Developmental Psychology
2017, Vol. 53, No. 2, 222–236

0012-1649/17/$12.00 http://dx.doi.org/10.1037/dev0000185

Promoting Child Development Through Group-Based Parent Support Within a Cash Transfer Program: Experimental Effects on Children's Outcomes

Lia C. H. Fernald, Rose M. C. Kagawa, and Heather A. Knauer
University of California, Berkeley

Lourdes Schnaas
Instituto Nacional de Perinatología, Mexico City, Mexico

Armando Garcia Guerra and Lynnette M. Neufeld
Centro de Investigación en Nutrición y Salud, Instituto Nacional de Salud Pública, Cuernavaca, Mexico

We examined effects on child development of a group-based parenting support program (*Educación Inicial* - EI) when combined with Mexico's conditional cash transfer (CCT) program (*Prospera*, originally *Oportunidades* and *Progresa*). This cluster-randomized trial included 204 communities (n = 1,113 children in final sample), stratified by community indigenous status, and assigned to receive either: (T_0) CCT only; (T_1) CCT plus availability of EI in the community; or (T_2) T_1 plus promotion of the EI program by the CCT program. Interviews were conducted with the mother or primary caregiver of each child at baseline (2008, children 0–18 months old), and at follow-up (2012, children 3–5 years old); the intervention began after baseline and continued for all eligible households. Cognitive development was assessed with the Extended Ages and Stages Questionnaire (baseline) and the McCarthy Scales of Children's Development (follow-up); assessors were blinded to treatment. All analyses were intention to treat. There were significant effects on child development when EI received support and promotion from the CCT program (T_2 vs. T_0: General Cognitive Index, $\beta = 3.90$; 95% CI [0.51, 7.30], Verbal Score, $\beta = 4.28$; 95% CI [0.51, 8.05], and Memory Score, $\beta = 4.14$; 95% CI [0.62, 7.66]), effects equivalent to 0.26–0.29 SD. There were no significant benefits when the programs operated independently (T_1 vs. T_0). In stratified analyses, EI showed significant effects in indigenous communities only. We found consistent results in regressions controlling for covariates, with some reductions in magnitude of differences. Our findings suggest that group-based, parenting support programs can improve child outcomes within the context of a CCT, but only when the 2 programs are integrated and mutually supportive.

Keywords: cash transfer, poverty, indigenous, parenting

Interventions to promote early development are critical, given the biological importance of the first five years of life, the vulnerability of children living in poverty, and the long-term consequences of developmental delay (Noble et al., 2015; Yoshikawa, Aber, & Beardslee, 2012). The World Health Organization (WHO) Commission on the Social Determinants of Health has concluded that social and economic policies addressing early child development can affect whether children develop to their potential or experience a constrained life-course trajectory (Commission on Social Determinants of Health, 2008). Goal 4 of the Sustainable Development Goals (SDGs) focuses on ensuring access to quality early childhood development programs for all children, and achieving this goal requires the incorporation of early child development programs within health, education and social services (Black et al., in press).

One popular approach to pulling families out of poverty is through conditional cash transfer programs (CCTs), and yet the effects of CCTs on child development outcomes have not been consistent. In the study described here, we add to the existing literature by testing whether an addition to a national CCT program could result in greater benefits to children than participating in a CCT alone; the program being added to the CCT is a parenting education and support program provided in a group setting. The objectives of the current study were to examine the effects of combining two, at-scale programs that are currently operational in Mexico, and to test whether group-based parenting support could be integrated with the existing infrastructure of a CCT to improve

This article was published Online First October 17, 2016.

Lia C. H. Fernald, Rose M. C. Kagawa, and Heather A. Knauer, School of Public Health, University of California, Berkeley; Lourdes Schnaas, Division of Research on Community Interventions, Instituto Nacional de Perinatología, Mexico City, Mexico; Armando Garcia Guerra and Lynnette M. Neufeld, Centro de Investigación en Nutrición y Salud, Instituto Nacional de Salud Pública, Cuernavaca, Mexico.

Lynnette M. Neufeld is now at GAIN (Global Alliance for Improved Nutrition), Geneva, Switzerland.

Correspondence concerning this article should be addressed to Lia C. H. Fernald, School of Public Health, University of California, 50 University Hall, MC 7360, Berkeley, CA 94720-7360. E-mail: fernald@berkeley.edu

child development outcomes. As a secondary objective, we examined households in indigenous communities, because these populations represent a particularly vulnerable group in Mexico and many other countries.

Effects on Children of Living in Poverty

Children growing up in poverty in low- and middle-income countries experience deficits within the first years of life (Fernald, Kariger, Hidrobo, & Gertler, 2012; Hamadani et al., 2014). More than one third of all children under 5 living in low- or middle-income countries show evidence of poor cognitive development as a consequence of poverty, and as a result, have worse outcomes in terms of schooling, income, and social development (Grantham-McGregor et al., 2007). Living in poverty is associated with poorer outcomes attributable to a wide range of interrelated and mutually reinforcing factors (e.g., quality of parental care, family dynamics, environmental characteristics; Hertzman & Boyce, 2010). For example, infants and toddlers growing up in conditions of poverty may not receive the appropriate care, stimulation, or nutrition that is required to promote optimal child development, and may be disproportionately exposed to concurrent risk factors that can interfere with the developmental process (Ackerman, Brown, & Izard, 2004; Brooks-Gunn & Duncan, 1997; Duncan & Brooks-Gunn, 1997; Evans & English, 2002; Owens & Shaw, 2003). Even in high-income countries, children from low-income backgrounds are more likely to experience poor nutrition, participate in less stimulating learning environments, interact with limited linguistic role models, live in crowded or substandard housing, have greater exposure to violence and environmental hazards, and have limited access to resources (see Chen Martin, & Matthews, 2006; Cutler, Lleras-Muney, & Vogl, 2008; Strauss & Thomas, 1998 for reviews). There is compelling evidence that low socioeconomic position contributes directly to poor outcomes via these risk factors, and that poor child outcomes then negatively feedback to affect future socioeconomic position in a continually dynamic process (Conger & Donnellan, 2007). Children living in poverty are also more likely to have parents with low levels of education and little knowledge of child development, and the combination of these factors heightens the risk for impaired development (Walker et al., 2011).

A combination of poverty alleviation and parenting education support can address many of these critical factors to improve outcomes for children. Returns to investments in early childhood are higher than investments made later in life because beneficiaries have a longer time to reap the rewards, and because early childhood is a sensitive period during which adverse exposures as well as positive interventions can have the greatest effects on an individual's developmental trajectory (Gertler et al., 2014). Furthermore, early investments in human capital can provide opportunities for dynamic and cumulative benefits later in childhood, adolescence and adulthood (Carneiro & Heckman, 2003).

Rationale for Use of Conditional Cash Transfer Programs

Conditional cash transfer programs (CCTs) have been widely implemented to combat extreme poverty, by providing cash payments to families who comply with certain requirements often related to health or education; in 2011, CCTs covered up to an estimated 1 billion people worldwide (DFID, 2011). There are now CCT programs in dozens of countries, including the United States (Aber, Morris, Wolf, & Berg, 2016). CCTs provide cash payments to families who comply with certain requirements, often related to health or education (the "conditions" of the cash transfer; Fiszbein et al., 2009). These requirements may include mandatory attendance at preventative health care services, attendance at health and nutrition education sessions designed to promote positive behavioral changes, and school attendance for school-age children (Das, Do, & Özler, 2005; Lagarde, Haines, & Palmer, 2007). There is some evidence that CCTs have positive effects on child health outcomes (Bassani et al., 2013), but there are mixed effects for child height and weight (Manley, Gitter, & Slavchevska, 2013), not surprising given the diverse packages of interventions offered by CCTs. Only a few evaluations have examined the effects of CCTs on development in young children and most report significant but small positive effects on cognitive and language development (Barham, Macours, & Maluccio, 2013; Fernald, Gertler, & Neufeld, 2008; Fernald, Gertler, & Neufeld, 2009; Fernald & Hidrobo, 2011; Macours, Schady, & Vakis, 2008; Paxson & Schady, 2010), as well as significant benefits for child behavior (Fernald et al., 2009; Ozer, Fernald, Manley, & Gertler, 2009).

The cash transfer program examined in this paper was Mexico's *Prospera (*previously *Oportunidades* and originally *Progresa*)—which increases household income by 20% to 30%. The cash is given to the female head of the household, and is conditional on children attending school, and on family members obtaining preventive medical care and attending "*talleres*," educational workshops on health-related topics. Compliance with program requirements is verified through the clinics and schools; only about 1% of households are denied the cash transfer for noncompliance. The cash transfers include a fixed stipend intended for food, in addition to educational scholarships for school-age children, which vary in amount by grade and gender. Total cash transfers for any given household are capped at a predetermined upper limit. At the time of this study, families also received a milk-based, fortified food supplement for all pregnant and lactating women, children 6 to 23 months of age, and children 2 to 5 years of age with undernutrition.

Parenting Interventions to Improve Child Development

There is strong evidence that interventions supporting parents can improve outcomes for young children (Britto et al., in press; Engle et al., 2011), and that providing families with home visiting or group-based curricula can improve outcomes for children living in poverty (Neville, Pakulak, & Stevens, 2015). These parenting interventions use various combinations of home visits, primary health care visits, group sessions with caregivers, and nutritional services to improve cognitive function and health in early childhood. Meta-analyses of parenting and home-visiting programs from high- and low- income countries have found that the most effective parenting programs included systematic training methods, a structured, evidence-based curriculum, and opportunities for parental practice and feedback with children; these reviews also found that the quality of the relationship between parent and worker influenced effectiveness (Moran, Ghate, & van der Merwe,

2004; Nowak & Heinrichs, 2008; Sweet & Appelbaum, 2004). The most effective parenting programs are also grounded in theory-driven approaches (Segal, Opie, & Dalziel, 2012).

Most existing studies of home-visiting studies in low- or middle-income countries have been small, efficacy trials, though some recent papers have examined programs at scale. For example, an at-scale home-visiting program in Pakistan utilized community health workers and demonstrated improved child development outcomes (Yousafzai, Rasheed, Rizvi, Armstrong, & Bhutta, 2014). A recent scaled-up program in the Caribbean delivered parenting support messages within primary care clinics and showed benefits to child development (Chang et al., 2015). A study in Colombia utilized the existing structure of the country's CCT to deliver a home-visiting program, and showed positive effects on child development in the short term (Attanasio et al., 2014). There is an urgent need to determine how to scale up parenting programs while maintaining quality so that the programs can reach the hundreds of millions of vulnerable children worldwide who are not meeting their developmental potential.

