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# Evaluating the Impact of Conditional Cash Transfer Programs

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*Several developing economies have recently introduced conditional cash transfer programs, which provide money to poor families contingent on certain behavior, usually investments in human capital, such as sending children to school or bringing them to health centers. The approach is both an alternative to more traditional social assistance programs and a demand-side complement to the supply of health and education services. Unlike most development initiatives, conditional cash transfer programs have been subject to rigorous evaluations of their effectiveness using experimental or quasi-experimental methods. Evaluation results for programs launched in Colombia, Honduras, Jamaica, Mexico, Nicaragua, and Turkey reveal successes in addressing many of the failures in delivering social assistance, such as weak poverty targeting, disincentive effects, and limited welfare impacts. There is clear evidence of success from the first generation of programs in Colombia, Mexico, and Nicaragua in increasing enrollment rates, improving preventive health care, and raising household consumption. Many questions remain unanswered, however, including the potential of conditional cash transfer programs to function well under different conditions, to address a broader range of challenges among poor and vulnerable populations, and to prevent the intergenerational transmission of poverty.*

Conditional cash transfer programs are an innovative approach to the delivery of social services. They provide money to poor families conditional on investments in human capital, such as sending children to school or bringing them to health centers on a regular basis. That conditionality makes this new generation of social programs an instrument for longer-term human capital investments as well as short-term social assistance. Additionally, along with school voucher programs and certain subsidized health insurance schemes, conditional cash transfer programs are part of a growing policy emphasis on the use of market-oriented demand-side interventions to directly support the poor. They complement traditional supply-side mechanisms, such as

general subsidies or investments in schools, health centers, and other providers of social services.

Conditional cash transfer programs aimed at improving children's human capital have been established in numerous countries in recent years. Six are reviewed here. The first large-scale program to incorporate both health and education components was Mexico's Education, Health, and Nutrition Program (Progresa), launched in 1997.<sup>1</sup> Following a similar model, Colombia has the Families in Action (FA) program, Honduras has the Family Assistance Program (PRAF), Jamaica has the Program of Advancement through Health and Education (PATH), Nicaragua has the Social Protection Network (RPS), and Turkey offers the Social Solidarity Fund (SSF).

Each program promotes long-term human capital accumulation as a primary objective, recognizing its role in breaking the intergenerational transmission of poverty (table 1). The programs focus primarily on children as the recipients of the human capital investments promoted by the programs and closely monitor compliance with conditions as a prerequisite for receiving the transfers. Traditional social assistance strategies have focused on short-term poverty alleviation through redistribution during times of crisis.

Implementation of conditional cash transfer programs has been accompanied by systematic efforts to measure their effectiveness and understand their broader impact on households' behavior, a marked departure from the limited attention to rigorous impact evaluations in the past.<sup>2</sup> This article reviews the experience to date of six countries in setting up and evaluating the impact of such programs. The programs were selected to include those that provide conditional cash transfer for both health and education because policy and evaluation experience exist for such programs, as well as for those that provide in-kind conditional transfers.<sup>3</sup> This review draws from program documents provided by administrators and evaluation reports produced by research institutions. Evaluation results are analyzed to draw conclusions about the welfare impact of this type of program and about how the evaluations have been used to inform policy decisions. Expected insights from forthcoming evaluations are briefly considered, followed by some reflections on the future direction of evaluations of social sector programs.

## Conditional Cash Transfer Programs: A New Approach to Social Assistance

Conditional cash transfers together with other social assistance programs constitute a country's formal, publicly provided safety net system.<sup>4</sup> Conditional cash transfer programs represent a new approach to social assistance that explicitly addresses several criticisms often levied at more traditional social programs, including weak poverty targeting; high administrative or component costs, such as materials in workfare

**Table 1. Objectives, Components, and Target Population of Selected Conditional Cash Transfer Programs**

<i>Program</i>	<i>Objectives</i>	<i>Components</i>		<i>Target population</i>	
		<i>Education</i>	<i>Health and nutrition</i>	<i>Education</i>	<i>Health and nutrition</i>
Colombia <sup>FA</sup>	Increase human capital investment in extremely poor families in smaller municipalities; serve as a safety net	Bimonthly school subsidy	Nutrition subsidy; health education	Poor households with children ages 7–17 enrolled in school (grades 2–11)	Poor households with children ages 0–6 not participating in other programs
Honduras PRAF II	Increase the accumulation of human capital among children of the poorest families and help break the circle of poverty	Demand incentives (educational voucher); supply incentives for primary schools	Demand incentives (nutrition and health voucher); supply incentives for health care centers; nutrition training for mothers	Poor households with children ages 6–12 who have not yet completed grade 4	Poor households with pregnant women or children under 3
Jamaica PATH	Increase educational attainment, improve health outcomes, and thus reduce poverty; reduce current poverty; reduce child labor; serve as a safety net	Education grant	Health grant; health education	Poor households with children ages 6–17	Poor households with children ages 0–5, pregnant and lactating women, elderly over 65, people with disabilities, and destitute adults under 65

(Continued)

**Table 1. (Continued)**

Program	Components		Target population	
	Objectives	Education	Health and nutrition	Education
Mexico Progres <sup>a</sup>	Improve the educational, health, and nutritional status of poor families, particularly children and mothers	Educational grants; support for school materials; supply and quality of education services	Cash grant for food consumption; basic health care services package; nutrition and health education; improved supply of health services; nutrition supplements	Poor households with children 8–18 enrolled in primary (grade 3 and higher) and secondary (grades 1–3) school; age limit raised to 20 in 2001 to include upper secondary students
Nicaragua RPS	Promote human capital accumulation in households living in extreme poverty	Education grant; support for school materials; supply incentive	Cash grant for food; nutrition and health education; basic health care package for children under 5; supply incentive	Poor children ages 6–13 enrolled in primary school grades 1–4
Turkey <sup>SSF</sup>	Increase the human capital investment in extremely poor families nationally; serve as a safety net	Education grant	Health grant	Poor households with children ages 6 and older enrolled in grades 1–11
				Cash grants: poor households; nutrition supplements; pregnant and lactating women, children ages 4–24 months, and malnourished children ages 2–5 years
				Cash grants: poor households; health care services; children ages 0–5
				Poor households with children ages 0–5

Source: Authors' compilation based on FISE (2001), IFPRI (2000a), Skoufias (2001), World Bank (2001c, d, 2002).

