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ORIGINAL PAPER

Cash Transfers Improve Economic Conditions and Reduce Maternal Stress in Rural Côte d'Ivoire

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Abstract

We report midline impacts of a community-randomized cash transfer intervention to 1857 vulnerable mothers in 140 rural cocoa-farming communities of Côte d'Ivoire. Compared to mothers in the comparison group who participated in village savings and loan associations (VSLAs), treatment mothers participated in VSLAs and received 8 € each week for up to one year with no conditions attached (the midway point of a two-year program). We find small- to moderate-sized treatment effects on four of six indicators of economic well-being ($d = 0.23$–0.75), as well as small reductions in maternal stress ($d = -0.27$). We find no statistically detectable impacts on educational engagement, educational aspirations, or educational expectations for children. Results suggest that cash transfer programs in rural West African communities can improve economic well-being and reduce maternal stress. Implications for children and families and for future cash transfer evaluations are discussed.

Keywords Cash transfers · Maternal stress · Engagement · Randomized controlled trial · Cote d'Ivoire

Poverty is a strikingly consistent predictor of family health and well-being that affects children across their life course (Chaudry & Wimer, 2016). Economic hardship, family well-being, and children's schooling interconnect in ways that powerfully shape children's health and development and has been documented across different country contexts (e.g., Bourdillon & Boyden, 2014). At the same time, there is variation in how poverty shapes the lives of children and families across the world, with children in sub-Saharan Africa at highest risk of not reaching their developmental potential compared to other regions (Lu et al., 2016). In rural cocoa-growing communities in West Africa, poverty is rampant, and an estimated 42% of rural households in Côte d'Ivoire live below the international poverty line (World Bank, 2021). In Ivorian cocoa-growing households, cocoa accounts for 74% of household income on average, creating a great reliance on the crop, and high rates of child labor that can lead to interference with children's health and schooling (Sadhu et al., 2020).

Developmental and economic perspectives describe how poverty shapes family processes and child outcomes with two predominant theories. The family stress model (Masarik & Conger, 2017) focuses on the economic hardship that comes along with poverty, and how this hardship increases parent stress and impairs family functioning and interactions. The family investment model (Becker & Tomes, 1986; Schofield et al., 2011) is rooted in economic principles of human development and theorizes that limited financial, time, and knowledge resources restrict parents' ability to invest in their children. Cash transfers have been proposed, targeted, implemented and evaluated to address a range of challenges posed by poverty, including to relieve economic hardship, increase family investments in children's education, and reduce child labor (Aber, 2009; Aber & Rawlings, 2011; de Hoop & Rosati, 2014; Wolf et al., 2013). Yet very few evaluations of cash transfer programs have examined the ways that cash transfers change such family processes in rural West African farming communities.

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We present midline results from a community-cluster randomized controlled trial testing the impacts of a cash transfer program to vulnerable mothers with school-aged children on household economic well-being and family processes in cocoa-farming communities in Côte d'Ivoire. Two-thirds of households report their income regularity is based on the cocoa harvesting season. The cash transfers are paid weekly and represent an estimated one-third of household annual income. We find small- to moderate-sized positive impacts on several indicators of economic well-being (the most proximal outcomes to the intervention, including family's hiring of external farm labor), as well as reductions on maternal stress. Overall, we find no statistically detectable impacts on educational engagement nor on mothers' educational aspirations and expectations for their children and exploratory subgroup analyses reveal few heterogenous effects across outcomes.

Cash Transfers and Economics Well-being

Cash transfers have been studied in a wide range of countries. In low- and middle-income countries specifically, both conditional and unconditional cash transfers have been shown to have a wide range of benefits to households' economic outcomes. Many studies report improved household consumption, reduced food insecurity and increased dietary diversity, reduced debt, and increased financial savings (Briaux et al., 2020; Garcia et al., 2017; Reis, 2010; Seidenfeld et al., 2014; Haushofer & Shapiro, 2016). A systematic review of 201 studies on conditional and unconditional cash transfer programs in low- and middle-income countries found consistent evidence that the programs reduced poverty and increased expenditures on basic needs such as food, though with variations in the size and strength of the effects (Bastagli et al., 2019). Research from vulnerable households in Ghanaian cocoa farming communities found that monthly cash transfers delivered over six months (totaling ~28% of monthly household expenditures) increased assets (0.35 SD increase), decreased the risk of reduced food consumption after an economic shock (by 20.5 percentage points), and reduced the likelihood that children engaged in hazardous labor ($d = -0.09$) (International Cocoa Initiative, 2022).

Overall, effect sizes on economic outcomes depend on the size of the cash transfer and the context, but generally documented impacts have been small to moderate. The pattern and size of effects also depend on the structure, timing, and duration of payments, though studies systematically testing different design options are rare. One study by Haushofer and Shapiro (2016) showed that in rural Kenya, the same amount of money distributed over nine monthly payments improved food security, whereas a lump-sum payment of the same amount increased spending on durables but did not improve food security, suggesting that households faced savings and credit constraints and used the transfers differently based on how they were disbursed.

Cash Transfers and Family Processes

Two key pathways through which economic hardship affects children's outcomes is through family stress and conflict (e.g., Masarik & Conger, 2017), and parents' ability to invest time and money into their children's education (Becker & Tomes, 1986; Engle & Black, 2008). Decades of studies have established these relations descriptively in high-income country contexts, and more recently these theories have been tested in low- and middle-income country contexts (e.g., Wolf & McCoy, 2019; Zietz et al., 2022). Yet few evaluations of cash transfer programs to date have examined these family processes as outcomes or pathways specific to children.

Poverty is a chronic stressor. While the pathways through which cash transfers would lead to reduced maternal stress are multifaceted, directly reducing poverty would also likely directly reduce many of its chronic stressors. Recent work has suggested that poverty and low psychological well-being may mutually reinforce each other (Ridley et al., 2020). This potential feedback loop suggests that interventions that alleviate poverty may be effective in both reducing poverty and improving mental health. Yet the evidence from cash transfer programs is mixed. A meta-analysis of 45 studies examining the impact of cash transfers on self-reported subjective well-being and mental health outcomes in low- and middle-income countries found that cash transfers have small positive benefits to recipients' subjective well-being ($d = 0.13$) and mental health ($d = 0.07$). Importantly, the size of the cash transfer relative to previous income and in absolute terms was a strong predictor of the effect size (McGuire et al., 2022).

