Review

Pan American Journal of Public Health

Conditional cash transfer programs and the health and nutrition of Latin American children

Sofia Segura-Pérez,[1] *Rubén Grajeda,*[2] *and Rafael Pérez-Escamilla*[3]

Suggested citation Segura-Pérez S, Grajeda R, Pérez-Escamilla R. Conditional cash transfer programs and the health and nutrition of Latin American children. Rev Panam Salud Publica. 2016;40(2):124–37.

ABSTRACT

Objective. *To 1) describe the benefits, conditions, coverage, funding, goals, governance, and structure of well-established conditional cash transfer programs (CCTs) in Latin America and 2) identify their health and nutritional impacts among children under 5 years old.*

Methods. *A realist review was conducted. CCTs were included if they met the following inclusion criteria: 1) current national-level program; 2) coverage of at least 50% of the target population; 3) continuous operation at scale for 10+ years; 4) clear description of structure, funding sources, and governance; 5) both health/nutrition- and education-related conditions for participation; and 6) available impact evaluation studies with health, development, and/or nutrition indicators among children under 5 years old. Three CCTs (one each in Brazil, Colombia, and Mexico) met the criteria.*

Results. *There was consistent evidence that the three CCTs selected for review had positive impacts on child health and nutrition outcomes in their respective countries. In all three countries, the programs were scaled up and positive impacts were documented relatively quickly. All three programs had strong political support and clear and transparent governance structures, including accountability and social participation mechanisms, which might explain their success and sustainability.*

Conclusions. *CCTs in Latin America have had a positive impact on child health and nutrition outcomes among the poorest families. A key challenge for the future is to reform these programs to help families move out of not only extreme poverty but all poverty in order to lead healthy and productive lives, as called for in the post-2105 Sustainable Development Goals.*

Key words Social welfare; social assistance; child nutrition; Brazil; Colombia; Mexico; Latin America.

During the last two decades, Latin American countries began to implement conditional cash transfer programs (CCTs) through their social protection systems with the purpose of lifting their most vulnerable populations out of extreme poverty (1–3). The first national CCT program was launched in Mexico in 1997. Today, 18 countries are operating CCTs in Latin America and the Caribbean and significant reductions in extreme poverty have been attributed to them (1–4). The framework guiding CCTs is conceptually sound as it addresses multiple social determinants of health to break the cycle of poverty. CCTs provide cash benefits to poor families in exchange for meeting certain conditions. These conditions typically involve families keeping their children in school and both mothers and children attending primary health care services. The income transfer is expected to help beneficiaries improve the quality of their diets and other basic needs, while the increased access to health care is expected to promote their health and allow them to live more productive lives. As a result of the

[1] Independent Health and Nutrition Consultant, Storrs, Connecticut, United States of America. Send correspondence to: Sofia Segura-Pérez, sofiaseguraperez@gmail.com

[2] Pan American Health Organization, Washington, District of Columbia, United States of America.

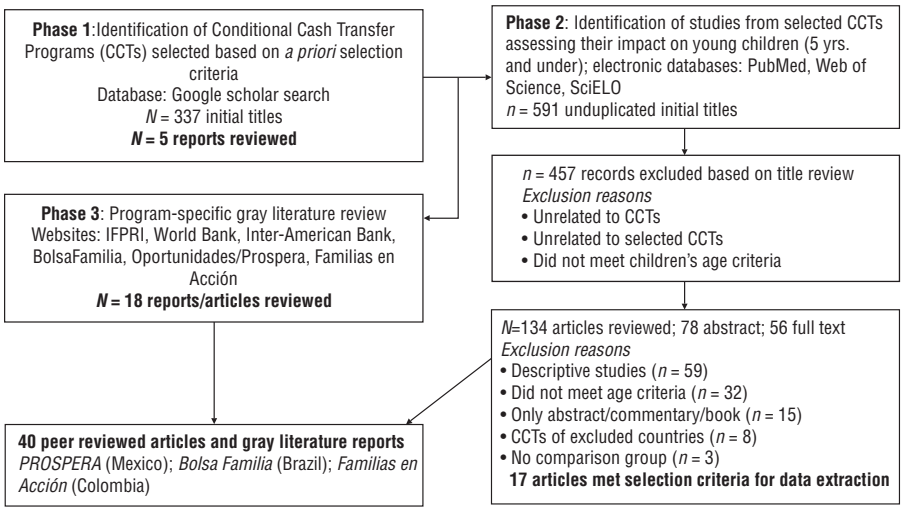
[3] Professor of Epidemiology and Public Health, Department of Chronic Disease Epidemiology, Yale School of Public Health, New Haven, Connecticut, United States of America.