Details of the *Educación Inicial* Parenting Intervention

The *Educación Inicial* (EI) program is designed to provide knowledge, skills, training, and opportunities for practice to parents living in isolated and resource poor rural communities in Mexico where access to preschool programs is limited (Conafe, 2015). The intervention is described below with particular attention to relevant details allowing potential replication (Hoffmann et al., 2014), while acknowledging that this was an evaluation of an existing, at-scale program with the associated possibility for heterogeneity in service delivery.

Educación Inicial was developed by a diverse and highly qualified team of Mexican professionals, including psychologists, education experts, and child development specialists, and is deeply grounded in theories of behavior change, child development, and cognitive stimulation. The program materials are extensive, and include specific ideas for activities for each week, discussions of the theoretical underpinnings of each suggested activity, and recommendations for how the *promotora* can engage the parents in the group each week. All program materials are available in Spanish online (Conafe, 2015). Weekly themes include general issues such as hygiene and nutrition, promotion of fine and gross motor development, support of psycho-social development and early childhood stimulation to promote cognitive and language development, as well as age- and stage-specific issues such as care during pregnancy, responsive feeding, and specific activities and issues relating to early child development (Secretaría de Educación Pública, 2014).

The program is administered by *promotoras* who are required to be older than 18 years old, literate, able to travel regularly to the communities they are covering, and bilingual, if they are serving indigenous communities. *Promotora* selection occurs at the community level and *promotoras* receive two weeks of intensive training every year. In each community, parents work with the *promotora* to agree on the days, hours and location of the sessions; in this way, the program is designed to accommodate the availability of the group as a whole.

The EI program is delivered using a face to face delivery model, and is provided in a group setting in a community center or other centrally located structure. *Promotoras* are encouraged to maintain a group size of about 20 women. The sessions are intended to help enrich parenting practices and strengthen the development of infants and young children, always supporting, strengthening, and reinforcing the child-caregiver relationship. The *promotoras* are encouraged to use different strategies for teaching, reinforcing and practicing main messages for the key target groups: pregnant women, infants 0 to 1 year old, children 1 to 3 years old, mothers, and fathers. Although the EI program acknowledges that all attendees could benefit from the content and activities of each session, the sessions are generally focused on one particular target group at a time. Materials and toys may be provided during the sessions, but there are not usually materials for parents to bring home; parents are encouraged to make toys at home and to use existing resources to engage with, educate, and interact with their children.

The EI program is delivered in weekly sessions, on average 2 hours in length, and the program follows the primary school calendar (9 months of the year). All pregnant women and caregivers of children 0 to 4 years of age in the communities are invited to attend and expected to participate actively in a series of age appropriate activities together with their children. In all communities over the course of a year, there are supposed to be 26 sessions for mothers, fathers and caregivers, 5 sessions for fathers, 18 sessions focusing on children, 8 sessions for pregnant women, and 5 concluding sessions at the end of the annual cycle.

The *promotoras* receive yearly training at the beginning of the operating cycle so that they are using common elements across communities; during these training sessions they also receive methodological and instrumental support for conducting the sessions. The *promotoras* receive printed and other materials (e.g., theoretical framework of behavior change, instructional guides, health guides, booklets to distribute to parents) to use during their sessions. There is an intensive supervision and feedback system in which *promotoras* are overseen by local supervisors (with a ratio of 10:1), who are then overseen by program coordinators (also with a ratio of 10:1). Each level of supervision receives a detailed manual of operation and the majority of these manuals and the rules of operation of the program are publicly available online (Conafe, 2015).

On average, *promotoras* in the communities included in this study were about 29 years old (*SD* 8.4), with 12.4 years of education (*SD* 2.7); *promotoras* in nonindigenous communities were slightly older than *promotoras* in indigenous communities (mean ages 29.8 and 28.3, respectively), and had slightly lower educational attainment (mean years 12 and 12.9, respectively), but neither of these differences were statistically significant (INSP, 2009). *Promotoras* in nonindigenous communities tended to have a greater amount of time working with the program (14.3 months, *SD* 16.7) compared with *promotoras* in indigenous communities (10.9 months, *SD* 8), but this difference was not statistically significant. About 98% of *promotoras* in indigenous communities identified themselves as indigenous, compared with 52.1% of *promotoras* in nonindigenous communities.

Educación Inicial is a federal program situated within the Secretary of Education, and operates as an independent, decentralized unit. The implications of this design are that the system and process of program implementation do not vary across states, but there may be variation in quality of program delivery.

Current Study

In the study described here, we add to the existing literature by testing whether an addition to a national CCT program—parenting education provided in a group setting rather than a one-on-one home-visiting model—could result in greater benefits to children than participating in a CCT alone. The objectives of the current study were to examine the effects of integrating two, at-scale programs that are currently operational in Mexico, and to test whether group-based parenting support could work within the existing infrastructure of a CCT to improve child development outcomes. We also examined whether there were differential effects for children living in households in indigenous communities. We hypothesized that there would be benefits of *Educación Inicial* and that they would be concentrated in the most vulnerable children.

Method

Study Design

The study was designed as a cluster randomized controlled effectiveness trial with two intervention arms and one comparison arm. A cluster randomized trial was chosen to facilitate implementation and to reduce the potential for contamination. All participants were enrolled in *Prospera*, Mexico's CCT program (previously *Oportunidades* and originally *Progresa*), which covers 20% of the general population, and up to 60% in the poorest states (UNDP, 2011). Additional details about the intervention design and components are described below.

Trial Design and Randomization

Collaborating partners at the Mexican National Institute of Public Health (Instituto Nacional de Salud Pública [INSP], 2009) identified a pool of rural communities (<2500 inhabitants) in Chiapas, Puebla and Oaxaca States as "indigenous" (>80% population speaks indigenous language) or "non-indigenous" (see Figure 1 for flow diagram) from a complete list of communities provided by Mexico's National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía). To be eligible to participate in the study, communities needed to have (a) a minimum of 15 families with children under age 2, (b) >70% incorporated into *Prospera*, but (c) no current implementation of the *Educación Inicial* program or prior participation for at least the previous 5 years. A total of 288 communities (164 indigenous and 124 nonindigenous) met these criteria. Researchers at INSP randomly selected 204 (102 indigenous and 102 nonindigenous) of these communities to be part of the study. All *Prospera* beneficiary families living in the participating communities were invited to participate in the study at baseline and consent was obtained from the primary caregivers of the children. The *Educación Inicial* intervention began implementation within 1 to 2 months of the baseline survey.

Treatment Arms

In each stratum of indigenous and nonindigenous communities, INSP researchers randomly assigned the communities to receive one of three arms (two intervention arms and one comparison arm) using the SURVEYSELECT procedure available through SAS software. Randomization allocated 35 communities per stratum of indigenous status to the intervention arms (T_1: 934 children; T_2: 754 children), and 32 communities per stratum to the comparison arm (T_0: 784 children). The three trial arms were as follows:

Comparison arm (T_0). Households only received the existing CCT benefits from *Prospera*; in these communities, there were no parenting support services or programs provided by *Educación Inicial*.

Treatment arm (T_1). Households received the standard CCT benefits, and the *Educación Inicial* program was also implemented in its usual method. In the standard method of implementation, there are not any links between EI and *Prospera*, or with established health, education or other social services.

Treatment arm (T_2). Households received the standard CCT benefits, and the *Educación Inicial* program was also available. The difference in this arm, though, was that *Prospera* was responsible for promoting *Educación Inicial* and encouraging community members to participate in the program. In these regions, community-based staff of *Prospera* worked to disseminate information about the *Educación Inicial* program, to draw attention to the weekly meetings, and to highlight the potential benefits of program participation for child development; the *promotoras* also made specific efforts to schedule group meetings at different times during the week so that family members could participate fully in both programs. In T_2 communities, the CCT staff members received a description of the *Educación Inicial* program in their quarterly training sessions, received pamphlets about the program for themselves and pamphlets to distribute to mothers, and were asked to encourage mothers to participate. In spite of the fact that these two programs operated fully independently of each other in terms of formal institutional structure at the time of the study, qualitative observations suggested that some CCT staff members and EI *promotoras* perceived that participation in *Educación Inicial* was a mandatory condition to receive the cash transfer and may have transmitted this perception to program participants. In reality, payments were never denied to families that did not participate in *Educación Inicial*.

Sample Size

A sample size of 30 communities per arm and 10 children per community was calculated as sufficient to detect a difference of 0.5 *SD* of height-for-age, 0.7 *SD* of weight-for-age, and a 0.4*g*/dL hemoglobin concentration (results reported separately). This calculation was based on a power of 80%, α of 0.05, an intraclass correlation of 0.01 to 0.22, and the ability to resurvey 70% to 90% of children 2 years after baseline; power calculations of sample size were based on nutritional outcomes because there were not initially sufficient data available to calculate power for the developmental outcomes. The baseline sample included 2,472 children (0–18 months old), and the follow-up included 1,383 children (3–5 years old). The follow-up sample was smaller than the baseline due to budget constraints; communities that were most difficult to reach and those that had the smallest number of children were excluded from the follow-up ($n = 63$; see the Appendix for a comparison of the communities and children who were and were not followed-up). An additional 270 children were not included in