This variation is important to consider. In Kenya, Haushofer and Shapiro (2016) found decreases in cortisol levels (a stress hormone) for recipients that received a large transfer (~1400 €) but not for those that received a smaller transfer (~367 €). A second study in Kenya also found that a smaller unconditional cash transfer did not reduce cortisol levels but did lead to large increases in self-reported psychological well-being (Haushofer et al., 2020). In Zambia, two unconditional cash transfer programs improved several indicators of economic security but did not reduce perceived stress (Hjelm et al., 2017). Two recent studies in the United States found that cash transfers reduced well-being (Jaroszewicz et al., 2022; Magnuson et al., 2023).

The few studies that have examined family investments in the context of cash transfers have focused on monetary

investments and shown that women are more likely than men to invest cash transfers in their children and households. Importantly, there is some suggestive that cash given to females compared to males is more likely to be spent on child and household uses (e.g., Yoong et al., 2012), though other studies have found that giving cash to fathers also improves children's health and education (Akresh et al., 2016). In the US, a cash transfer to first-time mothers showed increased spending on child-specific goods and mothers' early-learning activities with their infants (Magnuson et al., 2023). Beyond increasing expenditures, some have argued that cash transfers may also free up parental time and mental energy in ways that allow them to invest in and engage with their children more fully (Gennetian et al., 2021). Yet few studies have examined how parents allocate their time regarding such educational investments in children when receiving cash transfers, and no such evidence to date exists in rural West Africa settings.

Cash Transfers and Educational Aspirations and Expectations

Parents' educational aspirations and expectations for children can shape their investments and children's own perceptions and persistence in school. Indeed, maternal aspirations are directly related to children's later educational attainment (Serneels & Dercon, 2021). Parental educational expectations and aspirations for their children shape achievement cross-sectionally and longitudinally (see Pinquart & Ebeling, 2020 for a meta-analysis) and are affected by family socioeconomic status (Kim et al., 2013). Educational expectations and aspirations may affect more proximal behaviors such as the ways that parents organize, communicate, and engage with their child (Davis-Kean, 2005). A significant body of literature suggests that parents living in poverty have lower aspirations for their children's education, and their children aspire to low educational outcomes for themselves (e.g., Oketch et al., 2012; Serneels & Dercon, 2021; Sosu, 2014). Lack of money is one of the key predictors of low aspirations, as families may be limited in how many years of schooling they can afford. While Cote d'Ivoire has universal primary education, school fees and associated costs can range from 70 to 135 USD which, given the average annual cocoa farmer income of 3000 USD (World Bank, 2019) and the average number of school-age children in these households being between five and eight, can represent over 35% of the average household income (Abou, 2014).

Further, cognitive barriers posed by poverty may lead to additional constraints, as education is an investment with long-term returns and high present costs including monetary and time investments. This intertemporal tradeoff is larger for poor parents, whose cognitive bandwidth may be lower due to the chronic stressors posed by poverty (Bergman, 2019; Mani et al., 2013), or in rural settings where schools are on average of lower quality and the returns to educational investments may be perceived to be lower as compared with urban areas (Angrist et al., 2022; Cooke et al., 2016).

Cash transfers reduce liquidity constraints and increase cognitive bandwidth (Haushofer & Fehr, 2014). Yet there is mixed evidence on whether cash transfer programs change parental educational aspirations and if these may be pathways for longer-term educational investments in children. Several studies show that during program receipt, cash transfers conditioned on children attending school increase school attendance (e.g., see Bastagli et al., 2019 for a meta-analysis), and evidence suggests that this is also true of unconditional cash transfers. Using data from 75 reports that covered 35 different studies, Baird et al. (2014) found that both conditional cash transfers and unconditional cash transfers improve the odds of being enrolled in and attending school compared to no cash transfer program. The role of expectations and aspirations and longer-term investments in education is under-explored. A quasi-experimental study in Indonesia found that a conditional cash transfer program increased parents' aspirations of their children's educational attainment up to one schooling year (Hartarto & Wardani, 2023). A qualitative study of the program found that regular reports and monitoring from facilitators was an important pathway to increasing educational aspirations (Hartarto et al., 2021). Finally, two studies of the same conditional cash transfer program in Colombia point to the nuances involved in the duration of cash transfer receipt. A study assessing the short-term impacts of the program found no differences in time use and parental educational aspirations (Contreras Suarez & Cameron, 2016). A follow-up study examining information delivered to families about the returns to education in addition to cash transfers found that parents and children reported 10.9 and 20.2 percentage points more likely to aspire to attain post-secondary education due to exposure to the program, respectively (Garcia et al., 2017). The positive impacts on educational aspirations appear to be driven by longer-term receipt of the cash transfers and the associated conditions.

In rural West African cocoa-growing communities, where educational quality and learning outcomes are both very low (e.g., Angrist et al., 2021) and dropout rates after primary school are high, it is unclear whether unconditional cash transfers would lead cocoa-farming families to increase educational aspirations and expectations for children.

100WEEKS Program

The implementing organization for this cash transfer program, 100WEEKS, is a non-governmental organization that

runs a cash transfer program for vulnerable mothers in sub-Saharan Africa. The transfers are privately funded by the organization; for this project, funds came from the study grant. Participants were selected by village and community leaders, with the most vulnerable women in the community prioritized. Additional eligibility requirements included that the woman must be linked herself or through her husband to one of the participating cocoa cooperatives, be in need, and be a low-income woman in the village; the woman also needed to have at least one child living in her household. For this study, at least one child living with the mother needed to be school-aged.

The mother received 8 € per week for 100 weeks with no stipulations on how the money was spent. In addition to the cash, participating mothers were enrolled in Village Savings and Loan Associations (VSLAs), a form of crowdsourced banking common to many African countries. VSLAs are intended to act as a safeguard to ensure gains made during the program are preserved. In our study, control group women participated in VSLAs but did not receive cash transfers. Importantly, while 100WEEKS frames the cash transfers as unconditional, mothers do need to attend weekly VSLA meetings to receive the payments. Women were not required to save money in the VSLA every week but were encouraged to do so. There were no strict rules on attendance, but if women missed several meetings and were unresponsive to the VSLA coaches, they were withdrawn from the cash transfer program; this was extremely rare.

The total amount of cash (800 € over two years) is relatively high compared to other cash transfer programs, which typically provide families with 10% of the community's median household income. In our sample, the average annual income reported by mothers at baseline was 175,000 XOF (~262 €), though a more comprehensive and reliable assessment conducted in similar communities in Cote d'Ivoire that surveyed male household heads found the average household income was $1400 per year (~1287 €; The Cash Lab, 2023). Using this number, the cash transfer comprised about 33% of households' annual income.