<sup>a</sup>In March 2002 Progres<sup>a</sup> changed its name to Oportunidades and broadened its objectives. The renewed program aims to create income-generating opportunities for poor households through preferential access to microcredit, housing improvements, and adult education.

programs; lack of integration of disparate projects with a multiplicity of overlapping or unrelated goals; accusations of paternalism and clientelism; and excessive focus on reducing current poverty with little attention to long-term, structural poverty.

The traditional role of social assistance programs has been to redistribute income and resources to the needy, helping them overcome short-term poverty during periods of crisis. Social policies and programs are changing, however, and are beginning to encompass objectives of longer term economic growth and human capital development. As Ravallion (2003) explains, by making insurance available, helping credit-constrained poor people become productive workers, and providing incentives for long-term investments in human capital, safety nets are now seen to have a potentially important role in compensating for the market failures that help perpetuate poverty, particularly in high-inequality settings.

With an emphasis on human capital accumulation and long-term poverty reduction, conditional cash transfers are perhaps the clearest policy manifestation of this new thinking on social assistance programs. Conditional cash transfer programs address both future poverty, by fostering human capital accumulation among the young as a means of breaking the intergenerational cycle of poverty, and current poverty, by providing income support for smoothing consumption in the short run.

Conditional cash transfer programs have also introduced other key design features that depart from traditional social assistance programs. First, they provide grants directly to poor households, thereby changing accountability relationships among the national government, service providers, and the poor. The conditions required by the grants provide an incentive for poor households to use available health and education services, strengthening the link between service providers and the poor. Conditional cash transfer grants also allow national governments to forge a direct relationship with poor families, seeking to foster coresponsibility by requiring families to assume responsibility for schooling, health care, and the appropriate use of the cash grants. The programs reviewed here designate mothers as recipients of the grants in recognition of the international evidence that suggests that women often make more optimal household spending decisions affecting children's welfare. Second, they seek to exploit complementarities between elements of human capital development through their inclusion of health, nutrition, and education components. Third, the use of cash is promoted as efficient and flexible. It gives households spending discretion and avoids the price distortions and creation of secondary markets that are often associated with in-kind transfers. Finally, many conditional cash transfer programs also incorporate good technical program design features, including explicit poverty targeting criteria, often based on proxy-means tests, and strong monitoring and evaluation systems.

## *Education and Health Components*

The programs reviewed here have both an education component and a health and nutrition component. The education component consists of a cash grant conditioned on school enrollment and regular school attendance (usually 80–85 percent of school days). The size of the grants varies considerably across countries (table 2). In Honduras, Mexico, and Turkey, the education grant covers both direct costs (school fees, school supplies, transportation costs) and opportunity costs in lost income from sending children to school rather than work. In the other countries the grant generally covers only part of the opportunity cost. In Colombia and Mexico education grants are higher for secondary school than for primary school, to reflect the increasing opportunity cost of work as children grow older. In Mexico grants at the secondary level are higher for girls, to provide an added incentive for reversing a pattern of unequal gender participation in secondary education and to internalize the education externalities that accrue as they raise families of their own (Skoufias 2001). In Turkey the value of the grant decreases proportionally according to the number of children in the family.

Health and nutrition grants are targeted to children up to the ages of 2 or 3 years and in some cases up to the time they enroll in primary school. In Honduras, Jamaica, and Mexico, pregnant and lactating women are designated as program beneficiaries, and their inclusion is being discussed in Turkey. This component consists of a cash transfer aimed at food consumption, as well as health care and nutrition education for mothers. In Mexico and Nicaragua this component explicitly stipulates the provision of a basic health care package for the target household members. Receipt of the cash transfer is conditional on compliance with a predetermined number of health center visits and health and nutrition workshops.<sup>5</sup> Children's health care visits are linked to growth monitoring and often to vaccination protocols. Health care visits for pregnant and lactating women seek to ensure appropriate prenatal, childbirth, and puerperal care. In Mexico and Jamaica adult household members other than pregnant and lactating women are also required to get a check-up once or twice a year (see table 2).

The value of the monthly cash grant for the health and nutrition component varies across countries (see table 2). In Honduras, for example, the value of the nutrition and health voucher is equivalent to the value of the time invested by the mother in the trip to the health center and waiting for care. Jamaica set the health grant per beneficiary per month at US\$9, the same level as the education transfer and twice average monthly spending per person on health care and medicine in 1999. Colombia set the grant to the mean income required to allow an average indigent family to reach the extreme poverty line and so to consume a nutritiously adequate diet. Jamaica and Turkey provide health and nutrition grants to individuals rather than family-based allocations.

**Table 2. Conditionality and Transfer Size of Selected Conditional Cash Transfer Programs**

Program	Conditions <sup>a</sup>		Transfer size	
	Education	Health and nutrition	Education	Health and nutrition
Colombia FA	At least 80% school attendance in a 2-month cycle	Regular health care visits for child's growth and development monitoring	Primary school: Col\$14,000 (US\$6) per child per month; secondary school: Col\$28,000 (US\$12) per child per month	Col\$46,500 (US\$20) per family per month
Honduras PRAF II	School enrollment and maximum 7 days of school absence in a 3-month period	Compliance with the required frequency of health center visits	Voucher: L\$828 (US\$8) per child per year; average supply incentive of L\$57,940 (US\$4,000) per school per year	Voucher: L\$660 (US\$46.3) per family per year; average supply incentive L\$87,315 (US\$6,020) per facility per year
Jamaica PATH	Minimum school attendance of 85% (maximum 9 days of school absence per term)	Compliance with the required number of health visits per year, which varies by beneficiary age / status	Grant: J\$500 (US\$9) per child per month after second year (program began at J\$300 per child per month)	J\$500 (US\$9) per eligible household member per month
Mexico Progres <sup>a</sup>	School enrollment, with minimum attendance of 85%, monthly and annually	Compliance by all household members with the required number of health center visits and mother's attendance at health and nutrition lectures	Primary school: varies by grade, Mex\$80–165 (US\$8–17) per child per month plus Mex\$100 (US\$11) per year per child for school materials; secondary school: varies by grade and gender, Mex\$240–265 (US\$25–32) per child per month plus Mex\$200 (US\$20) per year per child for school materials	Mex\$125 (US\$13) per household per month in 1999 of Mex\$750 per month for food support and educational grants
Nicaragua RPS	School enrollment, fewer than 6 days of unexcused school absence in a two-month period, and school grade promotion	Regular health care visits for growth monitoring, up-to-date vaccinations, and attendance at health and nutrition talks	Grant: C\$240 (US\$17) every 2 months per household plus C\$275 (US\$20) per child per year for school materials; supply incentive: C\$10 (US\$0.7) per student every 2 months	C\$480 (US\$34) per household every 2 months
Turkey <sup>SSF</sup>	School enrollment, with minimum attendance of 85%	Regular health care visits for growth monitoring and vaccinations according to a schedule set by the Ministry of Health	Primary and secondary school grant: TL 12.8 million (US\$9.50) per month for first child, TL10.8 million (US\$8) for second, and TL8.8 million (US\$6.50) for each subsequent child	TL8.1 million (US\$6) per child per month

Source: Authors' compilation FISE (2001), IFPRI (2000a), Skoufias (2001), World Bank (2001c, d, 2002).