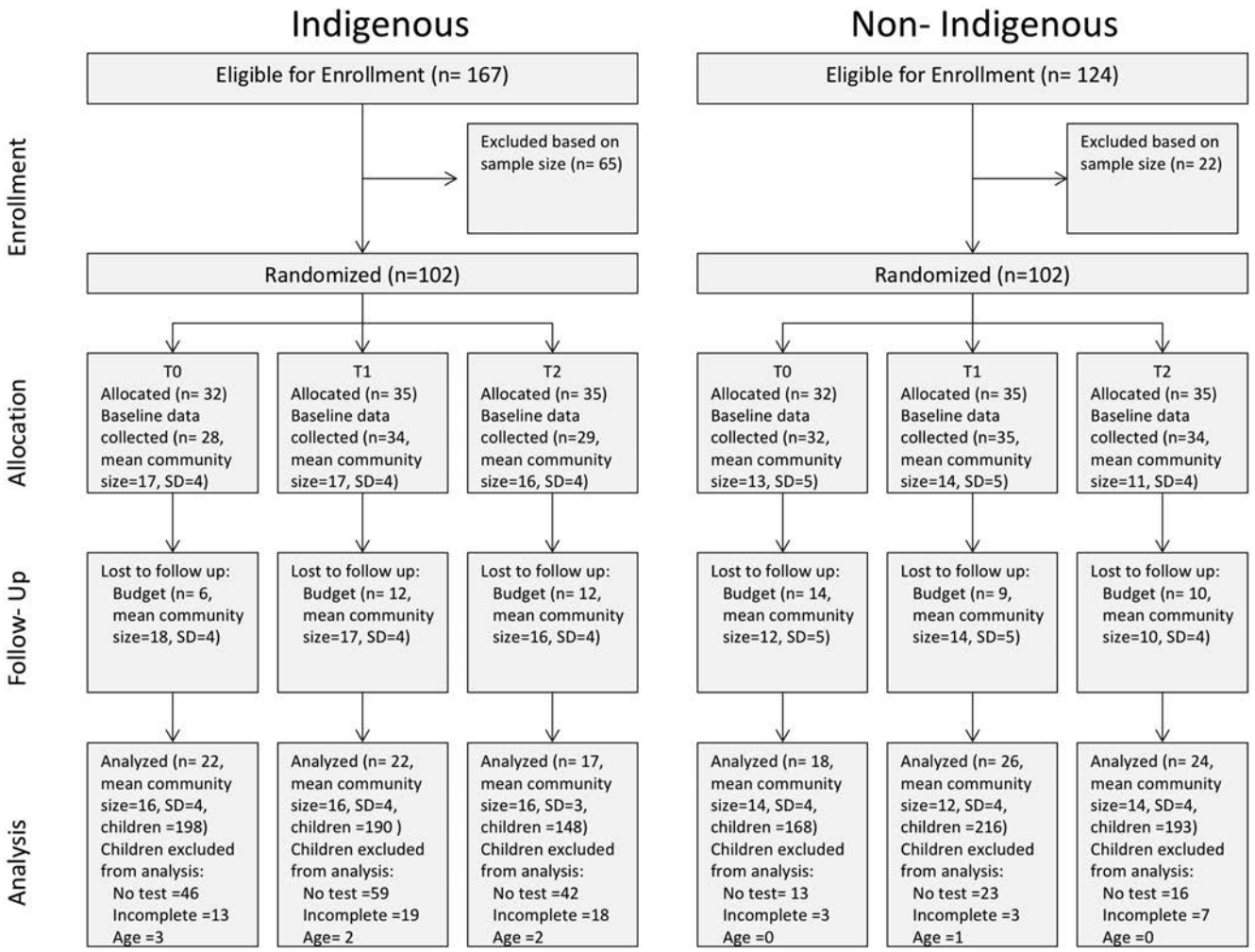

Figure 1. Flow chart of communities randomized to treatment groups.

the follow-up because they did not complete the assessments of child development ($n = 199$), because the assessments were incomplete ($n = 63$), or because children were out of the age range at follow-up ($n = 8$). The final sample includes 1,113 children from 129 communities (T_0: $n = 365$ children, $n = 32$ communities; T_1: $n = 406$ children, $n = 39$ communities; and T_2: $n = 342$ children, $n = 34$ communities).

Data Collection

Children were assessed at baseline (2008) and follow-up (2012); interviews in participants' homes were also conducted with the mother or primary caregiver of each child to obtain information regarding a range of variables that were selected specifically for their consistent associations with child development outcomes (Walker et al., 2011). Assessors were blinded to cluster assignment and collected data in pairs of two, made up of one person trained in anthropometric measurements and the other in the child development questionnaires.

Primary outcome measures. Cognitive development at follow-up was assessed using the McCarthy Scales of Children's Abilities, selected for its ability to be used in difficult field settings and to be culturally adapted without extensive changes (Fernald, Kariger, Engle, & Raikes, 2010); McCarthy Scales have been widely used in different Spanish speaking countries, including Mexico (Torres-Sánchez et al., 2013). Interrater reliability of interviewers was checked before the start of fieldwork and was >0.9. The McCarthy includes the General Cognitive Index (GCI—a composite of Verbal, Perceptual-Performance and Quantitative) and a Memory Scale. For tests missing <5 questions, we used a conservative imputation for individual missing test questions. Total scores and the GCI were converted to age-adjusted, standard scores calculated from 2-month age-specific means and SDs in each age range (mean: 100, *SD*: 15). The intracluster correlation coefficient for the General Cognitive Index was 0.22.

Covariates. Relevant covariates included state of residence (Chiapas, Oaxaca or Puebla), maternal education (no formal education, primary, middle school, or higher education levels), household crowding (number of people in the household divided by number of rooms), community indigenous status (a binary variable indicating whether residents of indigenous ancestry com-

posed >70% of the population), and wealth (baseline household asset index, (Moser, 1998) with principal components analysis (Falkingham & Namazie, 2002), and the varimax rotation (Filmer & Pritchett, 2001)). We replaced missing values with the mean community value; <6% were imputed using this method.

Effect modifiers. We conducted post hoc tests of interaction using children's cognitive development scores at baseline (measured using the Extended Ages and Stages Questionnaire [EASQ]), maternal education level, or household assets (wealth). The EASQ is designed for children over 4 months old; thus, children 0 to 4 months of age were excluded at baseline. Missing scores were imputed using the mean of the child's domain score for any child missing fewer than three questions in a given domain. EASQ scores were converted to standard scores with a mean of 100 and a *SD* of 15. All hypothesized effect modifiers were transformed to binary variables for ease of interpretation.

Statistical Analysis

All analyses were intention to treat for cluster randomized trails (using CONSORT guidelines; Campbell, Piaggio, Elbourne, Altman, & Group, 2012) and were completed using Stata 12 (StataCorp, 2011, Stata Statistical Software: Release 12. College Station, TX: StataCorp LP). We examined the distribution of variables at follow-up to ensure that we had maintained balance across the three intervention arms. We then used cluster-adjusted linear regression to estimate the differences in child development scores at follow-up. Our models included state of residence as a fixed effect, specified indigenous community status as the stratification variable used in the sampling plan, and adjusted for clustering at the community level using linearized variance estimation (Levy & Lemeshow, 1999). Assignment to treatment was included as an indicator variable so that each treatment arm could be compared with the comparison arm. We then conducted robustness checks by including additional covariates and compared the models to the more parsimonious models described above. Finally, we tested whether baseline scores of child development, maternal education, or wealth modified the effects of the *Educación Inicial* program on cognitive development scores at follow-up by including treatment-by-effect-modifier interaction terms in separate models (one model for each hypothesized effect modifier).

Results

The three arms of the trial (T_0, T_1, T_2) remained well balanced at follow-up, 4 years after baseline, suggesting that randomization was retained despite the restricted sample size at follow-up (Table 1).

Primary Intention to Treat Analysis: Effect of Educación Inicial on Child Outcomes

At follow-up, children in T_2 scored higher on all domains of the McCarthy Scales compared with children in T_0 (Figure 2A). The differences were statistically significant for the General Cognitive Index ($\beta = 3.90$; $p = .03$; 95% CI [0.51, 7.30]), Verbal Score ($\beta = 4.28$; $p = .03$; 95% CI [0.51, 8.05]), and Memory Score ($\beta = 4.14$; $p = .02$; 95% CI [0.62, 7.66]), and exhibited a similar, but nonsignificant association for the Perceptual Score ($\beta = 2.47$; $p = .15$; 95% CI [−0.89, 5.82]) and Quantitative Score ($\beta = 2.77$; $p = .09$; 95% CI [−0.46, 6.00]; Table 2). There were no significant differences between McCarthy scores of children living in communities that had been randomized to T_1 and those in T_0.

In analyses stratified by indigenous status, randomization to T_2 compared with T_0 was associated with higher McCarthy Scale scores only among children in indigenous communities (Figure 2B). The program showed significant benefits on the General Cognitive Index ($\beta = 3.81$; $p = .05$; 95% CI [−0.01, 7.62]), and a nonsignificant tendency toward higher scores for the Verbal ($\beta = 2.21$; $p = .19$; 95% CI [−1.11, 5.52]), Perceptual ($\beta = 4.25$; $p = .09$; 95% CI [−0.71, 9.22]), Quantitative ($\beta = 3.82$; $p = .07$; 95% CI [−0.29, 7.94), and Memory scores ($\beta = 2.46$; $p = .12$; 95% CI [−0.62, 5.55]; Table 3). In contrast, there were no significant differences comparing T_1 and T_0 in indigenous communities, or when comparing T_1 or T_2 and T_0 in nonindigenous communities.

Robustness Check: Effect of Educación Inicial on Child Outcomes Controlling for Covariates

Although we achieved successful balance of covariates across communities randomized to T_0, T_1 and T_2, we conducted tests of robustness by including covariates in our models to assess our assumption that randomization truly removed confounding (Table 4). After controlling for covariates, the pattern that we had originally observed in the simpler models remained, although the differences between the treatment arms and comparison arm were smaller. Children in T_2 continued to score higher than children in T_0 on all scales of the McCarthy Scales, and the differences in scores were statistically significant for the Verbal ($\beta = 2.56$; $p = .05$; 95% CI [0.05, 5.08]) and Memory Scales ($\beta = 2.65$; $p = .04$; 95% CI [0.17, 5.13), but no longer significant for the General Cognitive Index ($\beta = 2.59$; $p = .08$; 95% CI [−0.29, 5.46]).

Tests of Effect Modification

In exploratory tests of heterogeneity, there was a large and statistically significant difference in program effects on the General Cognitive Index when comparing children who had originally scored in the bottom 20th percentile ($\beta = 7.16$; $p = .009$; 95% CI [1.82, 12.50]), and those who had scored higher on the baseline child development tests ($\beta = 1.94$; $p = .30$; 95% CI [−1.76, 5.63]; Table 5). This difference was also evident for the Perceptual and Quantitative Scales. The treatment by maternal education interaction terms were statistically significant for the Verbal Scale ($\beta = 5.30$; $p = .008$; 95% CI [1.41, 9.18] for children of mothers with formal education, vs. $\beta = 0.94$; $p = .69$; 95% CI [−3.69, 5.57] for children of mothers with no education); there were no significant differences for the other scales. The treatment by household asset index interaction terms were statistically significant for the Quantitative and Memory Scales, with significant program effects for children from households with high wealth and no program effects in households with low wealth; there were no significant differences for the other scales.