The Current Study

Our study was conducted in three rural regions of Côte d'Ivoire, a West African country with a population of 27.5 million people with a life expectancy of 59.0 years (World Bank, 2023). The country ranks 159 of 191 countries in the Human Development Index (a composite index of life expectancy, education, and per capita income) and is the largest producer of cocoa in the world. Educational quality and learning outcomes are very low, especially in cocoa-growing regions. Ivorian cocoa production is mostly maintained by small family farmers who rely on family labor (Nkamleu & Kielland, 2006), and over 40% of children living in cocoa-farming areas report engaging in cocoa-related labor (Sadhu et al., 2020). There are large educational disparities for marginalized groups including females and poor rural children, leaving them at a severe economic and social disadvantage.

We report midline treatment impacts of a cash transfer intervention to vulnerable mothers on economic well-being, mothers' stress and educational engagement, and mothers' educational expectations and aspirations for their children. Our study contributes to a large literature on cash transfer programs by providing evidence from an under-represented population of Ivorian cocoa-farming communities, as well as examining family processes related to child health and development.

Methods

Participants

The Soutenir les Enfants à la Maison et à l'École (SEME) project is a community-randomized controlled trial testing the individual and joint impacts of a cash transfer intervention to vulnerable mothers and a targeted instruction program at community-based schools delivered through a teacher training program. The trial was pre-registered in April 2021 (AEARCTR-0004738). Communities were selected through a partnership with eight cocoa coops working in three regions (Meagui, Daloa, and Bouafle). A list of communities was provided by each coop, and communities were then randomly selected. 100WEEKS then worked with leaders in each community to conduct participant selection. The criteria were that each community select the most vulnerable mothers who had school-aged children (ages 5–15). (Although national policy dictates that children begin school at age 6, Ivorian children enter school anytime between the ages of four and 10; Jasińska & Guei, 2022). Each community recruited 15 mothers, and from each family a school-aged child was randomly selected for additional data collection. The sample was recruited in two cohorts between May and December 2021 (Cohort 1 = 94, Cohort 2 = 46) as funding allowed us to expand the sample size. Thus, receipt of the cash transfer intervention began at different time points for each cohort (May and June for Cohort 1, and September through December for Cohort 2). Our baseline sample included 1857 households across 140 communities.

Apparatus and Materials

Midline results were evaluated through phone surveys with mothers. Given challenges with network connectivity,

enumerators first called mothers to arrange a date and time to call back and conduct the 35-minute phone survey. We reached 1737 mothers from the baseline sample (93.5%) and contacted an additional 158 mothers who were not reached at baseline, with a total sample of 1895 mothers at midline. Because the midline survey was conducted over the phone, the main reason for attrition was participant phone numbers on longer working and thus being unreachable. All surveys were conducted in French and local languages.

Economic well-being

Asset index Using the Côte d'Ivoire Poverty Scorecard, mothers reported on whether their household had 13 assets, including television, video player, satellite dish, sewing machine, fridge, phone, computer, motorbike, etc. We ran a PCA and extracted the first component, which accounted for 17.0% of the variance in the asset index. Notably, the bivariate correlation between the first component and a simple additive asset index was 0.94.

Savings (yes/no and amount) Women were asked two questions regarding savings. First, "In the past 12 months, have you saved money at a microfinance institution?" (yes/no). And, "How much have you saved in total since this same time last year"?.

Multidimensional poverty index To gain a comprehensive view of families' poverty status, we follow the Alkire and Foster (2011) methods to computing a multidimensional poverty index across three equally weighted dimensions: Health, Education, and Standard of Living. Health indicators included self-reported health, food consumption, and child mortality. Education indicators included parent education and schooling status of children in the household. Finally, standard of living indicators included access to electricity, sanitation, flooring, safe drinking water, cooking fuel, and assets ($M = 0.498$, SD = 0.165, range = 0.06–0.97 on a scale of 0–1, with higher scores indicating more deprivation.) See Supplementary Materials for additional information on construction of the measure. For our analysis, we standardize the continuous multidimensional poverty score.

Food insecurity Food insecurity was measured using the Household Hunger Scale, a validated tool to assess acute household food insecurity (Ballard et al., 2011). The scale includes the following three items: (a) "In the past [4 weeks/30 days], was there ever no food to eat of any kind in your house because of lack of resources to get food?"; (b) "In the past [4 weeks/30 days], did you or any household member go to sleep at night hungry because there was not enough food?"; and (c) "In the past [4 weeks/30 days], did you or any household member go a whole day and night without eating anything at all because there was not enough food?". If households indicated yes, the frequency of occurrence in the past four weeks of the specific condition was also asked (1 = rarely (1–2 times), 2 = sometimes (3–10 times), and 3 = often (more than 10 times)). Households were then given a score ranging between 0 and 6 (Ballard et al., 2011). We then created a dummy variable to indicate whether a household was food secure (little or no hunger (HHS score is 0–1; 65.8%); or food insecure (moderate hunger for HHS scores is 2–3; 26.8%); or severe (hunger for HHS scores equal to 4–6; 7.4%).

Hiring external labor Mothers reported on whether they called on outside labor for help with their agricultural activities (82.4% indicated they did). Notably, of those that did, 95.6% reported using cash payment for this labor (as opposed to food or other compensation).

Family processes

Stress and engagement We measured *maternal stress* using the 9-item Perceived Stress Scale (Cohen, 1994). We dropped one item that had no variation during piloting (i.e., "In the last month, how often have you felt that things were going your way?"). Responses were recorded on a 4-point scale ($M = 1.7$, SD = 0.63; $\alpha = 0.78$). We computed a maximum likelihood factor score that included all the items administered to generate both baseline and midline stress scores, which is preferable to simple sum scores (McNeish & Wolf, 2020).

Educational engagement was measured using ten items where mothers reported on whether in the last 3 days, they or any member of their household over the age of 15 engaged in ten activities related to education with the randomly selected focal child (e.g., help with homework, asking if the child had done their homework, encouraging child not to miss class or be late for school, encouraging child to study or read, and attending a parent-teacher meeting). We computed an index summing the total number of activities ($M = 7.1$, SD = 2.5; $\alpha = 0.81$).

Educational expectations and aspirations Mothers reported on their educational aspirations and expectations for the randomly selected focal child drawn from the Young Lives survey (Barnett et al., 2013), with six response options ranging from primary school to doctorate degree: 'What is the highest level of education that you WISH [child] to achieve?' ($M = 3.5$, SD = 1.1), and 'What is the highest level of education that you EXPECT [child] to achieve?' ($M = 4.0$, SD = 1.2).

