261**	0.013	−0.045
	(0.113)	(0.205)	(0.226)
Baseline characteristic: SES index			
mental health (6m)	0.222***	−0.020	0.043
	(0.067)	(0.054)	(0.065)
mental health (12m)	0.170***	0.024	−0.089*
	(0.066)	(0.045)	(0.047)
mental health (24m)	0.021	−0.031	0.066
	(0.073)	(0.046)	(0.053)
mental health (36m)	0.212**	0.017	−0.105*
	(0.100)	(0.055)	(0.054)
Baseline characteristic: mother's education			
mental health (6m)	−0.089	0.001	0.042**
	(0.156)	(0.012)	(0.019)
mental health (12m)	0.206	0.045***	0.000
	(0.150)	(0.014)	(0.018)
mental health (24m)	−0.243*	0.013	0.034*
	(0.143)	(0.013)	(0.018)
mental health (36m)	0.487**	0.041**	−0.034
	(0.218)	(0.018)	(0.025)
Baseline characteristic: PHQ Total			
mental health (6m)	0.377	0.049*	−0.014
	(0.328)	(0.026)	(0.027)
mental health (12m)	0.579*	0.082***	−0.030
	(0.297)	(0.019)	(0.023)
mental health (24m)	−0.115	0.052*	0.009
	(0.340)	(0.027)	(0.026)
mental health (36m)	0.101	0.027	0.012
	(0.333)	(0.021)	(0.026)

treatment=1 if the observation is in treatment clusters, =0 otherwise. Dependent variables (listed on the first column) are latent factor scores of maternal mental health, coded in a way that higher score means better outcome and standardized to be mean 0 and SD 1 in the control group. Coefficients are obtained from the regressions of factor scores on the treatment indicator, its interactions with the respective dimension and the baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education (in years), asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. Robust and clustered standard errors at the cluster level are reported in the SE column.
Note: *p<0.1; **p<0.05; ***p<0.01

Table A29: Heterogeneity in treatment effects for selected child outcomes

	Coefficient on		
	treatment	baseline characteristic	treat x baseline characteristic
	(1)	(2)	(3)
Baseline characteristic: index child is female			
socioemotional skills (6m)	0.294**	0.247*	−0.230
	(0.132)	(0.128)	(0.175)
socioemotional skills (12m)	0.640***	0.189	−0.430**
	(0.136)	(0.132)	(0.171)
socioemotional skills (24m)	0.003	0.117	−0.140
	(0.148)	(0.146)	(0.235)
socioemotional skills (36m)	0.027	−0.014	0.034
	(0.130)	(0.113)	(0.171)
cognition (12m)	−0.033	−0.135	−0.021
	(0.118)	(0.150)	(0.209)
cognition (36m)	0.070	−0.017	−0.008
	(0.131)	(0.091)	(0.188)
Baseline characteristic: first child			
socioemotional skills (6m)	0.067	−0.239	0.458**
	(0.081)	(0.178)	(0.183)
socioemotional skills (12m)	0.467***	0.099	−0.212
	(0.106)	(0.132)	(0.185)
socioemotional skills (24m)	−0.092	0.126	0.092
	(0.108)	(0.196)	(0.162)
socioemotional skills (36m)	−0.003	−0.015	0.206
	(0.088)	(0.171)	(0.183)
cognition (12m)	−0.128	−0.143	0.357
	(0.107)	(0.183)	(0.227)
cognition (36m)	0.073	−0.174	−0.031
	(0.106)	(0.182)	(0.247)
Baseline characteristic: SES index			
socioemotional skills (6m)	0.161**	0.067	−0.040
	(0.078)	(0.044)	(0.043)
socioemotional skills (12m)	0.413***	−0.040	−0.011
	(0.083)	(0.049)	(0.051)
socioemotional skills (24m)	−0.034	0.046	0.080
	(0.081)	(0.055)	(0.106)
socioemotional skills (36m)	0.029	0.004	−0.043
	(0.080)	(0.043)	(0.044)
cognition (12m)	0.009	−0.034	0.130*
	(0.088)	(0.067)	(0.079)
cognition (36m)	0.069	−0.034	0.008
	(0.089)	(0.041)	(0.054)
Baseline characteristic: mother's education			
socioemotional skills (6m)	0.042	−0.026*	0.019
	(0.120)	(0.016)	(0.020)
socioemotional skills (12m)	0.463**	−0.004	−0.007
	(0.190)	(0.020)	(0.022)
socioemotional skills (24m)	−0.503**	−0.045***	0.063**
	(0.210)	(0.017)	(0.027)
socioemotional skills (36m)	0.195	−0.002	−0.022
	(0.174)	(0.014)	(0.020)
cognition (12m)	−0.491**	−0.016	0.063***
	(0.210)	(0.023)	(0.024)
cognition (36m)	0.224	0.043***	−0.023
	(0.162)	(0.015)	(0.022)
Baseline characteristic: PHQ Total			
socioemotional skills (6m)	0.140	0.021	0.003
	(0.327)	(0.019)	(0.026)
socioemotional skills (12m)	0.766**	0.037	−0.028
	(0.326)	(0.025)	(0.024)
socioemotional skills (24m)	−0.564	−0.007	0.040
	(0.456)	(0.024)	(0.034)
socioemotional skills (36m)	0.649**	0.025	−0.049*
	(0.300)	(0.020)	(0.025)
cognition (12m)	−0.182	−0.004	0.011
	(0.365)	(0.020)	(0.028)
cognition (36m)	0.301	0.012	−0.019
	(0.376)	(0.018)	(0.028)