<sup>a</sup>Programs have not always enforced all conditions.

### *Supply-Side Support*

Conditional cash transfer programs can be interpreted as a response to the perceived failures of traditional supply-side interventions, such as schools and health clinics, which have been underutilized by the poor because of unmanageable out-of-pocket expenditures, high opportunity costs, difficult access, and a lack of incentives for investing in children's human capital. However, conditional cash transfers are not a substitute for the provision of high-quality supply-side investments. Rather, they complement such investments by directly addressing the problem of insufficient demand for health and education services from the poor. This makes these programs' ultimate success dependent on access to high-quality health and education services. No program should be conditioned on the mandated use of poor-quality, ineffective services.

Because of the critical role of good quality health and education inputs, some countries go beyond providing demand-side monetary incentives to families by strengthening the supply of these services. In Nicaragua teachers receive a modest bonus per child participating in the program, half of it intended to pay for school materials, and nongovernmental organizations (NGOs) are contracted to provide health services. Mexico sets aside resources to ensure an adequate supply of equipment, medicines, and material to meet the increase in health services demand arising from the program. Honduras provides grants directly to schools and health centers as part of an experiment to compare the effectiveness of three alternative interventions combining demand and supply incentives.

### *Poverty Targeting*

Directing benefits to the poor or vulnerable is a critical feature of each reviewed conditional cash transfer program. Most rely on both geographic and household targeting, using targeting mechanisms appropriate to the type of data available (table 3).

At the geographic level Jamaica uses annual consumption data to construct a scoring formula to identify poor households at the parish level for allocating PATH funds. In Mexico eligible communities in rural areas are selected using a marginality index based on census data, whereas in Honduras malnutrition data from the Height Census of First Grade School Children are used to select program municipalities. In most countries, the criteria applied to select communities to receive the conditional cash transfer program include consideration of the supply capacity to respond to the increased demand in health and education services.

At the household level programs are experimenting with proxy-means tests that estimate household poverty levels as a criterion for program participation (table 3). In Nicaragua the results of household-level proxy means tests are being compared



**Table 3.** Targeting Criteria of Selected Conditional Cash Transfer Programs

<i>Program</i>	<i>Geographic</i>	<i>Household</i>
Colombia <sup>FA</sup>	Municipalities other than department capitals with fewer than 100,000 inhabitants; municipalities not participating in other national programs with adequate supply of education and health services and a bank; municipalities with up-to-date SISBEN database	Level 1 families in the SISBEN (an information system based on a proxy means test for identifying poor households)
Honduras <sup>PRAF II</sup>	Municipalities with the lowest average height for age z-scores	None
Jamaica <sup>PATH</sup>	All parishes participate in the program; funds are distributed across parishes depending on their poverty incidence	A scoring formula with a predetermined cutoff point
Mexico <sup>Progresas<sup>a</sup></sup>	Rural communities with a high marginality index with more than 50 and fewer than 2,500 inhabitants and access within a certain distance to primary and secondary school and health care center; urban areas with a high marginality index have been included since 2001	Within eligible localities, eligible households are identified using discriminant analysis of household income and other characteristics
Nicaragua <sup>RPS</sup>	Departments and municipalities with high extreme poverty incidence, good access to schools and health care centers, good transport and communication infrastructure and local capacity; within eligible municipalities census areas were classified in two groups according to a marginality index based on family size, access to basic sanitation and safe water, and literacy rates, with group 1 eligible in the pilot phase 1 and group 2 in the second pilot phase	Pilot phase 1: all households in selected census areas with less than 14.1 ha and no vehicle; pilot phase 2: eligibility is determined by a scoring formula
Turkey <sup>SSF</sup>	National coverage; no geographic targeting	Proxy-means test based on a scoring formula

*Source:* Authors' compilation based on FISE (2001) IFPRI (2000a), Skoufias (2001), World Bank (2001c, d, 2002).

with the results of geographic targeting alone. Turkey will use a proxy-means test being developed especially for the conditional cash transfer program to target the poorest of the poor at the national level. Other countries are taking advantage of economies of scale in the use of proxy-means tests. In Colombia household eligibility is based on an existing information system managed by municipalities, the System for Selecting Social Program Beneficiaries (SISBEN). The system classifies households according to an unmet basic needs index and other indicators, such as average household schooling that serve as income proxies. Used primarily to identify eligibility for the subsidized health regime, SISBEN is now being expanded to other social sector

initiatives, including the conditional cash transfer program. Jamaica is planning to expand the use of the PATH scoring formula to other safety net programs to avoid duplication of administrative systems and increase coordination across programs.

Some countries periodically review beneficiaries' eligibility. In Mexico and Jamaica household poverty status is reevaluated every three years. Nicaragua's RPS is designed to last three years in a beneficiary community before the cash transfers are phased out. Only the supply interventions are retained for two more years without a reassessment of eligibility.

### *An Expanding Role in Poverty Alleviation*

As reflected in budget allocations and the number of beneficiaries, conditional cash transfer programs are playing an increasingly important role in poverty reduction strategies. Mexico's Progresa went from covering 300,000 households when it began operations in 1997 to reaching more than 4 million families in 2002, some 20 percent of the population. The program's 2002 annual budget was around Mex\$18 billion (US\$1.8 billion).

PATH is a key element of the Jamaican government's initiative to transform the social safety net into a fiscally sound and more efficient system of social assistance for the poor and vulnerable. It aims to consolidate three major income transfer programs, strengthen targeting measures, improve the cost-effectiveness of delivering benefits, and adjust benefit levels to meet assessed needs. Turkey's SSF was introduced as part of a handful of crisis-response mechanisms to ease the impact of the 2001 economic crisis on poor households. It has an annual operating budget of US\$100 million. Colombia's FA is the flagship program of the three safety net programs introduced in 2001 to provide relief from the effects of an economic recession. The program, designed to run through 2004, has a budget of US\$455 million and is expected to reach more than a million children. In Brazil, Bolsa Familia is being introduced as an overarching welfare program that will consolidate numerous smaller programs to become a mainstay of Brazil's poverty reduction approach.