Procedure

SEME is a trial assessing complementary effects of cash transfers and a community school-based quality improvement program (not examined in this study). Thus, communities were randomized, stratified by region and cohort, to one of four conditions: (i) 100WEEKS program (cash plus VSLA; $N = 42$), (ii) school-based program plus VSLA groups ($N = 26$), (iii) 100WEEKS plus school-based program ($N = 26$), and (iv) VSLA groups only ($N = 46$).

We report on midline impacts (up to one year into the two-year program) and pool treatment arms to examine the impacts of cash transfers. Treatment conditions were pooled as follows: conditions (i) and (iii)—100WEEKS program ($N = 68$ communities total)—and conditions (ii) and (iv)—VSLA program only ($N = 72$ communities total). Because all mothers in the comparison group received VSLAs, our treatment contrast is VSLA plus cash compared to VSLA only.

Analytic Plan

Baseline equivalence

We first conducted a baseline equivalency analysis to ensure that the randomization yielded treatment and control groups that were statistically equivalent. We tested whether the mean values for a set of household, caregiver, and child characteristics differed by treatment group regressing treatment status on each outcome separately, adjusting for clustering at the village level.

Post-hoc power analysis

We conducted a post-hoc power analysis assuming 80% power at the 5% significance. With 140 villages, 1895 women, and an intra-cluster correlation ranging 0.012 to 0.135, we are powered to detect a minimum effect size (MDES) of 0.057–0.178, respectively (see Appendix Table 3). For individual-level subgroup effects, we are powered for an MDES of 0.109–0.103; and for community-level subgroup effects an MDES of 0.145–0.154.

Impact analysis

The randomized design allowed for the identification of causal effects of the cash transfer on mothers by comparing mean outcomes between the randomized treatment arms. Our models are intent-to-treat, regardless of whether women chose to participate in either program. Given the nested nature of our data, with mothers nested within communities, we use OLS regression with clustered standard errors and run separate regression models for each outcome assessed. We include fixed effects for cohort and region (two variables through which randomization was stratified), as well as a dummy variable for whether a community was randomly assigned to the cross-cutting educational intervention. Specifically:

$$Y_{i,j} = \beta_0 + \beta_1 \text{Cash}_j + \beta_2 \text{Cash} + \text{TaRL}_j + \beta_3 \text{Cohort}_j + \beta_4 Y_{i(t0)} + \theta_r + \varepsilon_{i,j}$$

B_1 indicates the key parameter of interest, where $\text{Cash}_j = 1$ if the community was randomized to receive cash transfers ($N = 67$ villages); $\text{Cash} + \text{TaRL}_j = 1$ if the community was also randomized to receive the education intervention as an additional control; Cohort_j is a dummy variable for cohort membership (1, or 2); $Y_{(t0)}$ is the lagged baseline outcome score when available (imputed as the baseline village-level mean for mothers missing baseline data); θ_r is a region fixed effect (with a value of 1, 2, or 3); and $\varepsilon_{i,j}$ is individual error term clustered at the community-level. All outcomes were standardized to ease interpretation and centered at the control group mean and standard deviation. Thus, coefficients can be interpreted as effect sizes. To adjust for multiple comparisons given the number of outcomes examined, we report sharpened False Discovery Rate (FDR) q-values (Anderson, 2008).

To test for subgroup effects, we include an interaction term between the subgroup indicator (i.e., child age ≥9 years, the first transition point in primary school (48.8%); child female (53.5%); female-headed household (15.2%); mother has any schooling (28.8%); and cohort (67.6% Cohort 1)) with treatment status. Finally, as a sensitivity test, we re-ran all main impact models controlling for variables at baseline that were imbalanced.

Results

Baseline Equivalence

Table 1 shows descriptive statistics and baseline equivalency tests across a range of mother, household, and child characteristics. On average, mothers were 40.5 years of age, and households had 6.5 members. The majority (87%) of school-aged children were enrolled in school. Most mothers (71%) had no formal schooling, and more than half (59%) of fathers also had no formal schooling. Mothers reported the equivalent of $287 in annual household earnings, though these estimates likely drastically underestimate actual household earnings given that fathers did not report on income (The Cash Lab, 2023).

There were some differences in reports of household assets and economic well-being across treatment and control groups. Specifically, the treatment group reported more economic vulnerability (e.g., higher levels of food

Table 1 Baseline equivalence tests across mother, household, and child characteristics

	N	Control	Balance tests	
		M (SD) or %	Coeff.	SE
Household demographics				
Respondent's age	1857	40.5 (10.4)	1.01	0.67
Household size	1857	6.5 (3.0)	−0.25	0.17
Percent women as the household head	1857	16%	0.01	0.02
Proportion of children aged 6–16 enrolled in school	1857	87%	0.01	0.03
Proportion using a contraceptive	1854	21%	0.03	0.02
Marital status				
Monogamous	1857	42%	0.00	0.02
Polygamous	1857	20%	−0.01	0.03
Cohabitation	1857	26%	−0.01	0.02
Single	1857	4%	0.01	0.01
Other	1857	8%	0.00	0.02
Education of the mother				
No education	1854	71%	−0.03	0.03
Primary school education	1854	24%	0.03	0.02
Secondary school education	1854	4%	0.00	0.01
Other	1854	1%	0.00	0.01
Education of the father				
No education	1854	59%	−0.01	0.02
Primary school education	1854	21%	0.00	0.02
Secondary school education	1854	12%	0.02	0.02
Other	1854	8%	0.00	0.01
Poverty indicators				
PPI converted to percent	1852	62%	1.06	1.38
MPI score (to percent)	1854	46%	0.04	0.01***
Primary household's income source				
Cocoa farming	1857	78%	−0.02	0.03
Food crops agriculture	1857	13%	0.02	0.03
Other	1857	9%	−0.01	0.02
Income regularity				
By cocoa harvesting period	1857	66%	0.00	0.03
Yearly incomes	1857	10%	−0.01	0.02
Quarterly incomes	1857	4%	0.00	0.01
Monthly income	1857	11%	0.00	0.02
Weekly or daily	1857	7%	0.01	0.02
Other	1857	2%	0.00	0.01
Asset ownership (%)				
Owning a smartphone	1857	85%	0.06	0.02***
Owning a bed	1857	45%	−0.06	0.03^{+}
Owning a fan	1857	19%	−0.04	0.03
Owning a TV	1857	34%	−0.06	0.03**
Maternal engagement and stress				
Involvement in child schooling (sum of 10)	1854	5.39	0.43	0.21**
Stress (sum of 9, Likert 4 scale)	1854	16.16	0.45	0.29
Food insecurity				
None	1854	73%	−0.06	0.03**
Moderate	1854	21%	0.04	0.03^{+}
High	1854	6%	0.02	0.01
Child demographics				
Focal child age	1853	9.11	0.03	0.13
Male (%)	1853	49%	0.01	0.03
Relationship to the child				
Biological mother	1857	69%	−0.01	0.03
Grandmother	1857	14%	0.01	0.02
Other	1857	17%	0.00	0.02
Child outcomes				
Literacy score (factor score)	1544	−0.01 (0.94)	0.024	0.054
Numeracy score (factor score)	1544	−0.03 (0.91)	0.062	0.055
Domestic activities (sum of 10)	1854	3.7 (2.6)	0.02	0.18
Economic labor (sum of 5)	1854	0.6 (1.0)	0.09	0.07
Agricultural labor activities (sum of 36)	1854	4.4 (6.5)	0.26	0.49