Discussion

In this cluster-randomized effectiveness study among CCT participants in rural Mexico, we found that children whose communities

Table 1
Baseline Characteristics of Children From Households in the Final Sample by Random Assignment to Comparison Group (T_0) or Educación Inicial Parenting Program Treatment Groups (T_1 and T_2) Among Participants in Conditional Cash Transfer Program (CCT)

Variable	Comparison (T_0)	Standard promotion (T_1)	Extra promotion (T_2)	*p* value[a]
Baseline cognitive scores[b]	(*n* = 283)	(*n* = 331)	(*n* = 279)	
Communication	101.21 (15.03)	101.17 (13.74)	101.43 (13.98)	.99
Personal-social perception	101.97 (13.66)	99.86 (15.17)	101.53 (12.42)	.37
Gross motor skills	101.62 (13.79)	100.22 (14.70)	99.41 (14.08)	.29
Overall score	102.11 (14.41)	100.50 (14.40)	100.93 (13.09)	.53
Child characteristics	(*n* = 366)	(*n* = 406)	(*n* = 341)	
Girl	180 (49.2%)	188 (46.3%)	175 (51.3%)	.36
Cohort age (months)				
0–6	157 (42.9%)	137 (33.7%)	125 (36.7%)	
7–12	108 (29.5%)	139 (34.2%)	100 (29.3%)	.12
13–18	101 (27.6%)	130 (32.0%)	116 (34.0%)	
Parental characteristics				
Indigenous (speaks or understands indigenous language)	206 (56.3%)	211 (52.0%)	171 (50.2%)	.85
Father present	338 (92.4%)	382 (94.1%)	308 (90.3%)	.34
Father education (highest completed)				
No formal education (≤1 yr)	51 (13.9%)	60 (14.8%)	36 (10.6%)	
Primary (7 yrs)	257 (70.2%)	275 (67.7%)	249 (73.0%)	.58
Middle school (10 yrs)	53 (14.5%)	57 (14.0%)	47 (13.8%)	
High school and above (≥13 yrs)	5 (1.4%)	14 (3.5%)	9 (2.6%)	
Mother education (highest completed)				
No formal education (≤1yr)	67 (18.3%)	65 (16.0%)	69 (20.2%)	
Primary (7 yrs)	246 (67.2%)	293 (72.2%)	224 (65.7%)	.83
Middle school (10 yrs)	43 (11.8%)	40 (9.9%)	40 (11.7%)	
High school and above (≥13 yrs)	10 (2.7%)	8 (2.0%)	8 (2.4%)	
Household characteristics				
Indigenous locality	198 (54.1%)	190 (46.8%)	148 (43.4%)	.66
Household composition				
Number of household members	6.86 (2.35)	6.59 (2.18)	6.34 (2.34)	.15
Children (<18 years)	4.42 (2.01)	4.17 (1.81)	3.92 (1.91)	.14
Adults (≥18 years)	2.43 (.94)	2.40 (.97)	2.41 (1.09)	.97
Crowding (people/rooms)	3.07 (1.58)	3.14 (1.85)	2.88 (1.72)	.31
Log of asset index value	.76 (.43)	.75 (.46)	.82 (.42)	.52
Piped water on family land	265 (72.4%)	308 (75.9%)	263 (77.1%)	.79
Had electricity in home	342 (93.4%)	382 (94.1%)	322 (94.4%)	.94

Note. Data are n (%) or mean (SD) and are stratified by assignment to the three treatment arms.
[a] *p* values calculated for comparisons across treatment arms using cluster-adjusted F-tests for continuous variables and chi squared tests for categorical variables. [b] Child cognitive development assessed using the Extended Ages and Stages Questionnaire (EASQ) for children ages 4 to 19 months old. Sample size is smaller than for other child variables because it excludes children 0–4 months old: (T_0: *n* = 283 children, *n* = 23 communities; T_1: *n* = 331 children, *n* = 32 communities; and T_2: *n* = 279 children, *n* = 26 communities). Scores are age standardized within two-month ranges using the sample as its own reference and converted to have a mean of 100 and a *SD* of 15.

had been randomized to receive weekly, group-based parenting support performed better on tests of child development than children whose communities did not have any parenting support classes. This finding was true only for households in communities randomized to the arm in which group participation was integrated with the existing CCT program, and encouraged and supported by the CCT. There were no differences in cognitive outcomes between children living in communities where the parenting program was not supported by the CCT and children living in communities where the program was not available. When we stratified our analyses by community indigenous status, we found that our main results were driven by a significant effect for children living in indigenous communities and not those living in nonindigenous communities. Among all children, effects at follow-up were largest for children who began the program in the lowest quintile of child development; effects were also larger for children whose mothers had higher levels of formal education and whose households were relatively wealthier.

The major strength of our study is that the two programs we are evaluating, *Prospera* and *Educación Inicial*, are already operating at-scale across Mexico. Other strengths of this study were that it had a rigorous study design, direct measures of child development at baseline and follow-up, and that it focused on the poorest and most underserved communities in rural Southern Mexico. Our *ex ante* focus on indigenous populations allowed us sufficient sample size to

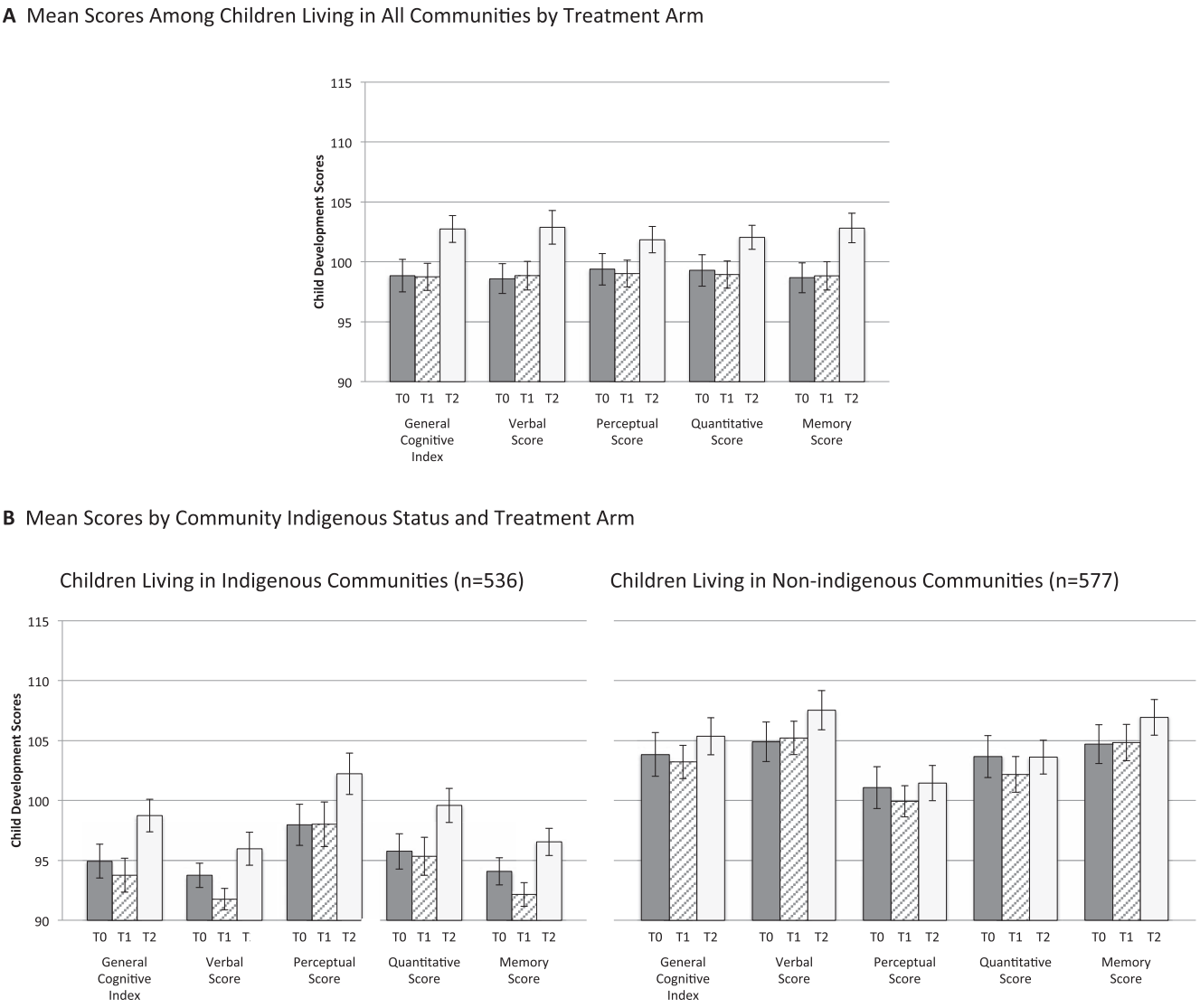

Figure 2. Mean[a] child development scores[b] among participants in conditional cash transfer program (CCT) by treatment arm (T_0, T_1, T_2)[c] (N = 1113). [a] Average adjusted predictions of scores and SEs. Models include indicators for state of residence. [b] Scores are mean:100 and *SD*:15. [c] (T_0) CCT benefits only; (T_1) CCT benefits plus availability of *Educación Inicial* in the community; or (T_2) CCT benefits plus extra promotion for *Educación Inicial* by the CCT.

conduct stratified randomization and analyses. An additional strength and contribution to the literature is that we followed children several years after they started the program, allowing us to examine longer term program effects.

A key weakness of our study is that our follow-up sample was reduced to a subgroup of the baseline sample due to budget constraints, which limits generalizability. In spite of the smaller follow-up sample, however, the balance of the three arms was maintained implying that randomization at baseline was maintained through follow-up. We are additionally limited in terms of generalizability by the fact that our study was located in only three states in rural, southern Mexico, selected for their large indigenous populations. Another limitation of our study is that we do not have participation data. Thus, we assume that the positive program effects in T_2 arm are related to increased participation, but we cannot confirm whether this is true based on our data. Furthermore, we do not have data regarding whether the children in the study were enrolled in preschool, so we do not know what other sources of cognitive and language stimulation they are receiving. Finally, we do not have data about intervention implementation in terms of the quality or quantity of the sessions, which would give us insights into how the program functioned, and we do not have data about whether the *promotoras* in the T_2 arm were more engaging or motivated because of the additional promotion of the program. Thus, future research should include a detailed assessment of program implementation and *promotora* behavior and engagement.