## Evaluation of Design and Implementation

The first generation of conditional cash transfer programs in Colombia, Honduras, Nicaragua, and Mexico prioritized the early use of robust evaluations as a key element for informing program design and expansion. All but Colombia's program used randomized control designs as the primary evaluation methodology underpinning a large-scale social experiment, carefully planned well in advance with strong support from program staff and policymakers.

The first generation of conditional cash transfer evaluations aimed at assessing program impact and operational performance by examining the programs' administrative adequacy, the extent to which programs reached poor areas and poor households, the presence and size of expected impacts, any unanticipated effects, stakeholders' perceptions about the program, and the cost-effectiveness of delivery mechanisms.

The impact evaluations focused on measuring changes in short- and medium-term indicators of human capital accumulation rather than on the income redistribution effects of the grants. In education the evaluations assessed changes in school enrollment and attendance rates, and some also analyzed changes in promotion and repetition rates. Evaluation of Honduras's PRAF and Mexico's Progresa went beyond outcome indicators to measure changes in impact indicators, such as average test scores. In addition, given PRAF's evaluation objective of comparing the impact of supply- and demand-side interventions, evaluators are examining changes in the availability and quality of education inputs (percentage of teachers trained, percentage of schools with basic teaching materials).

In health and nutrition, the evaluations included a wide range of health care utilization and quality indicators. Program variations in target population are reflected in the diverse selection of child, maternal, and adult health indicators. Child health indicators typically include vaccination coverage, malnutrition rates, incidence of diarrhea, and participation rates in child growth and development monitoring. Maternal health indicators include utilization rates and satisfaction with pre- and postnatal care. Honduras's PRAF evaluation is measuring final program impacts by analyzing changes in maternal and infant mortality.

Changes in consumption levels and patterns are also central to many evaluations. Total consumption per capita disaggregated by food and nonfood items, such as health and education spending, is frequently used as an indicator. Given the implicit objective of reducing current poverty, Mexico's Progresa evaluation investigates the impact of cash transfers on the poverty headcount ratio, poverty gap, and poverty severity index.

Development programs often have unplanned direct and indirect effects, both positive and negative. Some of the conditional cash transfer evaluations have analyzed such impacts. For example, the distribution of cash grants directly to mothers may have an effect on resource allocations within households and on power relations. Cash transfers may crowd out remittances and other private transfers to households or affect household work incentives. Household-level targeting may also affect community relations when not all members of a community receive program benefits.

### *Evaluation Design*

Program impacts are measured by assessing whether a program changes the mean value of an outcome variable among participants compared with what the outcome

would have been had they not participated. The central evaluation problem then is that program participants cannot be simultaneously observed in the alternative state of no participation (the counterfactual). Evaluators typically simulate the counterfactual by comparing program participants (the treatment group) with a control or comparison group with similar characteristics. Construction of the counterfactual determines the evaluation design, which can be broadly classified as experimental or quasi-experimental. These evaluation designs vary in feasibility, cost, and the clarity and validity of results.

Experimental or randomized control designs involve the random assignment of individuals (or another unit of analysis) into the treatment group or the control group. Because participants are selected randomly, any differences between the groups is due to chance, not selection. For this reason, experimental designs are usually regarded as the most reliable evaluation method and the one yielding the easiest results to interpret (Freeman and Rossi 1993; Grossman 1994).

When randomization is not feasible, a quasi-experimental design is used to generate a comparison group through alternative means. Statistical matching on the basis of observable characteristics is commonly used to select comparison group members who are comparable in essential characteristics to participants. Because unobservable characteristics of beneficiaries, such as motivation or organizational capacity, can strongly influence program impacts but are generally not addressed or addressed only with difficulty in evaluations using quasi-experimental designs, these approaches are often considered less methodologically robust.

The first generation of conditional cash transfer evaluations took advantage of the gradual implementation of these programs (because of logistical complexities, fiscal constraints, and uncertainty about the magnitude of program impacts) to randomly add beneficiaries as the programs expanded.<sup>6</sup> This approach reflected pragmatism and a desire to rigorously explore the impact of these new programs. Experimental designs are usually maintained for only a few years, however, thus limiting their ability to provide rigorous evidence on longer term program effects.

Most first-generation conditional cash transfer evaluation designs rely on random allocation of program benefits by geographic area rather than by household (table 4). The broad geographic nature of some of the program components and the difficulties arising from having treatment and control groups in the same community made randomization at the household level impractical.

In Mexico's Progresa, evaluators randomly assigned localities to treatment and control groups. Treatment localities entered the program in November 1997, whereas control localities started receiving Progresa benefits in December 2000. Randomization was implemented at the municipal level in Honduras's PRAF and at the census level in Nicaragua's RPS. In Honduras the evaluation objectives required three different treatment groups to compare the impacts of different combinations of demand and supply incentives. Randomization by municipality was the preferred option because

**Table 4.** Completed and Ongoing Evaluations of Selected Conditional Cash Transfer Programs

Program	Evaluation activities			Main indicators	Data sources	Sample size			
	Logical framework evaluation	Operations evaluation	Qualitative study <sup>a</sup>			Impact evaluation	Evaluation design	Control group	Treatment group
Colombia FA	X	X	X	X	Quasi-experimental with 2 rounds; participating municipalities were matched with similar municipalities not part of the program	Targeting efficiency; school enrollment; child nutrition and health status; consumption patterns	Household survey; surveys of schools and health centers; surveys of community day care centers	50 municipalities (10,660 households)	50 municipalities <sup>b</sup> (10,660 households)
Honduras PRAF II	X			X	Experimental with panel data; random assignment of municipalities into four groups: G1 (vouchers + supply incentives), G2 (vouchers + supply incentives), G3 (supply incentives only), and G4 (control group)	Education outcomes (test scores, repetition, promotion, attendance); availability and quality of education inputs; health outcomes (maternal and infant mortality); utilization and satisfaction with health care services; health care practices	Census of G1 and G2 municipalities; household surveys (baseline plus two follow-ups—1 and 2 years after program start); school and health center diagnostic surveys; standardized test scores	20 municipalities (1,600 households, G2 = 20 municipalities)	G1 = 20 municipalities (1,600 households); G2 = 20 municipalities (1,600 households); G3 = 10 municipalities (800 households)

