trials in the United States show that children who benefited from intensive preschool interventions have higher school attainment, better test scores, lower rates of criminality, and earn higher wages in adulthood (Currie 2001; Schweinhart 2005)

A reasonable amount of evidence is therefore available on how the cognitive development of young children responds to supply-side interventions, including access to preschool, or food supplementation programs. Much less is known about interventions that attempt to directly affect the investments parents make in child development - either by relieving financial constraints or by changing how resources are allocated within households. This paper analyzes the impact of a cash transfer program on development in early childhood. The program, known as Atención a Crisis , made sizeable payments to poor households in rural areas in Nicaragua. There are a variety of reasons why one might expect a program like Atención a Crisis to improve development in early childhood.

We show that children in households that were randomized into the Atención a Crisis program had significantly higher levels of development nine months after households started receiving transfers. Program effects of a similar magnitude are still apparent two years after Atención a Crisis had been discontinued and transfers had ended. Thus, there appears to be no fade-out of treatment effects among beneficiaries of the Atención a Crisis program, at least over the period covered in our study.

PROGRAM

The Atención a Crisis pilot program was implemented between November 2005 and December 2006 by the Ministry of the Family in six municipalities in rural Nicaragua.

irst, among all communities in the six municipalities, 56 intervention and 50 control communities were randomly selected through a lottery. Second, baseline data were collected in both treatment and control communities. These data were used to define program eligibility based on a proxy means test. Around 10 percent of households (and only 5 percent of households with children under 6 years of age) in treatment and control communities were ineligible for the program because their estimated baseline expenditures, as determined by the proxy means, was above the predefined threshold. This process resulted in the identification of 3,002 households to participate in the program. A further 3.7 percent of households that had originally been deemed eligible by the proxy means were reclassified as ineligible after a process of consultation with community leaders, and a corresponding 3.7 percent that had originally been deemed ineligible were reclassified as eligible. To avoid any possibility of selection bias from these choices, we use the original eligibility as the intent-to-treat.

In communities randomly selected to participate in the Atención a Crisis program, the primary child caregiver (known as the "titular"), who in the vast majority of cases was a woman, was invited to a registration assembly where the program objectives and various components were explained. At the end of the assembly, a lottery took place in each community. Participation in the assemblies and lotteries was close to 100 percent. On the basis of this lottery, all eligible households within each community were assigned to one of three treatments.

Households in Group 1 were offered a cash transfer, paid to the "titular" every two months. For households with children ages 0-5, this transfer was in principle conditional on regular preventive health check-ups. However, in practice, this conditionality was not monitored, and households were not penalized for noncompliance. Households with children between 7 and 15 years old who had not finished primary school received an additional educational transfer, conditional on the school enrollment and regular attendance of those children. The education conditionality was monitored in practice. The basic Atención a Crisis intervention was modeled after an earlier CCT program in Nicaragua, the Red de Protección Social (RPS).5 On average, transfers made to this group represented 15 percent of per capita expenditures of the average recipient household in our sample over the year in which it was implemented.

Households in Group 2 received a cash transfer that was identical to that received by households in Group 1 . In addition, they were offered a scholarship that allowed one of the household members to choose among a number of vocational training courses offered at the municipal headquarters. These household members also participated in labor market and business-skill training workshops organized in their own communities. We refer to this treatment as the training package. Households in Group 3 received a cash transfer that was identical to that received by households in Group 1 . In addition, they were offered a lump-sum payment to start a small nonagricultural activity. This lump sum was conditional on the household developing a business development plan. It was paid out between the end of May and September 2006.7 The value of the lump-sum payment represented approximately 1 1 percent of per capita expenditures of the average recipient household over the year in which it was implemented. A household in Group 3 therefore was eligible for transfers equivalent to approximately 26 percent of annual expenditures. We refer to this treatment as the lump-sum payment package.

DATA

Baseline data for the evaluation were collected in April-May 2005. A first followup survey was collected in July-August 2006, nine months after the households had started receiving payments. The sample includes the 3,002 eligible households in the treatment group, and a random sample of 1,019 eligible households in the communities that were assigned to the control group. A second follow-up survey, covering the same households as those included in the first follow-up, was collected between August 2008 and May 2009 (henceforth referred to as 2008). At this point, households had stopped receiving transfers for an average of two years. Attrition over the study period was minimal, less than 1 .3 percent in 2006 and 2.4 percent in 2008. Attrition is uncorrelated with treatment status, and does not differ across treatment packages. The baseline characteristics of the full sample of households and those that could be located at follow-up are very similar. We further discuss possible concerns regarding attrition and missing test data in online Appendix 2. All three surveys included comprehensive information on household socioeconomic status, including detailed expenditure modules,10 extensive information on child health and nutrition, including child height and weight, and one measure of child cognitive development, the TVIP. The TVIP is the Spanish-speaking version of the Peabody Picture Vocabulary Test (PPVT), a test of receptive vocabulary that can be applied to children 36 months and older (Dunn et al. 1986).

Both follow-up surveys included a large number of tests to assess child development. Social-personal, language, fine motor, and gross motor skills for all children were assessed using the four sub-scales of the Denver Developmental Screening Test (Frankenberg and Dodds 1996). The Denver can be applied to children as young as one month of age. A slightly modified version of the Denver is used for child monitoring by the national early childhood stimulation program in Nicaragua, which suggests that the test is appropriate for the population we study For children age 36 months and older, we applied five additional tests. The first of these is the TVIP. We also use a short-term memory test from the McCarthy test battery, and a test of associative memory drawn from the Woodcock-Johnson-Muñoz battery of cognitive abilities (Woodcock and Muñoz 1996; Schrank 2006; Schrank et al. 2005); the test of associative memory was only applied in the second followup survey. In both the first and second follow-up surveys, we included a test of leg motor development from the McCarthy test battery (Boivin et al. 1995). The final test we use is the Behavior Problem Index (BPI), which is based on the caregiver's report of the frequency that a child displays each of 29 problematic behaviors, with responses coded as "never," "sometimes," and "often" (Baker and Mott 1989). We use the number of behavioral problems for which a caregiver answers "often."

The two follow-up surveys also include information on stimulation, birthweight, preventive health care, and caregivers' mental health. Mental health was measured using the Center for Epidemiological Studies Depression scale (CESD), a widely used measure of depression which consists of 20 questions on self-reported depression (Radloff 1977). Finally, caregivers' observed parenting behavior was registered through a shortened version of the HOME score, an index of 1 1 positive and negative behaviors that the enumerator observes during interviewing and testing (Bradley 1993; Paxson and Schady 2007, 2010).

The results in Table 3 are generally consistent with positive Atención a Crisis effects on child health and development. More than three-quarters (33 out of 42) of the coefficients are positive, and almost one-half of those that are positive (15 out of 33) are significant at the 10 percent level or higher. There are no significant negative coefficients. The evidence in favor of positive program effects is stronger in those specifications that include the extended set of controls than in those that only include controls for child age and gender. This likely reflects a small degree of imbalance between treatment and control at baseline, as seen in Table 1. In the case of the regressions of child height and weight, where the baseline imbalance was apparent, all of the coefficients are negative with the basic set of controls, but positive with the extended set of controls.