treatment=1 if the observation is in treatment clusters, =0 otherwise. Dependent variables (listed on the first column) are latent factor scores of child socio-emotional health and cognition, coded in a way that higher score means better outcome and standardized to be mean 0 and SD 1 in the control group. Coefficients are obtained from the regressions of factor scores on the treatment indicator, its interactions with the respective dimension and the baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education (in years), asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. Robust and clustered standard errors at the cluster level are reported in the SE column.

Note: *p<0.1; **p<0.05; ***p<0.01

Table A30: Heterogeneity in treatment effects for parental investment

	Coefficient on		
	treatment	baseline characteristic	treat x baseline characteristic
	(1)	(2)	(3)
Baseline characteristic: index child is female			
parental investment (12m)	0.131	−0.003	−0.097
	(0.115)	(0.119)	(0.173)
parental investment (36m)	0.121	0.024	−0.012
	(0.114)	(0.093)	(0.153)
Baseline characteristic: first child			
parental investment (12m)	0.020	−0.060	0.255
	(0.118)	(0.150)	(0.210)
parental investment (36m)	0.127	−0.081	−0.054
	(0.102)	(0.151)	(0.186)
Baseline characteristic: SES index			
parental investment (12m)	0.077	0.116***	−0.009
	(0.099)	(0.040)	(0.050)
parental investment (36m)	0.085	0.092*	−0.081
	(0.082)	(0.048)	(0.067)
Baseline characteristic: mother's education			
parental investment (12m)	0.007	0.046***	0.010
	(0.186)	(0.013)	(0.020)
parental investment (36m)	0.338*	0.056***	−0.033
	(0.187)	(0.013)	(0.024)
Baseline characteristic: PHQ Total			
parental investment (12m)	0.063	0.007	0.001
	(0.379)	(0.020)	(0.027)
parental investment (36m)	0.452	0.019	−0.027
	(0.365)	(0.018)	(0.028)

treatment=1 if the observation is in treatment clusters, =0 otherwise. Dependent variables (listed on the first column) are latent factor scores of parental investment, coded in a way that higher score means better outcome and standardized to be mean 0 and SD 1 in the control group. Coefficients are obtained from the regressions of factor scores on the treatment indicator, its interactions with the respective dimension and the baseline covariates including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education (in years), asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. Robust and clustered standard errors at the cluster level are reported in the SE column.
Note: *p<0.1; **p<0.05; ***p<0.01