Balance tests are conducted using unconditional OLS regressions to regress each variable on treatment status, adjusting for clustering at the community-level

$^{+}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.001$

insecurity, and higher rates of multidimensional poverty). Importantly, additional investigation revealed that these differences were driven entirely by cohort 1; when examined separately by cohorts, there was no imbalance (results not shown). This is likely because communities in cohort 1 were told before the baseline survey which treatment condition they were assigned to; it is possible that mothers in the cash group thought they had to report a certain level of vulnerability to receive the cash payments. Cohort 2 was not informed of their treatment assignment until after baseline data collection was conducted. In all analyses, a dummy variable controlling for cohort is included.

Treatment Effects on Economic Outcomes

The first panel in Table 2 displays the treatment impacts on six indicators of economic well-being, with statistically significant

Table 2 Treatment effects on economic well-being and family processes

	b	(SE)	*p* value	FDR *q*-value
Economic well-being				
Assets index	0.070	(0.048)	0.148	0.125
Any savings in past 12 months	0.073	(0.052)	0.163	0.125
Total savings in past 12 months	0.753	(0.072)	0.000	0.001***
Moderate or severe food insecurity	−0.240	(0.070)	0.001	0.002**
Multi-dimensional poverty	−0.271	(0.063)	0.000	0.001***
Hiring external farm labor	0.232	(0.059)	0.000	0.001***
Family processes				
Maternal stress	−0.250	(0.071)	0.001	0.001**
Educational engagement	0.083	(0.061)	0.177	0.125
Educational aspirations for child	0.082	(0.065)	0.206	0.130
Educational expectations for child	0.003	(0.065)	0.966	0.285

All regressions include cohort and region fixed effects and adjust standard errors for clustering at the community-level (1895 mothers clustered in 140 communities). Regressions assessing impacts on assets, food insecurity, multidimensional poverty index, stress, educational engagement, educational aspirations, and educational expectations all control for baseline/lagged values of the respective outcome. Outcomes are centered on the control group mean and standard deviation and can be interpreted as effect sizes

**$p < .01$; ***$p < .001$

impacts of the cash transfer program on four. There were small but statistically insignificant impacts on household assets ($d = 0.070$, $q = 0.125$) and on the likelihood of having saved any money in the past year ($d = 0.073$, $q = 0.125$). The lack of impacts on having saved any money in the past 12 months are not surprising, as the control group participated in VSLA groups which require all mothers to contribute money to a shared pool for savings and loans for the group.

The largest impacts were on the amount saved in the past 12 months ($d = 0.753$, $q < 0.001$, equivalent to approximately 49,000 XOF /~$74 €), reduced moderate or severe food insecurity ($d = -0.24$, $q < 0.01$), reduced multidimensional poverty ($d = -0.27$, $q < 0.001$), and increases in hiring external labor to work on the farm ($d = 0.23$, $q < 0.01$).

Treatment Effects on Family Processes

The second panel in Table 2 displays impacts on family processes. We only detected small-sized reductions in maternal stress ($d = -0.25$, $q < 0.01$). There were small but statistically insignificant increases in educational engagement and educational aspirations ($d = 0.08$, $q = 0.125$ and $d = 0.08$, $q = 0.130$, respectively) and no impacts on mother's educational expectations for their child ($d = 0.003$).

Impact Heterogeneity

In exploratory analyses, we test for heterogeneity in treatment effect by mother-level characteristics (maternal schooling and female-headed household), two child-level characteristics (child age and sex), and cohort. We find limited evidence of impact variation by any characteristic (see Appendix Tables 4 and 5 for the full regression results). There was some evidence that impacts on the amount saved in cohort 1 were larger than cohort 2 ($b = -0.27$, SE = 0.12, $p < 0.05$; $d = 0.89$ for cohort 1 and 0.53 for cohort 2, or a difference of about 28,500 XOF /~43 €). Second, there was suggestive of evidence of differential impacts on hiring external farm labor and on maternal educational expectations for children by child age, with larger impacts on hiring farm labor when the child was younger ($b = -0.174$, $p < 0.05$) and larger positive impacts on educational expectations for older children (aged 9 and above) compared to younger primary school-aged children ($b = 0.183$, $p < 0.06$).

Sensitivity Analyses

Given imbalance at baseline, we re-ran all our main impact analyses with additional control variables, adding in all baseline variables that were imbalanced across treatment and control groups. There were no differences in the pattern and magnitude of treatment effects (not shown).

Discussion

We report midline impacts of a cash transfer intervention delivered to mothers in rural cocoa-farming communities in Côte d'Ivoire, up to one year into a two-year program. The program provided weekly cash transfers to vulnerable mothers within each community, as well as mandated participation in village savings and loan association s(VSLA) that met weekly. Importantly, women in control group communities also participated in VSLAs, and thus our treatment contrast is cash plus VSLA compared to VSLA only.

Overall, treatment impacts of cash were in the expected direction, with improvements in most indicators of economic well-being as well as reductions in maternal stress. We found no detectable impacts on educational engagement nor on mothers' educational expectations and aspirations for their children's education, which have typically been associated with programs that condition cash on children's

school attendance (e.g., Garcia et al., 2017; Hartarto & Wardani, 2023). The examination of key family processes critical for child development are novel in this context, where such parenting processes are under-researched (Nielsen et al., 2017). Our findings are partially in line with key developmental theories positing how poverty ultimately shaped children's development through increased stress and strain on family relationships (Conger & Donnellan, 2007) and increased time and material investments in children (Haveman & Wolfe, 1994), pointing to the potential of cash transfers in this context to improve child health and development through the economic stress pathway. Importantly, there were no conditions tied to child investments in this program. Our next round of data collection at the end of implementation will allow for a fuller investigation of these theoretical pathways and to direct assessments of a range of academic and non-academic child outcomes.