programs' education condition it is expected that children will have better opportunities later in life. Cash benefits are usually given to children's mothers as they are most likely to invest in their children and because it helps improve women's empowerment (4, 5). Most CCTs have limits on the number of children for whom cash benefits can be received to avoid increased fertility within families (5). CCTs are considered powerful child nutrition–sensitive interventions as they address the underlying causes of undernutrition and can enhance the effectiveness of nutrition-specific interventions (6). To the best of the authors' knowledge, no previous reviews have examined, simultaneously, the characteristics of country-level operations and structure of CCTs and their health and nutritional impacts. Therefore, the objective of this review was to 1) describe the benefits, conditions, coverage, funding, goals, governance, and structure of well-established CCT programs in Latin America and 2) identify their health and nutritional impacts among children under 5 years old.

MATERIALS AND METHODS

An integrated realist literature review (7) was conducted in three steps following *a priori* criteria (Figure 1). The first step was to identify the CCTs to be reviewed—well-established programs in Latin America that met the inclusion criteria—through a Google Scholar search, using the following search string: *conditional cash transfers* OR *cash transfer* OR *monetary incentives and social protection* OR *safety net and child health* OR *child development* OR *health services* OR *nutrition sensitive interventions for malnutrition and food security* AND *Latin America*. The search resulted in 337 citations that led to five reports on CCTs that were reviewed in full (1, 2, 3, 8, 9). The CCT inclusion criteria were as follows: 1) current national-level program; 2) coverage of at least 50% of the target populations; 3) continuous operation at scale for 10+ years; 4) clear description of structure, funding sources, and governance; 5) both health/nutrition- and education-related conditions for program participation; and 6) available impact evaluation studies with health, development, and/or nutrition indicators among children under 5 years old. The second step identified research studies assessing the health and nutrition impacts of the three selected CCTs, using PubMed, Web of Science, and SciELO. The key term *conditional cash transfer* was used in combination with one of the following terms: México, *PROGRESA*, *Oportunidades*, Brazil, *Bolsa Família*, Colombia, *Familias en Acción*, child health, health services, malnutrition, nutrition-sensitive interventions, child development, safety net, and social protection. Studies with the following designs were included: randomized controlled, controlled before-and-after, interrupted time-series, cross-sectional using matching techniques, and cross-sectional with comparison group(s). This search produced 591 unduplicated articles, of which 457 were excluded based on the title, and 78 were excluded based on abstract reviews, leaving 56 that were reviewed in full, and a final sample of 17 that met the inclusion criteria for data extraction. The third step consisted of searches for gray literature on the operations and structure of the three selected CCTs, using the following agency/program websites: International Food Policy Research Institute (IFPRI), World Bank, Inter-American Development Bank (IDB), *Bolsa Família*, *PROSPERA* (formerly *Oportunidades* and *PROGRESA*), and *Familias en Acción*. This search generated five reports, and using a "snowball" approach, 18 additional reports were found. Thus this review was based on 17 peer-reviewed research articles and 23 gray literature reports (Figure 1).

FIGURE 1. Process, governance and impacts of Conditional Cash Transfer Programs (CCTs) in Latin America: Literature review search process. Peer-reviewed journal articles (*n* = 17) and gray literature reports (*n* = 23) representing three CCTs through a three-step process involving identification of: a) CCTs meeting inclusion criteria, b) peer-reviewed journal articles; c) gray literature reports. Databases searched and keywords used are indicated in the diagram.