I Depression Gap

Table A31: Difference on ICW Indices between Non-depressed and Control Groups

	treated depressed-control depressed				nondepressed-control depressed			
	Diff. (T-C)	Adjusted Beta	SE	p-val	Diff. (ND-C)	Adjusted Beta	SE	p-val
Maternal Indices								
Mental Health (6m)	0.142	0.163	0.084	0.053	0.516	-0.026	0.186	0.889
Mental Health (12m)	0.103	0.142	0.085	0.096	0.478	0.090	0.148	0.542
Mental Health (24m)	-0.139	-0.048	0.079	0.541	0.328	-0.150	0.169	0.374
Mental Health (36m)	0.168	0.292	0.098	0.003	0.425	0.067	0.162	0.681
Functioning (6m)	0.136	0.175	0.088	0.047	0.459	0.057	0.157	0.715
Functioning (12m)	0.192	0.241	0.077	0.002	0.378	-0.344	0.201	0.087
Functioning (24m)	-0.087	-0.095	0.097	0.332	0.303	-0.344	0.166	0.038
Functioning (36m)	0.066	0.211	0.079	0.008	0.317	-0.157	0.184	0.393
Child Indices								
Physical Health (6m)	0.001	-0.021	0.096	0.826	-0.020	0.054	0.194	0.779
Physical Health (12m)	0.012	0.002	0.080	0.981	-0.016	-0.140	0.196	0.475
Physical Health (24m)	-0.097	-0.035	0.095	0.710	0.004	0.195	0.185	0.293
Physical Health (36m)	-0.099	-0.099	0.099	0.315	0.045	-0.169	0.185	0.361
Socioemotional Skills (6m)	-0.034	-0.046	0.085	0.589	0.041	-0.239	0.173	0.166
Socioemotional Skills (12m)	0.106	0.100	0.081	0.215	0.050	-0.254	0.197	0.197
Socioemotional Skills (24m)	-0.043	0.046	0.089	0.604	-0.162	-0.281	0.184	0.126
Socioemotional Skills (36m)	0.022	-0.024	0.118	0.842	0.240	-0.111	0.133	0.404
Cognition (12m)	-0.038	-0.040	0.105	0.704	0.038	-0.151	0.196	0.442
Cognition (36m)	0.092	0.104	0.088	0.235	0.074	-0.112	0.155	0.473
Investment Indices								
Parental Investment (6m)	0.083	0.085	0.071	0.228	0.180	-0.289	0.187	0.123
Parental Investment (12m)	0.131	0.160	0.086	0.064	0.262	0.106	0.204	0.604
Parental Investment (24m)	-0.076	-0.045	0.093	0.626	0.166	-0.181	0.192	0.345
Parental Investment (36m)	0.060	0.082	0.080	0.301	0.179	0.052	0.207	0.801

Column 3 reports the adjusted treatment coefficient from the regression of indices on treatment indicator and its interaction with the (demeaned) baseline covariates using the experimental sample. Column 7 reports the adjusted coefficient from the regression of indices on an indicator of being baseline non-depressed and its interaction with the (demeaned) baseline covariates using the sample of non-depressed and control depressed mothers. Baseline covariates include baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. Robust and clustered standard errors at the cluster level are reported in the SE columns. ICW indices are coded so that higher score indicates better outcome and standardized to have mean 0 and SD 1 in the control group.

Table A32: Difference on Factor Scores between Non-depressed and Control Groups

	treated depressed-control depressed				nondepressed-control depressed			
	Diff. (T-C)	Adjusted Beta	SE	p-val	Diff. (ND-C)	Adjusted Beta	SE	p-val
Maternal Factors								
Mental Health (6m)	0.160	0.205	0.052	0.000	0.648	-0.162	0.189	0.391
Mental Health (12m)	0.098	0.170	0.054	0.002	0.650	-0.335	0.148	0.024
Mental Health (36m)	0.133	0.268	0.078	0.001	0.556	-0.135	0.179	0.449
Functioning (6m)	0.108	0.182	0.075	0.015	0.547	0.021	0.174	0.904
Functioning (12m)	0.159	0.195	0.069	0.005	0.471	-0.376	0.208	0.071
Functioning (36m)	0.112	0.287	0.081	0.000	0.376	-0.177	0.193	0.360
Child Factors								
Physical Health (6m)	-0.016	0.021	0.079	0.792	-0.034	-0.076	0.166	0.648
Physical Health (12m)	0.044	0.019	0.070	0.784	0.035	-0.153	0.150	0.306
Physical Health (36m)	-0.137	-0.166	0.088	0.060	0.041	-0.137	0.175	0.434
Socioemotional Skills (6m)	0.167	0.187	0.056	0.001	0.100	-0.316	0.177	0.075
Socioemotional Skills (12m)	0.417	0.389	0.070	0.000	0.315	0.000	0.177	0.999
Socioemotional Skills (36m)	0.058	0.063	0.075	0.400	0.108	-0.235	0.157	0.134
Cognition (12m)	-0.059	-0.080	0.083	0.334	0.069	-0.135	0.189	0.475
Cognition (36m)	0.047	0.065	0.075	0.386	-0.020	-0.240	0.165	0.146
Investment Factors								
Parental Investment (12m)	0.062	0.075	0.086	0.382	0.448	-0.081	0.182	0.655
Parental Investment (36m)	0.067	0.111	0.076	0.143	0.361	0.061	0.174	0.725