The impacts we observed were small, with nearly all ranging from 0.1–0.3 standard deviations (with the exception of the amount of money saved in the past year). This is surprising given the large size of the cash transfer, comprising approximately one-third of household annual income. Importantly, the size of cash transfer impacts varies considerably based on the size of the transfer and the amount relative to annual household income (Bastagli et al., 2019; McGuire et al., 2022), but there is yet to be a systematic review of how effect sizes vary by transfer size. A brief review of the evidence suggests that cash transfer programs in low- and middle-income countries, on average, comprise about 23% of annual household income or consumption levels (ranging anywhere from 8–200%; Yoshikawa, H., personal communication, April 17, 2023). Thus, the cash transfer in this study was larger than average, though much larger cash transfers have been studied and the magnitude of effects is in line with previous cash transfer programs, including much larger cash transfer programs. For example, Haushofer and Shapiro (2016) studied an unconditional cash transfer program in Kenya that comprised 200% of baseline annual household income and found improvements in economic well-being ranging from 0.18 to 0.73 standard deviations; in psychological well-being including stress reductions ranging from 0.16–0.26 standard deviations; and in food security of 0.26 standard deviations.

Still, it is worth considering why such a large cash transfer program produced small effects. It is possible that despite the large transfer, the program only had small impacts on households. Alternatively, it is possible that fathers—who generally run household cocoa farms—would more accurately report on household finances and economic conditions and mothers did not provide the full picture of changes to household economic well-being. Or these small effects may be attributed to the comparison group in this study, which also participated in VSLA groups. Previous studies in sub-Saharan Africa have shown that VSLAs can have meaningful impacts on individuals in poor rural communities, as these groups help participants save money and borrow the accumulated savings when needed. A study reporting on three randomized trials in Malawi, Ghana and Uganda found that such a program increased women's empowerment and improved household business outcomes (Karlan et al., 2017). In Mozambique, VSLA groups increased food sufficiency and child dietary diversity, suggesting that participants were able to allocate resources differently because of participation (Brunie et al., 2014). Data collected by our implementation partner with another group of participants in Cote d'Ivoire suggest that VSLA participation itself produced large increases assets and savings (de Lange, 2023). Thus, our results must be interpreted as the impacts of receiving cash in addition to VSLA participation compared to VSLA participation alone.

Subgroup Effects

We examined impact variation in five different sets of exploratory subgroups—mother's education, female-headed households, child age, child sex, and cohort. We found little evidence of impact. Additional analyses (not reported) also examined the additional intersection between child age and sex to investigate if the program had different impacts for older versus younger girls, and older versus younger boys using a 3-way interaction term. These also did not reveal any differences. There were two exceptions with suggestive evidence. First, impacts on the amount of money saved were larger for the cohort that received the program longer (given the staggered roll-out of implementation); this is logical, as they have accumulated more money over the course of the year examined. The second was that the program increased educational expectations for relatively older children compared to younger children. Age nine is a transition period in primary school from CP2 to CE1, an important transition that is associated with grade repetition, suggesting that changes in educational expectations and possibly future investments in children's education may be linked with the structure of the local education system. These results warrant further investigation and may be used to generate hypotheses about potential subgroups for which cash transfers may be more effective in addressing educational barriers in future studies. Continued research on this sample will allow us to investigate if these differential impacts persist and whether they translate into differences in children's schooling outcomes.

Limitations and Conclusions

Our study's findings must be interpreted considering several limitations. First, due to budgetary constraints, we could

only conduct a phone survey with mothers to assess midline treatment impacts. Thus, we were limited in the number and types of questions we could ask mothers and were unable to collect data with a larger number of household members (e.g., fathers, children) to be able to fully test our theorized impacts. The next wave of data collection at endline will allow for this. Second, due to a staggered recruitment of communities, our midline impact measure occurs at different timing across the cohorts (i.e., the program started between May and December 2021, but midline impacts were assessed for everyone in June 2022). Third, our sample is not generalizable to all cocoa-farming communities. We worked only with villages that were all affiliated with cocoa coops that agreed to be part of the program. Thus, more vulnerable cocoa farming communities that are not affiliated with coops are not represented in our sample. Finally, we do not have a pure control group; our treatment contrast is cash transfers plus participation in VSLAs compared to VSLA participation alone. This limits our ability to detect impacts of the full program as it is typically delivered by the implementing organization.

Finally, our understanding of participants' experiences in the program is limited without qualitative data that can inform how mothers understood the logic of the cash transfers, VSLA participation, and more generally the implications of the program for their lives. Monitoring and evaluation data from the implementation organization from a previous implementation of the program in Cote d'Ivoire showed that participants' monthly savings were 5 times the African benchmark and 3 times the benchmark for Ivory Coast. Women reported focusing on business investments with the money to better their economic prospects. A large majority of women (73.5%) reported having grown their existing income generating activities with the cash, and more than half (56.2%) started new income generating activities. Some VSLAs started income-generating activities together as a group, suggesting that VSLAs may have additional economic benefits to women. Further, there was an increase in the share of women reporting they felt comfortable asking others for support. Household land ownership also rose from 77% before the program to over 90% by the end of the program. Many women also reported using the money for needed home repairs, purchasing animals, and purchasing means of transportation such as bicycles. Future data collection will include qualitative interviews with participants, which will provide critical insights on household dynamics that are currently missing.

Nonetheless, amidst global concern towards child labor in the cocoa industry (e.g., Whoriskey & Siegel, 2019), our findings offer a glimmer of hope for improving economic conditions and enhancing family processes that support child development in rural Ivorian communities. The fact that families were able to save and invest in external labor for their farm, coupled with decreases in maternal stress, shows the potential for long-term positive impacts. However, our work is far from over. The next phase of our study will investigate the direct effects of this cash transfer program on child labor engagement, as well as child academic and non-academic skill development. Further, the positive but statistically insignificant increases in educational engagement and education aspirations will be examined in more depth along with a wider range of family and parenting processes. Future cash transfer studies that target families, regardless of conditionality, should consider examining a wider range of processes related to parenting and family functioning.