(Continued)

**Table 4. (Continued)**

Program	Evaluation activities				Sample size			
	Logical framework	Operations evaluation	Qualitative evaluation	Impact evaluation				
Mexico Progresa <sup>a</sup>	X	X	X	Experimental with panel data: random assignment of localities into treatment and control group	Main indicators School enrollment and attendance; utilization of health care services and health status; child nutritional status; household consumption and caloric availability; poverty incidence; changes in fertility; women's status and intra-household relations; time allocation; private transfers	Data sources Census of evaluation localities; household surveys (baseline plus 5 follow-up surveys collected about every 6 months) <sup>c</sup> ; school and clinic surveys; community questionnaires; test scores; school and clinic administrative data	Control group 186 localities (4,682 eligible households)	Treatment group 320 localities (7,887 eligible households)
Nicaragua RPS		X	X	Experimental with panel data: random assignment of census areas into treatment and control group	Targeting efficiency (leakage and coverage rates); school enrollment and attendance; consumption patterns; utilization and quality of child health care services (including timely immunization)	Census of program area; baseline household survey; follow-up household survey; institutional assessment for schools	21 census areas (812 households) <sup>d</sup>	21 census areas (773 households)

Source: Authors' compilation based on Attanasio and others (2002), Behrman and Todd (1999), IFPRI (2000b, 2001a), and Skoufias (2001).

<sup>a</sup>Including beneficiary assessments.

<sup>b</sup>This is the designed sample. The preliminary results presented in this article are based on the early incorporation of 25 municipalities into the treatment group.

<sup>c</sup>The evaluation also benefited from data on anthropometric measures and blood samples collected by the National Institute of Public Health.

<sup>d</sup>Includes only the first baseline data collected.

of their well-defined borders and the feasibility of linking each household, school, or health center with a particular municipality. Program municipalities were selected using data from the School Height Census. A subset of municipalities was randomly assigned to one of four evaluation groups: those receiving demand vouchers, those receiving vouchers plus improvements in service quality, those receiving improvements in service quality, and the control group. RPS in Nicaragua followed a similar process, randomly allocating census areas into treatment and control groups.

In contrast to the other programs Colombia's FA applied a quasi-experimental design. Program implementers ruled out randomization, instead targeting the program to medium-size municipalities able to provide adequate health and education services and with at least one bank to be able to set up family accounts. A comparison group consisted of municipalities similar to the treatment group in terms of population and infrastructure but not qualifying for the program, often because of lack of a bank. Although not originally planned, the program was launched in a few treatment municipalities before the baseline data were collected. This provided an opportunity for a preliminary evaluation of the unanticipated treatment group and a comparison group constructed through propensity score matching techniques using the baseline data (the comparison group is constructed from nonprogram households with a participation probability closest to program beneficiaries, as determined by the probability of program participation based on socioeconomic characteristics). This required adjustments to the sampling frame, the inclusion of retrospective questions in the survey questionnaires, and additional econometric techniques to control for possible nonrandom selection of early participating municipalities, but the exercise yielded valid (if less precise) impact estimates.

### *Data Collection*

Early planning of most evaluations allowed for the collection of baseline data, thus permitting comparisons of households in the treatment and control groups before and after program implementation. In this way evaluations can account for characteristics that do not change over time within treatment and comparison households, as well as for those that do and that are common to both groups. Random assignment into treatment and control groups, combined with the collection of baseline and follow-up data, allows measuring program impact using difference-in-differences estimators. Except for Colombia, all first-generation conditional cash transfer evaluations have baseline data collected before program implementation.<sup>7</sup>

Household surveys are the main data collection instrument in each of the cases reviewed. Each questionnaire contains a core set of questions about the demographic composition of the household, household expenditures and remittances, and socioeconomic status, education, health, migration, and labor market participation of household members. Some country questionnaires include additional modules, such

as anthropometrics (height and weight), fertility, participation in other programs, and time allocation. Honduras also incorporates two modules on the quality of health services and schools to evaluate the supply-side component of PRAF.<sup>8</sup>

School and health center surveys and community questionnaires are also frequently used for evaluation. In Honduras and Mexico student achievement test scores were used to analyze program impact on academic performance. Beneficiaries and other stakeholders' perceptions about the program are often captured through qualitative studies. As part of the operational evaluation of the program, Progresa conducted semistructured interviews with secondary school and health clinic staff and focus group discussions with beneficiaries, nonbeneficiaries, and community mothers who serve as local contacts for Progresa.

Qualitative studies have also been used in Nicaragua to complement impact evaluations. A study on beneficiaries' perceptions of the program's impact on welfare included a beneficiary survey; focus group discussions with beneficiaries and community mothers; key informant interviews with representatives from the Ministries of Health and Education, the mayor's office, health care providers, NGOs, and local program office staff; and six case studies of beneficiary families in different municipalities. Another study assessed perceptions of the poverty targeting mechanism and included surveys, focus group discussions with beneficiaries and nonbeneficiaries, and key informant interviews.

### *Implementation Issues*

Social experiments present challenges at each stage of implementation. Evaluations of conditional cash transfer programs reveal two particular issues: the difficulty of coordinating impact evaluations with the implementation schedule and the challenge of winning the political support required for a successful impact evaluation. New, logistically complex programs, such as cash transfer programs, can run into implementation delays or, as in Colombia, may move ahead of the evaluation schedule. Likewise, political changes (such as an upcoming election or changes in program administration) may also affect implementation or even program design. Natural disasters, such as flooding in Jamaica, can also alter the implementation schedule.

Such events can effect the evaluation in various ways. For example, in Nicaragua baseline data was collected during August–September 2000, and follow-up data collection was scheduled for the same time a year later. But when the health component was delayed until June 2001 because of difficulties coordinating the health care providers, evaluators had to postpone follow-up data collection until October. Although having a control group helps in this kind of situation, conducting panel surveys at different times of the year may lead to problems from the confounding nature of seasonal effects.