Our main effects were equivalent to 0.26 *SD* for children in all communities (and 0.25 *SD* for indigenous children); the effect size

Table 2
Main Results of Intention to Treat Analysis: Effects of Randomization to Educación Inicial Parenting Program (T_0, T_1 or T_2)[a] on Child Development Scores[b] Among Participants in Conditional Cash Transfer Program (CCT) (N = 1113)

Variable	Standard promotion (T_1) vs. Comparison (T_0) β[c] (*SE*) *p* value	Extra promotion (T_2) vs. Comparison (T_0) β[c] (*SE*) *p* value
General cognitive index	−.09 (1.81) .96	3.90 (1.72) .03
Verbal score	.25 (1.86) .89	4.28 (1.91) .03
Perceptual score	−.36 (1.72) .84	2.47 (1.70) .15
Quantitative score	−.34 (1.78) .85	2.77 (1.63) .09
Memory score	.16 (1.84) .93	4.14 (1.78) .02

Note. Models include indicators for state of residence.
[a] (T_0) comparison group with CCT benefits only; (T_1) CCT benefits plus availability of *Educación Inicial* in the community; or (T_2) CCT benefits plus extra promotion and encouragement to participate in *Educación Inicial* by the CCT. [b] Child development assessed using McCarthy Scales of Child Development. Scores are age standardized within two-month ranges using the sample as its own reference and converted to have a mean of 100 and a *SD* of 15. [c] Betas are differences in mean standardized McCarthy scores.

was 0.48 *SD* for children who began the program in the lowest quintile of child development. Our main effect sizes were equivalent to those found in the study of a home-visiting program combined with a CCT in Colombia (0.26 *SD*) (Attanasio et al., 2014), with a recent group-based approach in Uganda (0.27–0.36 *SD*) (Singla, Kumbakumba, & Aboud, 2015), and with integration into primary care clinics in the Caribbean (0.30 *SD*) (Chang et al., 2015), but smaller than the scaled-up, home-visiting program in Pakistan (0.60 *SD* for cognition) (Yousafzai et al., 2014). A meta-analysis of home-visiting programs in the United States found a lower average standardized effect on cognitive outcomes of 0.18 *SD* (Sweet & Appelbaum, 2004). The original Jamaican home-visiting efficacy study found an effect size of 0.88 *SD* (Grantham-McGregor, Powell, Walker, & Himes, 1991), but effect sizes from other efficacy studies of home-visiting programs in low- and middle-income countries have not generally been so large (Grantham-McGregor, Fernald, Kagawa, & Walker, 2014). Our effect size estimates are probably smaller than some of the more intensive home-visiting programs because stimulation messages may have been diluted due to the wide age range. Messages were probably also diluted because of the group size, and because there was not an individually tailored curriculum for each child, which would have been more likely within the context of a home-visiting program.

For reasons related to the rules of operation of the CCT program, it was not possible to include participation in *Educación Inicial* as an additional condition to the CCT in this study. CCT staff members were asked, however, to strongly promote and encourage participation in *Educación Inicial*, and it is possible that some participants perceived participation to be mandatory even though CCT payment was not actually tied to participation. If there were an explicit monetary reward associated with participation in *Educación* Inicial, participation in the program could be increased. In a review examining the differences between conditional and unconditional cash transfer programs, the largest effects were shown for programs that had explicit conditionalities, had a clear system for monitoring compliance, and had penalties for noncompliance (Baird, Ferreira, Özler, & Woolcock, 2014). Future research should attempt to examine whether participation in a parenting program such as *Educación Inicial* could actually be added as an explicit condition of a CCT.

Table 3
Results Stratified by Indigenous Status: Effects of Randomization to Educación Inicial Parenting Program (T_0, T_1 or T_2)[a] on Child Development Scores[b] Among Participants in Conditional Cash Transfer Program (CCT) by Community Indigenous Status

	Children living in indigenous communities (*n* = 536)		Children living in non-indigenous communities (*n* = 577)	
Variable	Standard promotion (T_1) vs. Comparison (T_0) β[c] (*SE*) *p* value	Extra promotion (T_2) vs. Comparison (T_0) β[c] (*SE*) *p* value	Standard promotion (T_1) vs. Comparison (T_0) β[c] (*SE*) *p* value	Extra promotion (T_2) vs. Comparison (T_0) β[c] (*SE*) *p* value
General cognitive index	−1.17 (2.01) .56	3.81 (1.91) .05	−.62 (2.13) .77	1.52 (2.19) .49
Verbal score	−2.00 (1.28) .13	2.21 (1.66) .19	.32 (2.01) .88	2.64 (2.12) .22
Perceptual score	.04 (2.63) .99	4.25 (2.48) .09	−1.16 (2.09) .58	.37 (2.16) .87
Quantitative score	−.43 (2.20) .85	3.82 (2.06) .07	−1.50 (2.18) .50	−.05 (2.10) .98
Memory score	−1.93 (1.46) .19	2.46 (1.54) .12	.13 (2.10) .95	2.23 (1.98) .26

Note. Models include indicators for state of residence.
[a] (T_0) comparison group with CCT benefits only; (T_1) CCT benefits plus availability of *Educación Inicial* in the community; or (T_2) CCT benefits plus extra promotion and encouragement to participate in *Educación Inicial* by the CCT. [b] Child development assessed using McCarthy Scales of Child Development. Scores are age standardized within two-month ranges using the sample as its own reference and converted to have a mean of 100 and a *SD* of 15. [c] Betas are differences in mean standardized McCarthy scores.

Table 4
Robustness Check: Effects of Randomization to Educación Inicial Parenting Program (T_0, T_1 or T_2)[a] on Child Development Scores[b] Among Participants in Conditional Cash Transfer Program (CCT), Adjusting for Covariates (N = 1113)

Variable	Standard promotion (T_1) vs. Comparison (T_0) β[c] (*SE*) *p* value	Extra promotion (T_2) vs. Comparison (T_0) β[c] (*SE*) *p* value
General cognitive index	−.21 (1.43) .88	2.59 (1.45) .08
Verbal score	−.16 (1.10) .89	2.56 (1.27) .05
Perceptual score	−.06 (1.68) .97	1.99 (1.65) .23
Quantitative score	−.53 (1.55) .73	1.87 (1.54) .23
Memory score	−.23 (1.21) .85	2.65 (1.25) .04

Note. Models include indicators for state of residence, community indigenous status, maternal education, household crowding, and log asset index (covariates not shown).
[a] (T_0) comparison group with CCT benefits only; (T_1) CCT benefits plus availability of *Educación Inicial* in the community; or (T_2) CCT benefits plus extra promotion and encouragement to participate in *Educación Inicial* by the CCT. [b] Child development assessed using McCarthy Scales of Child Development. Scores are age standardized within two-month ranges using the sample as its own reference and converted to have a mean of 100 and a *SD* of 15. [c] Betas are differences in mean standardized McCarthy scores.

Our findings suggest that children living in indigenous communities benefited from the integrated intervention (T_2 arm) in contrast to those living in nonindigenous communities who didn't benefit. We speculate that this is because indigenous communities are highly vulnerable, marginalized and isolated (Gracey & King, 2009; King, Smith, & Gracey, 2009; Montenegro & Stephens, 2006). Most of the almost 25,000 indigenous communities in Mexico are located in areas of difficult access, which affects school attendance, and challenges the government's ability to provide services. Because of the isolation and marginalization of indigenous communities, the indigenous education system in Mexico has traditionally provided low quality services, which translate into schooling results that are lower than national averages for children living in indigenous communities. Although preschool has been mandatory in Mexico for the past 17 years, only 76% of the children in indigenous communities attend preschool compared with over 90% in nonindigenous communities (INEGI, 2014). It is possible that the reason that we did not find program effects for children living in nonindigenous communities in the T_2 arm is that these children from nonindigenous communities were more likely to attend formal or informal preschools, and thus were receiving the benefits of cognitive stimulation from a different source.

The goals of *Educación Inicial* are to improve child development by empowering primary caregivers to provide cognitive stimulation to their children (Eshel, Daelmans, de Mello, & Mar-

Table 5
Effect Modification: Effects of Randomization to Extra Promotion Arm of Educación Inicial Parenting Program (T_2) Compared With Comparison Group (T_0) on Child Development Scores[a] Among Participants in Conditional Cash Transfer Program (CCT) by Baseline Cognitive Development Scores (N = 893),[b] Household Wealth (N = 1113), and Maternal Education (N = 1113)[c]

Effect modifier	General scale β[c] (*SE*) *p* value	Verbal scale β[c] (*SE*) *p* value	Perceptual scale β[c] (*SE*) *p* value	Quantitative scale β[c] (*SE*) *p* value	Memory scale β[c] (*SE*) *p* value
Baseline cognitive scores[b]					
Lowest quintile	7.16 (2.70) .009[d,e]	3.14 (3.40) .36	9.32 (3.09) .003[d,e]	6.55 (2.55) .01[d,e]	4.80 (3.43) .16
Quintiles 2–5	1.94 (1.87) .30[d,e]	3.40 (1.99) .09	−.15 (1.83) .94[d,e]	.88 (1.72) .61[d,e]	2.51 (1.87) .18
Maternal education					
No education	1.29 (2.69) .63	.94 (2.34) .69[d]	.96 (3.31) .77	1.95 (3.08) .53	2.00 (2.59) .44
Any education	4.71 (1.76) .01	5.30 (1.96) .008[d]	2.93 (1.75) .10	3.04 (1.65) .07	4.87 (1.80) .008
Log asset index (split at median household wealth value)					
Lower wealth	.88 (2.04) .67	1.90 (1.89) .32	−.20 (2.47) .94	−.31 (2.06) .88[d,e]	.61 (1.66) .71[d,e]
Higher wealth	4.81 (2.01) .02	4.60 (2.18) .04	3.60 (1.96) .07	4.07 (1.93) .04[d,e]	5.35 (2.09) .01[d,e]

Note. Models include indicators for state of residence. *P* values are for within group differences.
[a] Child development assessed using McCarthy Scales of Child Development. Scores are age standardized within two-month ranges using the sample as its own reference and converted to have a mean of 100 and a *SD* of 15. [b] Child cognitive development assessed using the Extended Ages and Stages Questionnaire (EASQ) for children ages 4 to 18 months old. Sample size is smaller than for other child variables because it excludes children 0–4 months old as they were too young to be tested: (Sample size is T_0: $n = 283$ children, $n = 23$ communities; T_1: $n = 331$ children, $n = 32$ communities; and T_2: $n = 279$ children, $n = 26$ communities). Scores are age standardized within two-month ranges using the sample as its own reference and converted to have a mean of 100 and a *SD* of 15. [c] Betas are differences in mean standardized McCarthy scores. [d] Test of interaction demonstrated statistical significance for effect modification on the indicated scale ($p < .10$). [e] Test of interaction remained statistically significant for effect modification on the indicated scale after adjusting for wealth (household asset index), maternal education, household crowding and indigenous community status. The models testing for effect modification by wealth and maternal education did not include wealth and maternal education as covariates respectively.

tines, 2006). Based on literature about stand-alone parenting support programs, the pathways through which these programs function can relate to direct program effects on parents' behaviors, such as through parenting skills, attitudes and beliefs, knowledge and understanding, emotional and mental health, and social support (Moran et al., 2004). For example, in the scaled up parent training program in the Caribbean mentioned above, parental knowledge about child development increased as a result of the intervention, suggesting this as a potential pathway for effectiveness (Chang et al., 2015). As another example, the recent Ugandan study confirmed that community-based parenting support had a significant effect on reducing depressive symptoms in mothers (Singla et al., 2015), which could then have a direct effect on child well-being and achievement (McLoyd, 1990).