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Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Appendix

Appendix A: Construction of Multi-dimensional Poverty Index

We constructed multidimensional poverty measures based on a dual-cutoff approach. First, in each dimension we defined deprivation as a shortfall from a certain cutoff point. Second, at the aggregated level, we defined poverty as a shortfall of the sum of deprivations from a certain cutoff point, as also defined in the MPI (Alkire & Foster, 2011). Specifically, we considered three poverty dimensions: Health, Education, and Standard of Living. We assigned an equal weight to each dimension. Thus, with three indicators under the health dimensions, each indicator is assigned a weight of 1/9, two indicators under the education dimension are assigned a weight of 1/6, while each of the 6 indicators under the standard of living dimension receives a weight of 1/18.

For the MPI Health dimension, three indicators were defined and assigned a 1/9 weight each: self-reported health (deprived if self-reported health is greater than 3 on a scale of 1–5 with 1 = excellent), child mortality (deprived if the household has a child born alive but died any time later),

and household food consumption (deprived if number of meals consumed per day in the last week is less than three per day).

Regarding the MPI Education dimension, two indicators were defined with 1/6 weight each: parent education (deprived if the parent has never been to school), and child education (deprived if at least one child in the household aged 6–16 years does not currently go to school).

Finally, the MPI Standard of Living dimension consists of six indicators of 1/18 weight each. (1) Electricity—deprived if no access, (2) Sanitation—deprived if sanitation facility is not improved, or if it is improved but shared with other households, (3) Flooring—deprived if dirt/sand/dung flooring, (4) Water access—deprived if safe drinking water is 45 min away, (5) Cooking fuel—deprived in household used wood/charcoal/dung as fuel, and (6) Assets—deprived if the household does not own more than one of the following: iron, mobile phone, working fan, working bed, radio, TV, and motorbike or moped.

A household qualifies as multidimensionally poor if the MPI score >0.33, and can be categorized as severely poor if the MPI score >0.55.The deprivation score per household is calculated by taking the weighted sum of number of deprivations and thus the score for each household lies between 0 and 1, where the score increases as the number of household deprivations increases until the maximum of 1 is reached when a household is deprived in all indicators.

Tables 3–5

Table 3 Community-level intra-cluster correlations for dependent variables

	ρ
Economic well-being	
Assets index	0.094
Any savings (yes/no)	0.032
Total savings in past 12 months	0.135
Moderate or severe food insecurity	0.088
Multi-dimensional poverty	0.115
Hiring external farm labor	0.045
Family processes	
Stress	0.067
Educational engagement	0.022
Educational aspirations for child	0.012
Educational expectations for child	0.022

Table 4 Impact variation by cohort, female-head household status and mother's education

	Economic well-being						Family processes			
	Assets	Any savings	Amount saved	Moderate or severe food insecurity	MPI	Hired external labor	Educ. engagement	Stress	Aspirations	Expectations
	b/(SE)/*p* value									
Panel A: Cohort										
Treatment	0.037	0.026	0.852	−0.233	−0.312	0.248	0.076	−0.283	0.091	0.009
	(0.063)	(0.056)	(0.089)	(0.079)	(0.076)	(0.073)	(0.079)	(0.094)	(0.086)	(0.088)
	0.559	0.645	0.000	0.004	0.007	0.001	0.339	0.003	0.292	0.914
Cohort 2	−0.296	−0.381	−0.285	0.198	0.003	−0.065	0.077	0.157	−0.009	−0.024
	(0.076)	(0.095)	(0.092)	(0.113)	(0.084)	(0.083)	(0.108)	(0.104)	(0.094)	(0.114)
	0.000	0.009	0.002	0.082	0.970	0.439	0.476	0.133	0.927	0.836
Treatment*Cohort 2	0.084	0.121	−0.251	−0.016	0.100	−0.040	0.019	0.006	−0.022	−0.016
	(0.086)	(0.095)	(0.119)	(0.130)	(0.099)	(0.101)	(0.097)	(0.127)	(0.102)	(0.110)
	0.332	0.204	0.037	0.900	0.320	0.691	0.849	0.960	0.833	0.883
Constant	0.149	0.253	0.173	−0.137	0.102	0.060	−0.020	−0.746	0.041	0.009
	(0.078)	(0.094)	(0.105)	(0.122)	(0.084)	(0.091)	(0.095)	(1.918)	(0.100)	(0.113)
	0.059	0.007	0.101	0.264	0.226	0.509	0.837	0.698	0.687	0.936
Observations	1895	1895	1895	1737	1734	1895	1699	1736	1579	1579
R-squared	0.230	0.023	0.119	0.044	0.461	0.021	0.024	0.023	0.012	0.004

Table 4 (continued)

	Economic well-being						Family processes			
	Assets	Any savings	Amount saved	Moderate or severe food insecurity	MPI	Hired external labor	Educ. engagement	Stress	Aspirations	Expectations
	b/(SE)/*p* value									
Panel B: Female-headed household										
Treatment	0.063	0.101	0.747	−0.202	−0.270	0.238	0.081	−0.278	0.038	−0.039
	(0.053)	(0.056)	(0.075)	(0.074)	(0.067)	(0.060)	(0.068)	(0.082)	(0.069)	(0.069)
	0.235	0.071	0.00	0.007	0.009	0.000	0.232	0.001	0.588	0.574
Female-headed household	−0.086	0.057	−0.0218	0.162	−0.015	0.005	0.087	0.043	−0.075	−0.079
	(0.071)	(0.103)	(0.0859)	(0.092)	(0.057)	(0.100)	(0.096)	(0.106)	(0.091)	(0.090)
	0.229	0.584	0.800	0.081	0.792	0.961	0.363	0.686	0.408	0.384
Treatment*Female-head	0.0524	−0.178	0.0421	−0.230	−0.002	−0.035	0.003	−0.014	0.255	0.241
Female-headed household	(0.093)	(0.144)	(0.138)	(0.128)	(0.090)	(0.122)	(0.133)	(0.161)	(0.145)	(0.146)
	0.572	0.219	0.761	0.074	0.985	0.772	0.983	0.929	0.0802	0.101
Constant	0.140	0.220	0.220	−0.152	0.0824	0.065	−0.027	−0.762	0.0662	0.033
	(0.078)	(0.094)	(0.105)	(0.119)	(0.081)	(0.090)	(0.087)	(1.923)	(0.096)	(0.110)
	0.072	0.021	0.039	0.202	0.308	0.474	0.759	0.692	0.490	0.764
Observations	1895	1895	1895	1737	1734	1895	1699	1736	1579	1579
R-squared	0.230	0.023	0.116	0.046	0.461	0.021	0.025	0.023	0.014	0.006
Panel C: Mother's education										
Treatment	0.057	0.041	0.727	−0.221	−0.274	0.223	0.094	−0.316	0.089	0.011
	(0.052)	(0.062)	(0.077)	(0.074)	(0.065)	(0.060)	(0.076)	(0.083)	(0.074)	(0.071)
	0.273	0.514	0	0.003	0.005	0.000	0.218	0.000	0.226	0.879
Mother has some formal schooling	0.057	0.000	0.143	−0.008	−0.464	−0.0691	0.297	−0.0341	0.090	0.030
	(0.061)	(0.068)	(0.080)	(0.078)	(0.056)	(0.084)	(0.074)	(0.080)	(0.070)	(0.060)
	0.354	0.994	0.078	0.923	0.000	0.411	0.000	0.671	0.200	0.660
Treatment*Mother schooling	0.0491	0.121	0.100	−0.064	0.062	0.034	−0.035	0.122	−0.026	−0.027
	(0.0814)	(0.0889)	(0.116)	(0.0958)	(0.065)	(0.115)	(0.101)	(0.114)	(0.103)	(0.097)
	0.548	0.177	0.389	0.506	0.345	0.767	0.733	0.289	0.801	0.782
Constant	0.122	0.240	0.187	−0.135	0.195	0.087	−0.094	−0.678	0.020	0.003
	(0.079)	(0.097)	(0.105)	(0.117)	(0.083)	(0.089)	(0.085)	(1.920)	(0.104)	(0.112)
	0.122	0.015	0.076	0.251	0.020	0.330	0.273	0.725	0.848	0.978
Observations	1895	1895	1895	1737	1734	1895	1699	1736	1579	1579
R-squared	0.231	0.024	0.122	0.044	0.490	0.022	0.041	0.024	0.013	0.004