RESULTS

The three well-established Latin American CCTs that met the study criteria were 1) *PROSPERA* in Mexico, 2) *Bolsa Família* in Brazil, and 3) *Más Familias en Acción* in Colombia.

Mexico

Key program characteristics. The selected CCT from Mexico, now known as *PROSPERA*, was launched in 1997 as the *Programa Nacional de Educación, Salud y Alimentación* (*PROGRESA*)—an antipoverty strategy in response to the 1994 Mexican economic crisis. Designed to improve children's access to schooling and families' access to primary health and nutrition services, *PROGRESA* was first implemented in marginalized rural areas with health and education infrastructure. The program was designed to increase its coverage gradually, which allowed for use of an integrated, lagged, randomized controlled impact evaluation component (4, 9). Since its inception, the program has offered cash incentives to the female head of household as long as family members complied with conditions related to health/nutrition (use of preventive health services) and education (school attendance), with the total amount of monthly cash benefits per family determined by the number of

children in the household, and their age, gender, and grade level (4, 5). The health and nutrition preventive services were provided through primary health clinics (4, 9). *PROGRESA*'s impact evaluation studies found 1) an increase in secondary school enrollment rates; 2) improved preventive care and health outcomes among children under 5 years old; 3) an increase in the number of visits to health care units during the first trimester of pregnancy; and 4) an increase in household food expenditures (4, 9). In 2000, *PROGRESA* became the *Programa de Desarrollo Humano "Oportunidades,"* and program benefits were extended to those who met school attendance requirements at the high school level. Between 2001 and 2002, the program was expanded to urban areas, which required that the sampling methodology be adapted to enable identification of eligible households (10). In 2003, the "*Jóvenes con Oportunidades"* component was added, providing additional cash incentives for high school graduation and continued education or training thereafter. During 2001–2006, the program continued to show positive impacts in school outcomes in rural areas, a reduction in maternal and child mortality, and an impressive 78% increase in preventive medical appointments (11). In urban locations, the program was associated with a 52% utilization of health care services (11). A survey conducted in 2007 among beneficiaries from rural areas found an increase in expenditures on food consumption as well as food production for self-consumption; for every peso spent on food, 32 cents went to self-production activities (12). The latter expenditure was remarkable, especially given the fact that there was little opportunity for savings or investments based on income, even though beneficiary families were using the cash benefit to meet their basic needs (12). By 2013, the program was serving 5.9 million families distributed across 107 337 communities in all 32 Mexican states, and 25% of the families lived in indigenous areas (13). In 2014, *Oportunidades* was renamed *PROSPERA* and adopted a priority goal of strengthening social inclusion and ending extreme poverty. Mexico's plan for social inclusion includes three broad actions: 1) improving the public health care system, 2) expanding the social security system, and 3) increasing access to housing, basic social infrastructure, and land development (14). *PROSPERA* is part of the National Crusade Against Hunger (*Cruzada Nacional Contra el Hambre*, CNCH), a government initiative to improve food security for all that has strong links with community development opportunities. Specifically, *PROSPERA* has added more cash incentives and helps improve beneficiaries' access to financial services, the labor market, microcredit opportunities, and early childhood education initiatives (14, 15) (Table 1). *PROSPERA* is a multi-sectoral program under the Mexican Secretariat of Social Development (*Secretaría de Desarrollo Social*, SEDESOL). *PROSPERA*'s National Coordination team works very closely with the Secretariat of Public Education (*Secretaría de Educación Pública*, SEP) and the Secretariat of Health (*Secretaría de Salud*), which are in charge of providing the education and health services for beneficiaries and verifying their compliance with program conditions. It also works with the Secretariat of Economy (*Secretaría de Economía*, SE); the Secretariat of Labor and Social Welfare (*Secretaría del Trabajo y Previsión Social*, STPS); and the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (*Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación*, SAGARPA). *PROSPERA* also has strong links with state and municipal programs for implementation, with the latter entities helping to organize local committees composed of *PROSPERA* beneficiary mothers (known as *vocales*, or "spokepersons" in English). Funding and program norms come directly from the federal government (14, 15). The National Council for the Evaluation of Social Development Policy (*Consejo Nacional de Evaluación*, CONEVAL) is in charge of conducting *PROSPERA*'s annual and biannual evaluations (Table 2).