There are other pathways that could explain the program's effects within the context of a CCT (Fernald, Gertler, & Hidrobo, 2012). First, in addition to the knowledge gained from the *Educación Inicial* program relating to caregiving, cognitive stimulation and socioemotional development, mothers or primary caregivers obtain additional knowledge and skills related to nutrition and health via the CCT. With greater financial resources from the CCT, mothers can act on what they have learned in a parenting class, and provide a better environment for their children through improvements in the home (e.g., quality of floor and ceiling, availability of electricity, or quality of water supply; Guo & Harris, 2000; Yeung, Linver, & Brooks-Gunn, 2002), or through the purchase of goods that influence child development (e.g., books, or toys). In a pathway analysis of the EI program effects, we found that participation in the T_2 arm of the study was associated with a 13% increase in the number of play activities that parents engaged in with their children, particularly shared storybook reading and singing, and that play activities and shared book reading explained up to 32% of the effects of the EI parenting program on child development outcomes in the T_2 arm (Knauer et al., 2016).

A second pathway through which the program could be working is that mothers receive information about health and nutrition from the CCT and from EI, so it is likely that this information is mutually reinforcing. Cash received by mothers in the CCT may be spent on children's health and nutrition (e.g., more nutritious foods, health care), which could subsequently improve developmental outcomes (Adler, Boyce, Chesney, Folkman, & Syme, 1993; Thomas, 1990).

Third, because poverty affects the ways in which parents monitor their children, provide stimulation for their children, and respond to their needs (Brooks-Gunn & Duncan, 1997), increasing access to economic resources may allow parents to be more responsive, warm and consistent (Wachs, Black, & Engle, 2009). Income can also indirectly improve the psychological well-being of family members through reductions in subjective feelings of financial strain and deprivation (Lund et al., 2011; Mistry, Biesanz, Taylor, Burchinal, & Cox, 2004).

In conclusion, our results suggest that adding group-based parenting support could make CCTs more effective policy levers, particularly in the most isolated, resource-poor areas where vulnerable children live. There are significant policy implications of this research. CCTs have been embraced by members of the development community (de Janvry & Sadoulet, 2006), but also criticized for reasons relating to sustainability and limited larger scale effects (Grimes & Wängnerud, 2010; Handa & Davis, 2006; Popay, 2008; Shibuya, 2008). It is possible that CCTs could be more effective at catalyzing upward mobility if there were a greater investment in children's development through parenting support. Given that upward mobility has not historically been easy to achieve in low- or middle-income countries when compared with high income countries (Behrman, Gaviria, & Székely, 2001), CCTs could have greater long-term impact if they supported greater investments in early child development.

To date, the targeting and benefits of the parenting program (*Educación Inicial*) have not been linked to those provided by the CCT (*Prospera),* which now reaches 5.8 million of the poorest families in Mexico (SEDESOL, 2012). Based on our findings, children living in the most isolated and vulnerable communities, and specifically those with predominantly indigenous populations, could benefit substantially from this type of integration.

References

Aber, J. L., Morris, P., Wolf, S., & Berg, J. (2016). The impact of a holistic conditional cash transfer program in New York City on parental financial investment, student time use and educational processes and outcomes. *Journal of Research on Educational Effectiveness, 9,* 334–363.

Ackerman, B. P., Brown, E. D., & Izard, C. E. (2004). The relations between persistent poverty and contextual risk and children's behavior in elementary school. *Developmental Psychology, 40,* 367–377. http://dx.doi.org/10.1037/0012-1649.40.3.367

Adler, N. E., Boyce, W. T., Chesney, M. A., Folkman, S., & Syme, S. L. (1993). Socioeconomic inequalities in health. No easy solution. *Journal of the American Medical Association, 269,* 3140–3145. http://dx.doi.org/10.1001/jama.1993.03500240084031

Attanasio, O. P., Fernández, C., Fitzsimons, E. O., Grantham-McGregor, S. M., Meghir, C., & Rubio-Codina, M. (2014). Using the infrastructure of a conditional cash transfer program to deliver a scalable integrated early child development program in Colombia: Cluster randomized controlled trial. *BMJ: British Medical Journal, 349,* g5785. http://dx.doi.org/10.1136/bmj.g5785

Baird, S., Ferreira, F. H. G., Özler, B., & Woolcock, M. (2014). Conditional, unconditional and everything in between: A systematic review of the effects of cash transfer programmes on schooling outcomes. *Journal of Development Effectiveness.* http://dx.doi.org/10.1080/19439342.2014.890362

Barham, T., Macours, K., & Maluccio, J. A. (2013). Boys' cognitive skill formation and physical growth: Long-term experimental evidence on critical ages for early childhood interventions. *The American Economic Review, 103,* 467–471.

Bassani, D. G., Arora, P., Wazny, K., Gaffey, M. F., Lenters, L., & Bhutta, Z. A. (2013). Financial incentives and coverage of child health interventions: A systematic review and meta-analysis. *BMC Public Health, 13,* S30. http://dx.doi.org/10.1186/1471-2458-13-S3-S30

Behrman, J. R., Gaviria, A., & Székely, M. (2001). Intergenerational schooling mobility in Latin America. *Economia, 2,* 1–31.

Black, M. M., Walker, D. P., Fernald, L. C. H., Andersen, C. T., DiGirolamo, A. M., Lu, C. (in press). Early Child Development Coming of Age: Science Through the Life-Course. *The Lancet,* Advance online publication. http://dx.doi.org/10.1016/S0140-6736(16)31659-2

Britto, P. B., Lye, S., Proulx, K., Bhutta, Z., Matthews, S., Perez-Escamilla, R., . . . Cerezo, A. (in press). Enrichment, nurturing care and protection: What works in early childhood development. *The Lancet,* Advance online publication. http://dx.doi.org/10.1016/S0140-6736(16)31390-3

Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The Future of Children, 7,* 55–71. http://dx.doi.org/10.2307/1602387

Campbell, M. K., Piaggio, G., Elbourne, D. R., Altman, D. G., & the CONSORT Group. (2012). Consort 2010 statement: Extension to cluster randomised trials. *British Medical Journal* (Clinical Research Ed.), *345*, e5661. http://dx.doi.org/10.1136/bmj.e5661

Carneiro, P., & Heckman, J. (2003). Human capital policy. In J. Heckman & A. Krueger (Eds.), *Inequality in America: What role for human capital policies?* Cambridge, MA: MIT Press.

Chang, S. M., Grantham-McGregor, S. M., Powell, C. A., Vera-Hernández, M., Lopez-Boo, F., Baker-Henningham, H., & Walker, S. P. (2015). Integrating a parenting intervention with routine primary health care: A cluster randomized trial. *Pediatrics, 136*, 272–280. http://dx.doi.org/10.1542/peds.2015-0119

Chen, E., Martin, A. D., & Matthews, K. A. (2006). Socioeconomic status and health: Do gradients differ within childhood and adolescence? *Social Science & Medicine, 62*, 2161–2170. http://dx.doi.org/10.1016/j.socscimed.2005.08.054

Commission on Social Determinants of Health. (2008). *Closing the gap in a generation: Health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health*. Retrieved August 7, 2013, from http://www.conafe.gob.mx

Conafe. (2015). *Conafe program documentation*. Retrieved May 7, 2015 from http://www.conafe.gob.mx/educacionincial/Paginas/documentos-normativos.aspx

Conger, R. D., & Donnellan, M. B. (2007). An interactionist perspective on the socioeconomic context of human development. *Annual Review of Psychology, 58*, 175–199. http://dx.doi.org/10.1146/annurev.psych.58.110405.085551

Cutler, D. M., Lleras-Muney, A., & Vogl, T. S. (2008). Socioeconomic status and health: Dimensions and mechanisms. *NBER Working Paper No. W14333*. Retrieved November 5, 2009 from SSRN: http://ssrn.com/abstract=1267564

Das, J., Do, Q.-T., & Özler, B. (2005). Reassessing conditional cash transfer programs. *The World Bank Research Observer, 20*, 57–80. http://dx.doi.org/10.1093/wbro/lki005

de Janvry, A., & Sadoulet, E. (2006). Making conditional cash transfer programs more efficient: Designing for maximum effect of the conditionality. *The World Bank Economic Review, 20*, 1–29. http://dx.doi.org/10.1093/wber/lhj002

DFID. (2011). *Cash transfers: Evidence paper*. Retrieved February 22, 2016 from http://r4d.dfid.gov.uk/PDF/Articles/cash-transfers-literature-review.pdf

Duncan, G. J., & Brooks-Gunn, J. (1997). Income effects across the life span: Integration and interpretation. In G. J. Duncan & J. Brooks-Gunn (Eds.), *Consequences of growing up poor* (pp. 596–610). New York, NY: Russell Sage Foundation.