Column 3 reports the adjusted treatment coefficient from the regression of factors on treatment indicator and its interaction with the (demeaned) baseline covariates using the experimental sample. Column 7 reports the adjusted coefficient from the regression of factors on an indicator of being baseline non-depressed and its interaction with the (demeaned) baseline covariates using the sample of non-depressed and control depressed mothers. Baseline covariates include baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect and days from baseline. Robust and clustered standard errors at the cluster level are reported in the SE columns. Latent factor scores are coded so that higher score indicates better outcome and standardized to have mean 0 and SD 1 in the control group.

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Table A33: Estimates of the Production Function Controlling for the Baseline Mental Health (12 months)

	Socioemotional skills (12m)	Physical health (12m)	Cognition (12m)	Parental investment (12m)
	(1)	(2)	(3)	(4)
SE skills (6m)	0.542***	0.003	0.057*	0.040
	(0.049)	(0.013)	(0.034)	(0.029)
physical health (6m)	0.042	0.928***	0.111***	0.077***
	(0.037)	(0.014)	(0.042)	(0.024)
mother mental health (6m)	0.119*	0.083***	0.130*	−0.114*
	(0.063)	(0.030)	(0.076)	(0.069)
mother functioning (6m)	−0.040	−0.044**	−0.024	0.080**
	(0.053)	(0.020)	(0.045)	(0.040)
investment (12m)	0.050	0.030	−0.014	
	(0.083)	(0.022)	(0.060)	
Interactions				
mother MH (6m) x treat	−0.216***	−0.061	−0.198**	0.100
	(0.078)	(0.038)	(0.096)	(0.085)
mother MH (6m) x nondep.	−0.060	−0.133***	−0.065	0.106
	(0.097)	(0.034)	(0.094)	(0.080)
investment (12m) x treat	0.104	−0.030	0.343***	
	(0.106)	(0.035)	(0.090)	
investment (12m) x nondep.	−0.011	−0.026	0.205***	
	(0.084)	(0.030)	(0.073)	
Total factor productivity (TFP)				
TFP	−0.639	−0.466	4.199***	0.105
	(0.912)	(0.346)	(0.918)	(0.798)
TFP x treat	0.480***	0.034*	−0.025	0.062
	(0.060)	(0.020)	(0.058)	(0.060)
TFP x nondep.	0.267***	0.118***	−0.072	0.023
	(0.098)	(0.038)	(0.088)	(0.094)
Baseline controls				
SES assets	−0.017	0.004	0.009	0.087***
	(0.019)	(0.007)	(0.024)	(0.016)
mother's education (years)	−0.001	0.005	−0.004	0.018***
	(0.064)	(0.003)	(0.007)	(0.004)
husband's education (years)	0.001	−0.006**	−0.001	0.017**
	(0.007)	(0.003)	(0.006)	(0.008)
Observations	932	932	927	932
R2	0.505	0.882	0.257	0.385
Adjusted R2	0.467	0.873	0.201	0.341

SE= socioemotional skills, MH=mental health. Dependent variables are child outcomes and parental investment factors at 12 months postpartum. Independent variables include an indicator of treatment status (control, treatment, non-depressed), child and maternal factors at 6 months, parental investment factor at 12 months. Maternal mental health and parental investment are interacted with the treatment status. All estimations control for baseline characteristics including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect, days from baseline and child age in days. Robust and clustered standard errors at the cluster level are reported in paranthesis.
Note: *p<0.1; **p<0.05; ***p<0.01

Table A34: Estimates of the Production Function Controlling for the Baseline Mental Health (36 months)