Delays in setting up the program management information system may also cause problems. Deficiencies in the delivery of program benefits may go undetected and thus be unaccounted for in the evaluation. In Mexico, Progresas's payment records revealed that 27 percent of the eligible population in the evaluation sample had not received benefits after almost two years of program operation. This can result in a divergence between the "intention to treat" effect estimated by the evaluation and the mean effect of the program on those who actually participated.<sup>9</sup>

Finally, as Mexico's Progresas and Honduras's PRAF have revealed, implementing impact evaluations requires strong political support, particularly for a randomized control design. Incorporating a control or comparison group into the evaluation can generate strong criticism and lead to political and media pressure to extend program benefits to these groups. It is important to secure a solid commitment from policymakers to maintain the integrity of the program and evaluation designs and to communicate clearly the benefits of random allocation when budget constraints prevent reaching all eligible beneficiaries at once.

## Evaluation Results and Impact on the Ground

Evaluation results are available for Progresas in Mexico, FA in Colombia, and the RPS pilot in Nicaragua. These evaluations reveal that conditional cash transfers can provide effective incentives for investing in the human capital of poor people.

### *Impacts on Education, Health, and Consumption*

In education, conditional cash transfer programs have demonstrated a positive effect on enrollment rates for both boys and girls.<sup>10</sup> In Mexico primary school enrollment rates before Progresas were 90–94 percent. Econometric estimates of program impact using a difference-in-differences model controlling for household and community characteristics show an increase ranging from 0.74 to 1.07 percentage points for boys to 0.96 to 1.45 percentage points for girls (table 5). At the secondary level, baseline enrollment rates were 67 percent for girls and 73 percent for boys. Estimates of program impact show an increase ranging from 3.5 to 5.8 percentage points for boys to 7.2 to 9.3 for girls. In Nicaragua program impacts are even more impressive (table 6). From a low starting point of 68.5 percent, average enrollment rates in treatment areas increased nearly 22 percentage points. Colombia's FA program seems to have had no effect on enrollment rates among the primary school age population (7–13 years old) while boosting secondary school enrollment rates (for 14–17 years old) 5.5 percentage points in rural areas and 14 percentage points in urban areas (table 7).

**Table 5.** Impacts on Education, Health, and Consumption of Mexico's Progresa

	Baseline	Net change/program impact
<i>Education</i>		
Primary school enrollment		
Female	90–94%	0.96–1.45 percentage points <sup>a</sup>
Male	90–94%	0.74–1.07 percentage points <sup>a</sup>
Secondary school enrollment		
Female	67%	7.2–9.3 percentage points <sup>a</sup>
Male	73%	3.5–5.8 percentage points <sup>a</sup>
<i>Health</i>		
Mean growth monitoring visits (in the month prior to the survey), children ages 0–2	0.22	0.054–0.133 <sup>b</sup>
Illness rates (in the month prior to the survey), children ages 0–2	0.40	–4.7 percentage points <sup>b</sup>
<i>Consumption</i>		
Mean consumption level per household per month	—	13.4% <sup>c</sup>
Median food consumption per person per month	—	10.6% <sup>c</sup>
Median caloric acquisition per person per day	—	7.8% <sup>c</sup>

Source: Education, Skoufias (2001); health, Gertler (2000); consumption, Hoddinott and others (2000).

<sup>a</sup>Econometric estimates using a difference-in-differences model controlling for household and community characteristics.

<sup>b</sup>Econometric estimates of program impacts using a difference-in-differences model.

<sup>c</sup>Percentage difference between beneficiary and control households at 20 months postbaseline.

The evidence of impacts on attendance is mixed. The evaluation of Nicaragua's RPS indicates a larger impact on attendance than on enrollment rates, finding a 30 percentage point increase in the share of children with fewer than six unexcused school absences in a two-month period. The evaluation of Progresa showed more pronounced effects on enrollment than attendance.

Evaluations have also found improvements in child health and nutrition. The Progresa evaluation shows a significant increase in nutrition monitoring and immunization rates. Econometric estimates from difference-in-differences models accounting for individual fixed effects found that children 0–2 years old participating in Progresa increased their growth monitoring visits 25–60 percent with respect to the baseline value of .22 visits during the previous month. Progresa also lowered illness rates for the same group of children by 4.7 percentage points, or 12 percent lower than the baseline value (Gertler 2000). The data also suggest that Progresa has had a significant impact on child growth, lowering the probability of child stunting for children ages 12–36 months (Behrman and Hoddinott 2000).

**Table 6.** Impacts on Education, Health, and Consumption of Nicaragua's RPS

Indicator	Treatment areas		Control areas		Net change/ program impact <sup>a</sup>
	Baseline 2000	Follow-up 2001	Baseline 2000	Follow-up 2001	
<i>Education (%)</i>					
Share of children ages 7–13 enrolled in primary school (grades 1–4)	68.5	93.2	72	75.1	21.7 (2.7)
<i>Health (%)</i>					
Share of children less than 3 years old participating in growth monitoring	55.9	91.8	60.6	67.4	29.1 (4.3)
Share of children ages 12–23 months with complete, timely immunization	35.4	81.9	40.3	68.5	18.3 (7.8)
<i>Consumption (cordobas)</i>					
Per capita annual total expenditures	4,310	4,498	3,929	3,300	817 (231)
Per capita annual food expenditures	2,922	3,165	2,684	2,175	753 (154)

Source: IFPRI (2002b).

<sup>a</sup>Unconditional difference-in-differences estimator.

Note: Numbers in parentheses are standard errors.

**Table 7.** Preliminary Impacts on Education, Health, and Consumption of Colombia's Families in Action (FA)

	Comparison areas		Effect of program in treatment areas	
	Urban	Rural	Urban	Rural
<i>Education</i>				
Enrollment probability, ages 7–13	0.941	0.915	0.003 (0.022)	0.012 (0.028)
Enrollment probability, ages 14–17	0.639	0.496	0.138* (0.066)	0.055 (0.053)
<i>Health</i>				
Probability of suffering from acute diarrhea, children under 6, over past 15 days	0.212	0.170	–0.102* (0.055)	–0.054 (0.065)
Probability of suffering from acute respiratory disease, children under 6, over past 15 days	0.448	0.404	–0.032 (0.103)	–0.021 (0.073)
<i>Consumption</i>				
Number of days 2–6-year-olds ate eggs	2.4	2.67	0.705* (0.437)	0.774* (0.428)
Number of days 2–6-year-olds ate vegetables	1.26	1.67	1.383* (0.437)	1.148* (0.488)

Source: Attanasio and others (2003).

\*Significant at the 5 percent level.

Note: Numbers in parentheses are standard errors.