All regressions include cohort and region-level fixed effects and adjust standard errors for clustering at the community-level. Regressions assessing impacts on assets, food insecurity, multidimensional poverty index, stress, engagement, educational aspirations, and educational expectations all control for baseline/lagged values of the respective outcome. Outcomes are centered on the control group mean and standard deviation and can be interpreted as effect sizes

Table 5 Impact variation by child age and sex

	Economic well-being						Family processes			
	Assets	Any savings	Amount saved	Moderate or severe food insecurity	MPI	Hired external labor	Educ. engagement	Stress	Aspirations	Expectations
	b/(SE)/*p* value									
Panel A: Child age										
Treatment	0.0422	0.0920	0.721	−0.223	−0.301	0.321	0.0274	−0.293	0.0701	−0.100
	(0.0584)	(0.0690)	(0.0857)	(0.0835)	(0.0734)	(0.0713)	(0.0976)	(0.0876)	(0.0787)	(0.0811)
	0.472	0.184	0.000	0.008	0.007	0.001	0.779	0.001	0.374	0.218
Child ≥9 years	−0.0918	0.0424	−0.0394	0.0832	0.0273	0.106	0.210	0.0635	−0.0243	−0.194
	(0.0560)	(0.0596)	(0.0561)	(0.0696)	(0.0518)	(0.0648)	(0.0806)	(0.0710)	(0.0634)	(0.0679)
	0.104	0.478	0.484	0.234	0.600	0.105	0.010	0.372	0.702	0.005
Treatment*Child ≥9 years	0.0522	−0.0360	0.0643	−0.0275	0.0561	−0.174	0.129	0.0258	0.0210	0.183
	(0.0771)	(0.0870)	(0.102)	(0.0925)	(0.0742)	(0.0849)	(0.110)	(0.104)	(0.0954)	(0.0952)
	0.499	0.680	0.528	0.766	0.451	0.042	0.242	0.804	0.826	0.056
Constant	0.185	0.208	0.240	−0.183	0.0667	0.00509	−0.140	−0.725	0.0594	0.129
	(0.0852)	(0.101)	(0.112)	(0.131)	(0.0844)	(0.0936)	(0.100)	(1.896)	(0.108)	(0.115)
	0.032	0.041	0.034	0.166	0.431	0.957	0.165	0.703	0.584	0.267
Observations	1895	1895	1895	1737	1734	1895	1699	1736	1579	1579
R-squared	0.231	0.022	0.117	0.045	0.461	0.023	0.045	0.024	0.012	0.008
Panel B: Child female										
Treatment	0.109	0.151	0.885	−0.223	−0.308	0.220	0.138	−0.308	0.0738	0.0346
	(0.0572)	(0.0795)	(0.100)	(0.0861)	(0.0778)	(0.0705)	(0.0691)	(0.0893)	(0.0775)	(0.0768)
	0.059	0.060	0.000	0.011	0.000	0.002	0.048	0.001	0.343	0.654
Child female	0.00895	0.0413	−0.0492	0.105	−0.0042	0.0737	−0.174	0.0101	−0.0206	−0.114
	(0.0617)	(0.0595)	(0.0656)	(0.0736)	(0.0476)	(0.0687)	(0.0641)	(0.0726)	(0.0611)	(0.0719)
	0.885	0.489	0.455	0.157	0.929	0.285	0.007	0.889	0.736	0.115
Treatment*Child female	−0.0958	−0.138	−0.210	−0.0351	0.0712	0.00226	−0.0926	0.0133	0.0200	−0.0364
	(0.0824)	(0.0887)	(0.108)	(0.0856)	(0.0760)	(0.0808)	(0.118)	(0.107)	(0.0959)	(0.0917)
	0.247	0.121	0.055	0.682	0.350	0.978	0.434	0.901	0.835	0.692
Constant	0.0752	0.137	0.111	−0.140	0.0978	0.0610	0.0950	−1.530	0.0759	−0.000332
	(0.0763)	(0.105)	(0.108)	(0.125)	(0.0849)	(0.0968)	(0.0990)	(1.772)	(0.102)	(0.108)
	0.326	0.195	0.308	0.265	0.252	0.530	0.339	0.390	0.458	0.998
Observations	1808	1808	1808	1650	1647	1808	1625	1649	1505	1505
R-squared	0.235	0.023	0.122	0.044	0.469	0.020	0.050	0.028	0.012	0.004

All regressions include cohort and region-level fixed effects and adjust standard errors for clustering at the community-level. Regressions assessing impacts on assets, food insecurity, multidimensional poverty index, stress, engagement, educational aspirations, and educational expectations all control for baseline/lagged values of the respective outcome. Outcomes are centered on the control group mean and standard deviation and can be interpreted as effect sizes

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