	Socioemotional skills (36m)	Physical health (36m)	Cognition (36m)	Parental investment (36m)
	(1)	(2)	(3)	(4)
SE skills (12m)	0.241***	0.035*	0.012	−0.083**
	(0.036)	(0.019)	(0.023)	(0.032)
physical health (12m)	0.027	1.049***	0.046**	0.066**
	(0.041)	(0.026)	(0.023)	(0.029)
cognition (12m)	0.001	−0.018	0.059***	0.031
	(0.038)	(0.022)	(0.022)	(0.033)
mother mental health (12m)	0.078	0.045	−0.074	0.202***
	(0.096)	(0.050)	(0.059)	(0.076)
mother functioning (12m)	−0.070	−0.049*	0.065*	−0.009
	(0.048)	(0.027)	(0.033)	(0.049)
investment (36m)	0.164**	0.001	0.092**	
	(0.069)	(0.039)	(0.039)	
Interactions				
mother MH (12m) x treat	0.049	−0.057	0.059	−0.150*
	(0.114)	(0.056)	(0.066)	(0.085)
mother MH (12m) x nondep.	0.003	−0.004	−0.005	−0.074
	(0.112)	(0.047)	(0.068)	(0.087)
investment (36m) x treat	−0.188*	0.036	−0.085	
	(0.109)	(0.054)	(0.060)	
investment (36m) x nondep.	0.013	−0.048	−0.008	
	(0.100)	(0.045)	(0.051)	
Total factor productivity (TFP)				
TFP	0.570	−1.537**	1.966**	1.895
	(2.474)	(0.698)	(0.949)	(1.376)
TFP x treat	−0.115	−0.170***	0.019	0.131**
	(0.084)	(0.045)	(0.039)	(0.059)
TFP x nondep.	−0.178	0.038	−0.046	0.122
	(0.122)	(0.060)	(0.072)	(0.092)
Baseline controls				
SES assets	−0.016	−0.004	−0.002	0.055***
	(0.016)	(0.012)	(0.011)	(0.019)
mother's education (years)	−0.006	0.006	0.014***	0.016***
	(0.006)	(0.004)	(0.004)	(0.006)
husband's education (years)	0.009	−0.003	0.008	0.031***
	(0.007)	(0.004)	(0.006)	(0.008)
Observations	881	881	881	881
R2	0.422	0.839	0.302	0.313
Adjusted R2	0.382	0.828	0.253	0.268

SE= socioemotional skills, MH=mental health. Dependent variables are child outcomes and parental investment factors at 36 months postpartum. Independent variables include an indicator of treatment status (control, treatment, nondepressed), child and maternal factors at 12 months, parental investment factor at 36 months. Maternal mental health and parental investment are interacted with the treatment status. All estimations control for baseline characteristics including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (split by gender), whether the index child is the first child, parental education levels, asset based SES index, life events cheklist score, interviewer fixed effect, union council fixed effect, days from baseline and child age in days. Robust and clustered standard errors at the cluster level are reported in paranthesis.
Note: *p<0.1; **p<0.05; ***p<0.01

Table A35: Estimates of the Production Function and Investment Equation by Gender (12 months)