In Colombia's FA the proportion of children under age 6 enrolled in growth monitoring rose 37 percentage points. The incidence of acute diarrhea in children under age 6 was reduced by 10 percentage points in urban areas, but there was no significant change in rural areas. The study applied various measures of malnutrition to children under age 6 and detected no impact on global or acute malnutrition in any of the program areas. It did find a positive impact on weight-for-height and weight-for-age in rural areas though not in urban areas (Attanasio and others 2003). Nicaragua's RPS program generated similar improvements. Before RPS was implemented, some 60 percent of children under age 3 participated in nutrition monitoring. After several months of program operation more than 90 percent of children in RPS areas participated in nutrition monitoring compared with 67 percent in control areas. Rates of timely immunization among children 12–23 months old rose by 18 percentage points in the treatment group compared with the control group (IFPRI 2002b).

Conditional cash transfer programs have also resulted in higher consumption levels. In Mexico after just over a year of program operation the average consumption level was 13 percentage points higher, and the value of food consumption for the median beneficiary household was 11 percent higher in Progresa households than in non-Progresa households. Higher expenditures on fruits, vegetables, and animal products accounted for much of the increase in household consumption. Median caloric intake per person in Progresa households increased by 7.8 percentage points (Hoddinott and others 2000). Dietary intake also improved in FA households in Colombia. In Nicaragua consumption levels remained unchanged in RPS areas despite worsened economic conditions related to low coffee prices and a drought. By contrast, consumption declined sharply in control households (IFPRI 2002b). The net program impact translates into a 19 percent increase in per capita consumption and suggests that conditional cash transfer programs may help poor people protect consumption in times of crisis.

The evaluation of Progresa revealed that conditional cash transfer investments can be delivered cost-effectively. The administrative costs of delivering cash transfers to poor households appear to be small (Mex\$8.9 of every Mex\$100 allocated to the program) relative to the costs of previous Mexican programs and to targeted programs in other countries (Coady 2000). The largest cost components are those associated with household targeting (nearly 30 percent), followed by those associated with conditioning the receipt of transfers (26 percent). The evaluation also found that the cost of generating an extra year of schooling using subsidies is around Mex\$10,000 in secondary school and Mex\$55,000 in primary school, compared with Mex\$168,000 for extensive expansion by building additional secondary schools and thus reducing travel distances.

## Impacts on Program Expansion and Design

These findings of encouraging human development impacts have been used to revise programs and influence policy. But the evaluations reveal little about which element of the intervention (the transfer or the conditionality) is responsible for the observed changes or whether the relatively short-term changes will be translated into long-run impacts on human capital formation and poverty. They also provide no comparative evidence on whether alternative interventions would have achieved comparable results.

The impact evaluations have triggered some program modifications, guided program expansion, allowed the programs to survive changes in political administrations, and generated interest in replicating the programs internationally. The positive impacts of Mexico's *Progresa* helped prompt its expansion from rural to urban areas, and the program has continued with few alterations despite a change in government. Likewise, the measured achievements of *FA* in Colombia contributed to the program's continuation and expansion despite a change in government. The evaluation findings for Nicaragua's *RPS* showing that the program had met most of its targets and exceeded many of them triggered plans for program expansion. The demonstrated utility of the conditional cash transfer evaluations also increased political support for other impact evaluations. In Mexico a congressional mandate calls for the evaluation of all social programs, whereas in Colombia the national performance monitoring system is expanding to include impact evaluations of the country's principal social programs.

The evaluation results have also contributed to the ongoing debate on the design of conditional cash transfer programs and their potential role in broader reform of social protection systems. One issue under discussion is whether conditional cash transfer programs should take on income-generating activities. Although this may be a necessary condition for the sustainability of human capital investment in future generations, whether conditional cash transfer programs should take this on themselves or whether separate income-generation programs are preferable is unclear. In both Mexico and Nicaragua there has been a tendency to expand conditional cash transfer programs to include training and other income generation activities. Both programs are planning impact evaluations to help inform the debate. Evaluation results of conditional cash transfer programs and national education-oriented cash transfer programs in Brazil have contributed to a reform that will consolidate an array of cash transfer programs and triple the average monthly benefit per family. The new program is expected to reach 11.4 million families by 2006, about a quarter of Brazil's population, making this the world's largest conditional cash transfer program.

## Upcoming Evaluations: Expected New Insights

New conditional cash transfer programs have recently begun in Jamaica, Turkey, and urban areas of Mexico. This second generation of programs is being implemented under considerably different circumstances than the first. They have benefited from the experience of the first generation, making the logistical aspects less daunting. Evidence of program impacts from the first generation has reduced uncertainty about program results and thus the need for small pilots or phased implementation. Finally, the socioeconomic and political circumstances are particularly pressing in some cases, so implementation plans incorporate nationwide expansion almost immediately. Both the PATH program in Jamaica and the SSF in Turkey have had short pilots, mainly to test program processes, followed rapidly by nationwide expansion.

Consequently, new methodologies are being tested. Program pilots include only a process evaluation, reserving impact evaluations for the full-scale program. Because experimental evaluation designs are more challenging when used to evaluate a nationwide program, the second generation of conditional cash transfer programs relies on quasi-experimental designs.

The evaluation of Oportunidades, the follow-on to Progresa, takes advantage of the proxy-means test used for beneficiary selection to construct a comparison group from households that applied to the program but were not selected because they fell above the cutoff point. Presumably, households immediately above the cutoff point are similar on average to program beneficiaries and can serve as a comparison group. A second comparison group will be drawn from eligible households in nonintervention areas, selected through propensity score matching techniques.

The evaluation of Turkey's SSF anticipates applying a quasi-experimental design using panel data with a baseline and two follow-up measures, as well as a qualitative study. Data from the first follow-up survey—to be conducted about one year after the program begins—will be used to assess poverty targeting, short-term welfare impacts, changes in utilization of health and education services, and stakeholder perspectives. A more comprehensive impact evaluation is contemplated for two years after program implementation, using the last round of panel data.

Because of the reliance on quasi-experimental designs, second-generation evaluations are politically less sensitive and less demanding to implement. However, the results are likely to be less robust and straightforward than those generated by carefully planned experimental designs. In addition, given the rapid expansion of these programs to national scale, there is less control over the timing of the implementation schedule and a greater need for flexibility in evaluation plans. Potential contamination of the comparison group is another problem. The use of households just above the cutoff point for constructing a comparison group risks contamination of the sample from premature incorporation of comparison group households into the program should the cutoff point change.