Engle, P. L., Fernald, L. C., Alderman, H., Behrman, J., O'Gara, C., Yousafzai, A., . . . the Global Child Development Steering Group. (2011). Strategies for reducing inequalities and improving developmental outcomes for young children in low-income and middle-income countries. *The Lancet, 378*, 1339–1353. http://dx.doi.org/10.1016/S0140-6736(11)60889-1

Eshel, N., Daelmans, B., de Mello, M. C., & Martines, J. (2006). Responsive parenting: Interventions and outcomes. *Bulletin of the World Health Organization, 84*, 991–998. http://dx.doi.org/10.2471/BLT.06.030163

Evans, G. W., & English, K. (2002). The environment of poverty: Multiple stressor exposure, psychophysiological stress, and socioemotional adjustment. *Child Development, 73*, 1238–1248. http://dx.doi.org/10.1111/1467-8624.00469

Falkingham, J., & Namazie, C. (2002). *Measuring health and poverty: A review of approaches to identifying the poor*. London, UK: DFID (Department for International Development) Health Systems Resource Centre.

Fernald, L. C. H., Gertler, P., & Hidrobo, M. (2012). Conditional cash transfer programs: Effects on growth, health and development in young children. In R. King & V. Maholmes (Eds.), *The Oxford handbook of poverty and child development*. Oxford, UK: Oxford University Press. http://dx.doi.org/10.1093/oxfordhb/9780199769100.013.0032

Fernald, L. C. H., Gertler, P. J., & Neufeld, L. M. (2008). Role of cash in conditional cash transfer programmes for child health, growth, and development: An analysis of Mexico's Oportunidades. *The Lancet, 371*, 828–837. http://dx.doi.org/10.1016/S0140-6736(08)60382-7

Fernald, L. C. H., Gertler, P. J., & Neufeld, L. M. (2009). 10-year effect of Oportunidades, Mexico's conditional cash transfer programme, on child growth, cognition, language, and behaviour: A longitudinal follow-up study. *Lancet, 374*, 1997–2005. http://dx.doi.org/10.1016/S0140-6736(09)61676-7

Fernald, L. C. H., & Hidrobo, M. (2011). Effect of Ecuador's cash transfer program (Bono de Desarrollo Humano) on child development in infants and toddlers: A randomized effectiveness trial. *Social Science & Medicine, 72*, 1437–1446. http://dx.doi.org/10.1016/j.socscimed.2011.03.005

Fernald, L. C. H., Kariger, P. K., Engle, P., & Raikes, A. (2010). *Examining child development in low-income countries: A toolkit for the assessment of children in the first five years of life*. Washington, DC: The World Bank. Retrieved June 6, 2010 from http://siteresources.worldbank.org/INTCY/Resources/395766-1187899515414/Examining_ECD_Toolkit_FULL.pdf

Fernald, L. C. H., Kariger, P. K., Hidrobo, M., & Gertler, P. J. (2012). Socio-economic gradients in child development in very young children: Evidence from India, Indonesia, Peru and Senegal. *PNAS Proceedings of the National Academy of Sciences of the United States of America, 109*, 17273–17280.

Filmer, D., & Pritchett, L. H. (2001). Estimating wealth effects without expenditure data—Or tears: An application to educational enrollments in states of India. *Demography, 38*, 115–132.

Fiszbein, A., Schady, N., Ferreira, F. H. G., Grosh, M., Kelleher, N., Olinto, P., & Skoufias, E. (2009). *Conditional cash transfers: Reducing present and future poverty*. Washington, DC: The World Bank. http://dx.doi.org/10.1596/978-0-8213-7352-1

Gertler, P., Heckman, J., Pinto, R., Zanolini, A., Vermeersch, C., Walker, S., . . . Grantham-McGregor, S. (2014). Labor market returns to an early childhood stimulation intervention in Jamaica. *Science, 344*, 998–1001. http://dx.doi.org/10.1126/science.1251178

Gracey, M., & King, M. (2009). Indigenous health Pt. 1: Determinants and disease patterns. *The Lancet, 374*, 65–75. http://dx.doi.org/10.1016/S0140-6736(09)60914-4

Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., Richter, L., & Strupp, B., & the International Child Development Steering Group. (2007). Developmental potential in the first 5 years for children in developing countries. *The Lancet, 369*, 60–70. http://dx.doi.org/10.1016/S0140-6736(07)60032-4

Grantham-McGregor, S. M., Fernald, L. C., Kagawa, R. M., & Walker, S. (2014). Effects of integrated child development and nutrition interventions on child development and nutritional status. *Annals of the New York Academy of Sciences, 1308*, 11–32. http://dx.doi.org/10.1111/nyas.12284

Grantham-McGregor, S. M., Powell, C. A., Walker, S. P., & Himes, J. H. (1991). Nutritional supplementation, psychosocial stimulation, and mental development of stunted children: The Jamaican Study. *The Lancet, 338*, 1–5. http://dx.doi.org/10.1016/0140-6736(91)90001-6

Grimes, M., & Wängnerud, L. (2010). Curbing corruption through social welfare reform? The effects of Mexico's conditional cash transfer program on good government. *The American Review of Public Administration, 40*, 671–690. http://dx.doi.org/10.1177/0275074009359025

Guo, G., & Harris, K. M. (2000). The mechanisms mediating the effects of poverty on children's intellectual development. *Demography, 37*, 431–447. http://dx.doi.org/10.1353/dem.2000.0005

Hamadani, J. D., Tofail, F., Huda, S. N., Alam, D. S., Ridout, D. A., Attanasio, O., & Grantham-McGregor, S. M. (2014). Cognitive deficit and poverty in the first 5 years of childhood in Bangladesh. *Pediatrics, 134,* e1001–e1008. http://dx.doi.org/10.1542/peds.2014-0694

Handa, S., & Davis, B. (2006). The experience of conditional cash transfers in Latin America and the Caribbean. *Development Policy Review, 24,* 513–536. http://dx.doi.org/10.1111/j.1467-7679.2006.00345.x

Hertzman, C., & Boyce, T. (2010). How experience gets under the skin to create gradients in developmental health. *Annual Review of Public Health, 31,* 329–347. http://dx.doi.org/10.1146/annurev.publhealth.012809.103538

Hoffmann, T. C., Glasziou, P. P., Boutron, I., Milne, R., Perera, R., Moher, D., . . . Michie, S. (2014). Better reporting of interventions: Template for intervention description and replication (TIDieR) checklist and guide. *British Medical Journal, 348,* g1687. http://dx.doi.org/10.1136/bmj.g1687

Instituto Nacional de Salud Pública (INSP). (2009). *Evaluación de resultados intermedios del proyecto "El Programa de Educación Inicial no Escolarizada de CONAFE (PEI-CONAFE) en sinergia con Oportunidades" en la salud y prácticas de crianza* [Evaluation of intermediate results of the project: "The Early Education program of CONAFE in synergy with Oportunidades" and effects on health and beliefs]. Retrieved April 30, 2015 from http://www.conafe.gob.mx/libroblanco/Documents/2-%20Anexos%20Libro%20Blanco%20Programa%20de%20Educaci%C3%B3n%20Inicial/Anexo%2030/Estudio%20sobre%20el%20Programa%20de%20Educaci%C3%B3n%20Inicial%20-Sinergia%20OP-CONAFE.pdf

King, M., Smith, A., & Gracey, M. (2009). Indigenous health Pt. 2: The underlying causes of the health gap. *The Lancet, 374,* 76–85. http://dx.doi.org/10.1016/S0140-6736(09)60827-8

Knauer, H. A., Kagawa, R. M., Schnaas, L., Garcia, A. G., Neufeld, L. M., & Fernald, L. C. H. (2016). Pathways to improved development for children living in poverty: A randomized effectiveness trial in rural Mexico. *International Journal of Behavioral Development*.

Lagarde, M., Haines, A., & Palmer, N. (2007). Conditional cash transfers for improving uptake of health interventions in low- and middle-income countries: A systematic review. *Journal of the American Medical Association, 298,* 1900–1910. http://dx.doi.org/10.1001/jama.298.16.1900

Levy, P. S., & Lemeshow, S. (1999). *Sampling of populations: Methods and applications*. Hoboken, NJ: Wiley.

Lund, C., De Silva, M., Plagerson, S., Cooper, S., Chisholm, D., Das, J., . . . Patel, V. (2011). Poverty and mental disorders: Breaking the cycle in low-income and middle-income countries. *The Lancet, 378,* 1502–1514. http://dx.doi.org/10.1016/S0140-6736(11)60754-X

Macours, K., Schady, N., & Vakis, R. (2008). Can conditional cash transfer programs compensate for delays in early childhood development? Working paper. Available at http://are-251.are.berkeley.edu/Papers/macours-etal08.pdf

Manley, J., Gitter, S., & Slavchevska, V. (2013). How effective are cash transfers at improving nutritional status? *World Development, 48,* 133–155.

McLoyd, V. C. (1990). The impact of economic hardship on black families and children: Psychological distress, parenting, and socioemotional development. *Child Development, 61,* 311–346. http://dx.doi.org/10.2307/1131096

Mistry, R. S., Biesanz, J. C., Taylor, L. C., Burchinal, M., & Cox, M. J. (2004). Family income and its relation to preschool children's adjustment for families in the NICHD Study of Early Child Care. *Developmental Psychology, 40,* 727–745. http://dx.doi.org/10.1037/0012-1649.40.5.727

Montenegro, R. A., & Stephens, C. (2006). Indigenous health in Latin America and the Caribbean. *Lancet, 367,* 1859–1869. http://dx.doi.org/10.1016/S0140-6736(06)68808-9

Moran, P., Ghate, D., & van der Merwe, A. (2004). *What works in parenting support? A review of the international evidence*. Retrieved from http://www.dcsf.gov.uk/research/data/uploadfiles/RR574.pdf

Moser, C. O. N. (1998). The asset vulnerability framework: Reassessing urban poverty reduction strategies. *World Development, 26,* 1–19. http://dx.doi.org/10.1016/S0305-750X(97)10015-8

Neville, H., Pakulak, E., & Stevens, C. (2015). Family-based training to improve cognitive outcomes for children from lower socioeconomic status backgrounds: Emerging themes and challenges. *Current Opinion in Behavioral Sciences, 4,* 166–170. http://dx.doi.org/10.1016/j.cobeha.2015.05.006

Noble, K. G., Houston, S. M., Brito, N. H., Bartsch, H., Kan, E., Kuperman, J. M., . . . Sowell, E. R. (2015). Family income, parental education and brain structure in children and adolescents. *Nature Neuroscience, 18,* 773–778. http://dx.doi.org/10.1038/nn.3983

Nowak, C., & Heinrichs, N. (2008). A comprehensive meta-analysis of Triple P-Positive Parenting Program using hierarchical linear modeling: Effectiveness and moderating variables. *Clinical Child and Family Psychology Review, 11,* 114–144. http://dx.doi.org/10.1007/s10567-008-0033-0