	Boys				Girls			
	Socioemotional skills (12m)	Physical health (12m)	Cognition (12m)	Parental investment (12m)	Socioemotional skills (12m)	Physical health (12m)	Cognition (12m)	Parental investment (12m)
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
SE skills (6m)	0.536***	−0.022	0.051	0.035	0.560***	0.032	0.070	0.040
	(0.067)	(0.020)	(0.053)	(0.048)	(0.047)	(0.020)	(0.050)	(0.040)
physical health (6m)	0.058	0.917***	0.134**	0.100***	0.046	0.935***	0.103*	0.043
	(0.057)	(0.019)	(0.063)	(0.029)	(0.041)	(0.022)	(0.054)	(0.044)
mother mental health (6m)	0.060	0.066	0.170	−0.034	0.112	0.093**	0.063	−0.219**
	(0.129)	(0.046)	(0.133)	(0.100)	(0.111)	(0.039)	(0.083)	(0.096)
mother functioning (6m)	−0.023	−0.013	−0.038	0.102*	−0.057	−0.048**	0.003	0.051
	(0.119)	(0.032)	(0.068)	(0.050)	(0.062)	(0.023)	(0.060)	(0.066)
investment (12m)	0.085	0.017	−0.189*		−0.011	0.046*	0.036	
	(0.119)	(0.045)	(0.102)		(0.122)	(0.028)	(0.085)	
Interactions								
mother MH (6m) x treat	−0.125	−0.025	−0.068	−0.020	−0.241**	−0.077	−0.264**	0.227*
	(0.148)	(0.055)	(0.179)	(0.122)	(0.119)	(0.052)	(0.126)	(0.134)
mother MH (6m) x nondep.	0.005	−0.155***	−0.098	−0.035	−0.109	−0.118**	−0.050	0.299***
	(0.166)	(0.055)	(0.140)	(0.124)	(0.116)	(0.052)	(0.088)	(0.106)
investment (12m) x treat	0.056	−0.020	0.260*		0.114	−0.045	0.451***	
	(0.165)	(0.058)	(0.144)		(0.148)	(0.046)	(0.155)	
investment (12m) x nondep.	−0.016	−0.007	0.289**		0.042	−0.047	0.233**	
	(0.117)	(0.060)	(0.114)		(0.118)	(0.041)	(0.116)	
Total factor productivity (TFP)								
TFP	−0.114	−0.607	4.065***	0.303	−1.102	−0.628	3.495**	−0.016
	(1.403)	(0.536)	(1.265)	(0.855)	(1.123)	(0.486)	(1.459)	(1.285)
TFP x treat	0.571***	0.031	−0.030	0.080	0.411***	0.038	−0.030	0.059
	(0.105)	(0.027)	(0.084)	(0.070)	(0.083)	(0.026)	(0.092)	(0.092)
TFP x nondep.	0.286*	0.136**	−0.252*	−0.027	0.169	0.134**	−0.047	0.084
	(0.162)	(0.054)	(0.150)	(0.122)	(0.123)	(0.056)	(0.123)	(0.143)
Baseline controls								
SES assets	−0.059*	0.017	−0.014	0.074***	0.017	−0.009	0.046	0.106***
	(0.031)	(0.013)	(0.032)	(0.021)	(0.020)	(0.011)	(0.033)	(0.024)
mother's education (years)	0.009	0.005	−0.005	0.019***	−0.002	0.004	−0.003	0.016*
	(0.010)	(0.005)	(0.011)	(0.006)	(0.007)	(0.003)	(0.009)	(0.008)
husband's education (years)	−0.006	−0.012**	−0.001	0.015*	0.006	−0.001	−0.001	0.015
	(0.012)	(0.005)	(0.010)	(0.009)	(0.009)	(0.004)	(0.009)	(0.011)
Observations	466	466	464	466	466	466	463	466
R2	0.507	0.898	0.278	0.482	0.589	0.882	0.343	0.358
Adjusted R2	0.431	0.882	0.166	0.407	0.527	0.864	0.243	0.266

SE= socioemotional skills, MH=mental health. Table shows estimates of the production function at 12 months by the gender of the index child. Dependent variables are child outcomes and parental investment factors at 12 months postpartum. Independent variables include an indicator of treatment status (control, treatment, nondepressed), child and maternal factors at 6 months, parental investment factor at 12 months. Maternal mental health and parental investment are interacted with the treatment status. All estimations control for baseline characteristics including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (splitted by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect, days from baseline and child age in days. Robust and clustered standard errors at the cluster level are reported in paranthesis.
Note: *p<0.1; **p<0.05; ***p<0.01

Table A36: Estimates of the Production Function and Investment Equation by Gender (36 months)