Impacts on child health and nutrition outcomes. The seven *PROGRESA*, *Oportunidades*, and *PROSPERA* studies found impacts on the health of children less than 5 years old using experimental or quasi-experimental designs (Table 3). A *PROGRESA* evaluation conducted in 1998–2000 found that newborns whose mothers were receiving benefits while pregnant and children exposed to the program between 0 and 3 years of age at baseline were 25.3% ($P = < 0.005$) and 23.3% ($P = 0.001$) less likely respectively to be ill during the month preceding the survey. This effect was stronger among those exposed to the program for 24 months versus those exposed for 18 months. In addition, beneficiary children 12–36 months old were almost 1 cm taller than those from the control group ($P = 0.004$), and during the first year of the program, beneficiary children were also 25.5% less likely than their counterparts in the control group to have anemia ($P = 0.012$) (16). A second analysis of the same study found that infants < 6 months old from the poorest families who were exposed to the program were 1.1 cm taller compared with the control group (17). Hemoglobin levels among children 12 months or older at baseline were significantly higher after one year of program exposure compared to the unexposed control group (11.12 g/dL versus 10.75 g/dL; $P = 0.01$) (17). Another study using *PROGRESA's* baseline and a follow-up survey conducted in 2003 found that higher cumulative cash transfer was significantly associated with increased height-for-age Z-scores; lower prevalence of stunting and overweight; and improved gross motor development long-term memory, visual integration, and language development. However, no association was found with number of sick days or hemoglobin concentration (18).

A study assessing the impact of *PROGRESA* on reproductive health outcomes found that being born to a beneficiary mother at the time of birth was significantly associated with a higher birth weight (127.3 g) and a 4.6% reduction in low birth weight (19). Urban children exposed to *Oportunidades* when they were less than 6 months old grew 1.5 cm taller and gained 0.76 kg more than children from control families (20). In rural areas, *PROGRESA* was associated with a lower incidence of diarrhea and respiratory infection diseases among children less than 5 years old (21). Another study found a large decline (17%) in rural infant mortality among *PROGRESA* beneficiaries (22). Thus, all included studies showed positive impacts of the program on diverse child health and growth outcomes, especially among the youngest and poorest children. As a result, *PROGRESA*'s well-recognized antipoverty effectiveness (23), together with its health and nutrition benefits, has played a key role in the expansion of CCTs in Latin America and beyond.

TABLE 1. Benefits and conditions of Conditional Cash Transfer Programs (CCTs) in Mexico, Brazil, and Colombia[1]