Owens, E. B., & Shaw, D. S. (2003). Poverty and early childhood adjustment. In S. S. Luthar (Ed.), *Resilience and vulnerability: Adaptation in the context of childhood adversities* (pp. 267–292). Cambridge, UK: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511615788.013

Ozer, E. J., Fernald, L. C., Manley, J. G., & Gertler, P. J. (2009). Effects of a conditional cash transfer program on children's behavior problems. *Pediatrics, 123,* e630–e637. http://dx.doi.org/10.1542/peds.2008-2882

Paxson, C., & Schady, N. (2010). Does money matter? The effects of cash transfers on child development in rural Ecuador. *Economic Development and Cultural Change, 59,* 187–229. http://dx.doi.org/10.1086/655458

Popay, J. (2008). Should disadvantaged people be paid to take care of their health? No. *British Medical Journal, 337,* a594. http://dx.doi.org/10.1136/bmj.a594

Secretaría de Educación Pública. M. (2014). *Support materials for Educación Inicial* [Materiales de apoyo]. Retrieved December 2, 2014 from http://www.conafe.gob.mx/educacionincial/Paginas/materiales-de-apoyo.aspx

SEDESOL. (2012). Oportunidades, 15 años de resultados [Oportunidades, 15 years of results]. *Programa de Desarrollo Humano Oportunidades*. Retrieved December 15, 2014 from https://www.prospera.gob.mx/Portal/work/sites/Web/resources/ArchivoContent/2107/BAJA%20Oportunidades%2015%20anos%20de%20resultados.pdf

Segal, L., Sara Opie, R., & Dalziel, K. (2012). Theory! The missing link in understanding the performance of neonate/infant home-visiting programs to prevent child maltreatment: A systematic review. *Milbank Quarterly, 90,* 47–106. http://dx.doi.org/10.1111/j.1468-0009.2011.00655.x

Shibuya, K. (2008). Conditional cash transfer: A magic bullet for health? *Lancet, 371,* 789–791. http://dx.doi.org/10.1016/S0140-6736(08)60356-6

Singla, D. R., Kumbakumba, E., & Aboud, F. E. (2015). Effects of a parenting intervention to address maternal psychological wellbeing and child development and growth in rural Uganda: A community-based, cluster randomised trial. *Lancet Glob Health, 3,* e458–e469. http://dx.doi.org/10.1016/S2214-109X(15)00099-6

Strauss, J., & Thomas, D. (1998). Health, nutrition, and economic development. *Journal of Economic Literature, 36,* 766–817.

Sweet, M. A., & Appelbaum, M. I. (2004). Is home visiting an effective strategy? A meta-analytic review of home visiting programs for families with young children. *Child Development, 75,* 1435–1456. http://dx.doi.org/10.1111/j.1467–8624.2004.00750.x

Thomas, D. (1990). Intrahousehold resource allocation: An inferential approach. *The Journal of Human Resources, 25,* 635–664. http://dx.doi.org/10.2307/145670

Torres-Sánchez, L., Schnaas, L., Rothenberg, S. J., Cebrián, M. E., Osorio-Valencia, E., Hernández, Mdel. C., . . . López-Carrillo, L. (2013). Prenatal p,p′-DDE exposure and neurodevelopment among children 3.5–5 years of age. *Environmental Health Perspectives, 121,* 263–268.

UNDP. (2011). Mexico: Scaling up *Progresa/Oportunidades* - conditional cash transfer programme. *Poverty reduction: Scaling up local innovations for transformational change.* Retrieved December 11, 2014 from http://www.undp.org/content/dam/undp/library/Poverty%20Reduction/Participatory%20Local%20Development/Mexico_Progresa_web.pdf

Wachs, T. D., Black, M. M., & Engle, P. L. (2009). Maternal depression: A global threat to children's health, development and behavior and to human rights. *Child Development Perspectives, 3,* 51–60.

Walker, S. P., Wachs, T. D., Grantham-McGregor, S., Black, M. M., Nelson, C. A., Huffman, S. L., . . . Richter, L. (2011). Inequality in early childhood: Risk and protective factors for early child development. *The Lancet, 378,* 1325–1338. http://dx.doi.org/10.1016/S0140-6736(11)60555-2

Yeung, W. J., Linver, M. R., & Brooks-Gunn, J. (2002). How money matters for young children's development: Parental investment and family processes. *Child Development, 73,* 1861–1879. Retrieved from http://www.blackwell-synergy.com/links/doi/10.1111/1467-8624.t01-1-00511/abs. http://dx.doi.org/10.1111/1467-8624.t01-1-00511

Yoshikawa, H., Aber, J. L., & Beardslee, W. R. (2012). The effects of poverty on the mental, emotional, and behavioral health of children and youth: Implications for prevention. *American Psychologist, 67,* 272–284. http://dx.doi.org/10.1037/a0028015

Yousafzai, A. K., Rasheed, M. A., Rizvi, A., Armstrong, R., & Bhutta, Z. A. (2014). Effect of integrated responsive stimulation and nutrition interventions in the Lady Health Worker programme in Pakistan on child development, growth, and health outcomes: A cluster-randomised factorial effectiveness trial. *Lancet, 384,* 1282–1293. http://dx.doi.org/10.1016/S0140-6736(14)60455-4

Appendix

Comparison of Baseline Characteristics of Communities Originally Randomized in 2008 by Follow-Up Status in 2012 According to Aspects of Marginalization and Economic Status

Variable	Not followed-up (n = 75)	Followed-up (n = 129)	p value
Percentage of the population (>15 yrs. old) illiterate	27 (1.1)	26 (.9)	.50
Percentage of the population (>15 yrs. old) that hasn't completed primary school	53 (1.2)	50 (.9)	.04
Percentage of households within the community without a toilet	8 (1.6)	7 (.8)	.63
Percentage of households within the community without electricity	10 (2.7)	6 (1.2)	.12
Percentage of households within the community without piped water	37 (4.5)	31 (3.2)	.25
Number of occupants per room in household	2.0 (.1)	1.9 (.0)	.08
Percentage of households within the community with dirt floors	28 (2.6)	25 (1.6)	.31
Percentage of households within the community with a refrigerator	77 (2.4)	71 (1.9)	.07
Marginalization Index 2010	.4 (.1)	.2 (.0)	.02

Note. Data are % (*SE*) or mean (*SE*). p values are for differences at the community level and account for the stratified design.

(*Appendix continues*)

Comparison of Baseline Characteristics of Children by Inclusion in the 2012 Follow-Up Sample

Variable	Included	Not included	Total	*p* value[a]
Baseline cognitive scores[b]	(*n* = 893)	(*n* = 1031)	(*n* = 1924)	
Communication	101.26 (.64)	98.92 (.64)	100.01 (.47)	.007
Perception	101.07 (.62)	99.14 (.64)	100.04 (.47)	.02
Motor	100.49 (.60)	99.58 (.59)	100.00 (.43)	.26
Global	101.19 (.66)	99.03 (.68)	100.03 (.50)	.02
Child characteristics	(*n* = 1113)	(*n* = 1359)	(*n* = 2472)	
Girl	543 (48.8%)	662 (48.7%)	1205 (48.7%)	.99
Cohort age (months)				
0–6	419 (37.6%)	567 (41.8%)	986 (39.9%)	
7–12	347 (31.3%)	477 (35.0%)	824 (33.3%)	<.001
13–18	347 (31.1%)	315 (23.2%)	662 (26.8%)	
Parental characteristics				
Indigenous (speaks or understands indigenous language)	588 (52.1%)	925 (68.5%)	1513 (61.2%)	.001
Father present	1028 (92.6%)	1271 (93.4%)	2299 (93.0%)	.55
Father education (highest completed)				
No formal education (≤1 yr)	147 (13.2%)	214 (15.8%)	361 (14.6%)	
Primary (7 yrs)	781 (70.0%)	906 (66.8%)	1687 (68.2%)	.27
Middle school (10 yrs)	157 (14.3%)	197 (14.3%)	354 (14.3%)	
High school and above (≥13 yrs)	28 (2.5%)	42 (3.1%)	70 (2.9%)	
Mother education (highest completed)				
No formal education (≤1yr)	201 (18.4%)	339 (24.6%)	540 (21.8%)	
Primary (7 yrs)	763 (68.2%)	888 (65.6%)	1651 (66.8%)	.01
Middle school (10 yrs)	123 (11.1%)	114 (8.3%)	237 (9.6%)	
High school and above (≥13 yrs)	26 (2.3%)	18 (1.3%)	44 (1.8%)	
Household characteristics				
Indigenous locality	536 (47.7%)	853 (63.1%)	1389 (56.2%)	.005
Household composition				
Number of household members	6.60 (.10)	6.87 (.09)	6.74 (.07)	.03
Children (<18 years)	4.18 (.09)	4.43 (.08)	4.32 (.07)	.03
Adults (≥18 years)	2.41 (.03)	2.40 (.04)	2.41 (.03)	.97
Crowding (people/rooms)	3.02 (.07)	3.40 (.08)	3.23 (.06)	<.001
Log asset index value	.78 (.03)	.60 (.02)	.68 (.02)	<.001
Piped water on family land	836 (75.9%)	873 (63.5%)	1709 (69.1%)	.001
Had electricity in home	1046 (94.3%)	1269 (93.1%)	2315 (93.6%)	.41
Study group				
Standard promotion	406 (35.2%)	528 (38.6%)	934 (37.1%)	.79
Comparison	366 (33.7%)	418 (30.7%)	784 (32.1%)	

Note. Models include indicators for state of residence. Data are *n* (%) or mean (*SE*) and are stratified by inclusion in the final sample. Means and proportions are adjusted. Reasons for not being included vary, such as not being chosen for follow-up, refusal to complete the assessment, and age ineligibility.

[a] *p* values calculated for comparisons between Included and Not Included groups use cluster-adjusted *t* or *F* tests. [b] Child Cognitive Development assessed using the Extended Ages and Stages Questionnaire (EASQ) for children ages 4 to 18 months old. Sample size is smaller than for other child variables because it excludes children 0–4 months old: (T_0: n = 283 children, n = 23 communities; T_1: n = 331 children, n = 32 communities; and T_2: n = 279 children, n = 26 communities). Scores are age standardized within two-month ranges using the sample as its own reference and converted to have a mean of 100 and a *SD* of 15.

Received March 3, 2016
Revision received May 18, 2016
Accepted June 17, 2016 ■