These second-generation evaluations will address many of the same core questions about program impacts on school attendance, health care utilization, and consumption and so will help confirm the cross-program robustness of earlier results. Together with continuing evaluations in Colombia, Honduras, and Nicaragua, these evaluations will also analyze new questions prompted by program objectives in each country and by a desire to increase the global body of knowledge about conditional care transfer programs.

In Nicaragua the evaluation will assess the sustainability of behavioral changes by measuring program impacts once cash transfers are phased out and only supply-side interventions remain. In Honduras the evaluation will focus on the relative importance of supply and demand factors in increasing human capital as well as program impacts on maternal and child mortality rates. In Colombia, implementation of the conditional cash transfer program as one of three emergency safety net programs will allow for a comparison of the relative effectiveness of conditional cash transfer, workfare, and training programs in achieving particular outcomes. In Mexico the evaluation will examine the results of a new educational savings program for Oportunidades students.

## Conclusions and Recommendations for the Future

In contrast to many development programs, the recent expansion of conditional cash transfer programs is based on fairly solid evidence of program impact. Evaluation results from the first generation of these programs in Colombia, Mexico, and Nicaragua show them to be an effective means for promoting human capital accumulation among poor households. In particular, there is clear evidence of program success in increasing school enrollment rates, improving preventive health care, and raising household consumption. These evaluation results have provided policymakers with rare empirical evidence on program efficiency and effectiveness that has informed administrative reforms, prompted the expansion of programs geographically and to new population groups, and contributed to their continuation despite changes in political regimes.

The next generation of evaluations is building on this body of knowledge of conditional cash transfer programs by providing evidence on the medium-term impact of programs, the value of new elements, and the impact of new conditional cash transfer programs in Honduras, Jamaica, Turkey, and urban areas of Mexico. These evaluations will confirm or challenge earlier findings, shed light on questions of sustainability and medium-term impacts, and provide policymakers with a better understanding of the impacts of alternative combinations of program inputs and different regional circumstances. These results will be useful in understanding the capacity of conditional cash transfer programs to meet the new demands placed on them and ensure that these demands do not interfere with achievement of the program's primary objectives.

But even when evaluations of the new generation of conditional cash transfer programs become available, many fundamental questions will remain unanswered—about the effectiveness, including long-term welfare impacts; synergies between program components; tradeoffs between transfer size and number of beneficiaries; and balance between the short-term transfer objectives and the long-term human development objectives. There is also a need to assess the effectiveness of these programs both as a permanent institution for addressing chronic poverty and as a temporary instrument for addressing vulnerability to shocks, and to explore ways to strengthen the links with suppliers of health and education services to improve access and quality. These long-term questions can be answered only through further evaluation.

Improvements in evaluation instruments are also needed. Econometric modeling is being used to simulate the anticipated impacts of program design alternatives, such as transfer size and eligibility criteria. Although not a substitute for impact evaluations, these tools can be very useful, particularly for program design. There is also a need to go beyond impact evaluations of individual programs to improve results-based monitoring and evaluation systems of related programs, as a foundation for effective policy management. Finally, there is a need for impact evaluations to explore the development effectiveness of alternative programs and policies, particularly concerning long-term welfare impacts.

The benefits of program evaluations go far beyond country boundaries and constitute a global public good. The experience of conditional cash transfer programs to date shows the critical role of evaluations in shedding light on success and failure in the fight against poverty. The evaluations are also contributing to the spread of conditional cash transfer programs, which are being replicated around the world.

Even so, it should not be assumed from positive evaluation results from a handful of countries that similar successes can be achieved in other countries in different contexts, especially in areas facing supply constraints in health and education or where the capacity to administer a conditional cash transfer program is limited. Nor do the positive results from one program imply that the program subject to the evaluation is necessarily the best approach to achieving a particular outcome. Ideally, program evaluations would compare alternative interventions for achieving a similar objective to determine the most effective and efficient approach. What evaluations of the impact of conditional cash transfer programs reveal so far is the importance of good program and evaluation design in informing policy decisions and providing evidence for achieving progress in the fight against poverty.

## Notes

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1. In March 2002, Progresá changed its name to Oportunidades and changed some of its objectives and operational features.

2. A review of World Bank projects from 1998 to 2000 analyzing the quality of impact evaluation plans incorporated into the project appraisal process found that only 10 percent of projects had adequate plans for a rigorous impact evaluation, though the percentage of projects that included them had doubled over these years (World Bank 2001b).

3. See Kim and others (1999) for a review of Pakistan's primary school female fellowship program; Ravallion and Wodon (2000) for an assessment of Bangladesh's Food for Education program; Kandkher and others (2003) for an evaluation of the Bangladesh Female Stipend program; Yap and others (2001) for a discussion of Brazil's PETI program aimed at reducing child labor; and World Bank (2001a) for a review of Brazil's Bolsa Escola education stipend program.

4. This section draws on Rawlings (2004). For a more in-depth description of conditional cash transfer programs, see Ilahi and others (2000), Legovini and Regalia (2001), and Morley and Coady (2003).

5. Nicaragua initially stipulated that families would lose their grant if malnourished children did not gain adequate weight, but this requirement was dropped after the first year.

6. For example, to increase its coverage of rural areas, Mexico's Progresá expanded in phases from August 1997 to early 2000. Nicaragua's RPS started with a two-year pilot phase in two departments (Madriz and Matagalpa), whereas in Honduras implementation of PRAF was limited to a subset of municipalities because of funding stringencies.

7. Nicaragua's RPS has completed follow-up measurements after one year and two years of program implementation and plans to conduct a third once demand incentives are eliminated and only the supply intervention remains. Mexico's Progresá collects six rounds of panel data in rural areas every six months. Evaluators of Honduras's PRAF planned to follow up after one and two years of program implementation. Colombia's FA will have baseline data available for about half of the treatment sample (table 4).

8. Although not strictly part of the evaluation, censuses were conducted in the evaluation areas in some countries. In Mexico, a census collected data to determine household eligibility. In Honduras and Nicaragua, censuses generated a beneficiary registry and a household list from which to draw a representative sample in treatment and control areas and provided information for simulating inclusion and exclusion errors resulting from a proxy-means test targeting mechanism.

9. As Skoufias (2001) discusses, the use of the Progresá eligibility variable for program evaluation allows the evaluators to estimate the "intention to treat" effect. To the extent that not all eligible households actually receive program benefits, the intention to treat effect underestimates the program mean effect on actual program beneficiaries.

10. For a comprehensive discussion of the education impacts see Schultz (2000a, b, c), Behrman and others (2000), and IFPRI (2002b).

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