	Boys				Girls			
	Socioemotional skills (36m)	Physical health (36m)	Cognition (36m)	Parental investment (36m)	Socioemotional skills (36m)	Physical health (36m)	Cognition (36m)	Parental investment (36m)
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
SE skills (12m)	0.250***	0.046*	−0.011	−0.045	0.272***	0.027	0.036	−0.129***
	(0.060)	(0.028)	(0.027)	(0.042)	(0.053)	(0.026)	(0.033)	(0.038)
physical health (12m)	0.037	1.017***	0.043	0.101***	−0.008	1.076***	0.041	0.022
	(0.061)	(0.034)	(0.038)	(0.035)	(0.046)	(0.029)	(0.033)	(0.048)
cognition (12m)	−0.011	−0.009	0.109***	0.055	−0.006	−0.028	0.018	0.015
	(0.074)	(0.034)	(0.031)	(0.038)	(0.042)	(0.033)	(0.032)	(0.049)
mother mental health (12m)	0.313**	−0.004	−0.050	0.391***	−0.062	0.080	−0.124*	0.054
	(0.135)	(0.093)	(0.074)	(0.125)	(0.113)	(0.061)	(0.077)	(0.082)
mother functioning (12m)	−0.095	−0.069*	0.082*	−0.020	−0.025	−0.035	0.054	−0.015
	(0.083)	(0.040)	(0.049)	(0.072)	(0.060)	(0.045)	(0.039)	(0.066)
investment (36m)	0.024	−0.044	0.135**		0.283**	0.069	0.068	
	(0.107)	(0.076)	(0.062)		(0.115)	(0.051)	(0.067)	
Interactions								
mother MH (12m) x treat	−0.072	0.076	0.101	−0.375***	0.161	−0.161**	0.084	0.010
	(0.197)	(0.102)	(0.097)	(0.137)	(0.156)	(0.072)	(0.075)	(0.128)
mother MH (12m) x nondep.	−0.248	0.076	−0.009	−0.380***	0.113	−0.060	0.032	0.206*
	(0.153)	(0.078)	(0.087)	(0.128)	(0.138)	(0.063)	(0.097)	(0.110)
investment (36m) x treat	−0.032	0.086	−0.073		−0.302*	0.003	−0.114	
	(0.160)	(0.096)	(0.075)		(0.172)	(0.063)	(0.096)	
investment (36m) x nondep.	0.088	−0.021	−0.070		−0.075	−0.113*	0.041	
	(0.149)	(0.084)	(0.076)		(0.134)	(0.058)	(0.089)	
Total factor productivity (TFP)								
TFP	−1.226	−2.654**	−0.702	1.761	3.063	−1.168	4.897***	1.299
	(3.612)	(1.288)	(1.540)	(1.727)	(2.538)	(1.203)	(1.150)	(2.177)
TFP x treat	−0.194	−0.182***	0.024	0.119	−0.078	−0.154***	0.031	0.165**
	(0.129)	(0.062)	(0.064)	(0.083)	(0.112)	(0.056)	(0.053)	(0.070)
TFP x nondep.	−0.310*	−0.011	−0.009	0.161	−0.102	0.114	−0.084	0.063
	(0.167)	(0.075)	(0.092)	(0.145)	(0.131)	(0.088)	(0.122)	(0.129)
Baseline controls								
SES assets	−0.034	−0.012	−0.003	0.031	0.008	−0.002	0.009	0..074***
	(0.028)	(0.016)	(0.017)	(0.027)	(0.022)	(0.017)	(0.014)	(0.026)
mother's education (years)	−0.008	0.008	0.014**	0.022***	−0.005	0.005	0.011**	0.011
	(0.009)	(0.005)	(0.006)	(0.007)	(0.010)	(0.006)	(0.005)	(0.008)
husband's education (years)	0.017	−0.006	0.004	0.047***	0.008	0.004	0.013	0.020*
	(0.014)	(0.006)	(0.007)	(0.011)	(0.010)	(0.006)	(0.009)	(0.011)
Observations	442	442	442	442	439	439	439	439
R2	0.421	0.851	0.374	0.360	0.505	0.850	0.332	0.346
Adjusted R2	0.339	0.830	0.284	0.275	0.433	0.828	0.234	0.256

SE= socioemotional skills, MH=mental health. Table shows estimates of the production function at 36 months by the gender of the index child. Dependent variables are child outcomes and parental investment factors at 36 months postpartum. Independent variables include an indicator of treatment status (control, treatment, nondepressed), child and maternal factors at 12 months, parental investment factor at 36 months. Maternal mental health and parental investment are interacted with the treatment status. All estimations control for baseline characteristics including baseline PHQ Total, baseline Whodas Total, baseline PSS Total, mother's baseline age, weight, height, waist circumference and blood pressure, family structure, grandmother being resident, total adults in the household, people per room, number of living children (splitted by gender), whether the index child is the first child, parental education levels, asset based SES index, life events checklist score, interviewer fixed effect, union council fixed effect, days from baseline and child age in days. Robust and clustered standard errors at the cluster level are reported in paranthesis.
Note: *p<0.1; **p<0.05; ***p<0.01