Characteristic	Mexico	Brazil	Colombia
Name(s)	*PROSPERA*	*Bolsa Família*	*Más Familias en Acción*
Benefits	**Nutrition:** • Monthly cash benefit to support the nutrition of the entire family: Basic household benefit for buying foods MN$335 (US$20.25)[a]; Food inflation supplement: MN$140 (US$8.46)[a]; Birth to 9-year-old children support MN$120.00 (US$7.25)[a] per child for up to 3 children; Older adults ≥70 years old MN$370.00(US$22.37)[a] • Maximum monthly cash nutrition benefit per family: With primary – secondary school age children, MN$1,710 (US$103.38)[a]; high school or equivalent MN$2,765 (US$167.16)[a] • Free nutritional supplement for children under 5 years old, and for pregnant and lactating women; **Education:** • Monthly cash scholarships paid bimonthly for each child attending 3rd grade–12th grade • Higher amounts for higher school grade and for girls. Additional funds for school supplies • Maximum monthly education cash scholarships per family: primary through secondary school, MN$1,265 (US$76.49)[a]; high school or equivalent, MN$2,320 (US$140.26)[a] • *Jóvenes con Oportunidades:* monetary incentive for completion of high school education before they turn 22 years, MN$4,599 (US$278.05)[a] **Health:** • Access to a basic health package of 27 preventive care actions for the family that includes: Monitoring health and nutritional status through regular growth and nutritional status assessment; Nutritional care of pregnant and lactating women; Reproductive health; Infectious disease management and prevention; Prevention and control of chronic diseases; Health and Nutrition education classes **Links to job training/opportunities and microcredit programs.** • Improved access for women to credit with low interest rates and other financial services. • Higher access for *PROSPERA* youth to work training and employment. • Support from more than 15 *Salidas Productivas* programs to initiate small business projects.	**Nutrition and Education:** • Basic benefit for families living in extreme poverty basic benefit R$77 (US$20.38)[b] Independent of household size and composition • Variable benefit for families with monthly incomes per person between R$77 ($20.38 US) [b] R$154 ($40.83 US)[b] • Total monthly cash benefits depend on household size, number of children under 18 living in the household, pregnancy or nursing status of the women • Variable benefit of R$35 per person (US$9.24)[b] up to 5 individuals in the family. Based on: • Children 0–15 years old (requires school attendance for children 6–15 y) • Pregnant women in the family (paid only if pregnant women is getting prenatal care) • Mothers with children 0-6 months to support nursing or other infant feeding mode if mother not present • Variable benefit for families with teenagers; R$42 (US$11.09)[b] for families with children between 16–17 years (up to two per family); it requires school attendance	**Nutrition:** • Monthly cash incentives paid bimonthly • Amount depends of the zone where people live ranging from: US$63 to US$74; for families with children <7 years old benefit is independent of the number of children within this age range **Education:** • US$21–US$58 per child (up to three school children per family) • Amount varies depending on the municipality and school grade • Indigenous and internally displaced families receive the maximum amount no matters the location
Conditions	**Health and Nutrition:** • Children between birth and 60 months get immunizations, attend regular well baby care, and grow monitoring appointments; nutritional supplement for children 6–23 months, and for older children 24–60 months old if undernourished. • Pregnant women attend all medical appointments for prenatal care, get nutritional supplements and attend health and nutrition classes. • Lactating women attend all medical appointments for post-partum care, get nutritional supplement and attend health and nutrition classes. • All family members visit clinics once a year for their annual checkups. • Female head of household attends bi-monthly education workshops. **Education:** • Certification of children school enrolment and adequate attendance.	**Health and Nutrition:** • Children < 7 years old get their vaccination schedule and attend grow monitoring health visits. • Pregnant and lactating women attend all prenatal and monitoring of their health and baby health care visits. **Education:** • 6-15-year-old children must be enrolled at school with a minimum monthly attendance of 85%; for children 16-17 years old a minimum of 75% attendance is required.	**Health and Nutrition:** • Children < 7 years old get their vaccination schedule and attend growth monitoring health visits. **Education:** • School-age children must be enrolled at school with a minimum monthly attendance of 80%, and no more than 2 years of grade repetition between 1st and 11th grade.

[a] Exchange Rates Currency Calculator: http://www.x-rates.com/calculator/?from=MXN&to=USD&amount Accessed on 11 April 2015.
[b] Currency converter 1BRL=0.264642 dollars http://themoneyconverter.com/BRL/USD.aspx Accessed on 11 April 2015.
[1] This table was developed by the authors for this article based on sources listed below.
Sources: References: (13, 15, 24, 27, 41, 42, 43, 44, 50).

TABLE 2. Goals, coverage, administration, and governance of Conditional Cash Transfer Programs in Mexico, Brazil, and Colombia: Gray literature review[1]

Characteristic	Mexico	Brazil	Colombia
Name(s)	*PROSPERA*	*Bolsa Família*	*Más Familias en Acción*
Target group and poverty classification	• Families living in extreme poverty. • *Consejo Nacional de Evaluación* Multi-dimensional Poverty Index based on six social goods (education, health, social security, housing, utilities, and food) and basic income to satisfy basic needs or well-being • 2012 Poverty Line (PL) set at: US$2.9 per day (rural areas); US$4.0 per day (urban areas) • Poverty classification: Poor: income < PL and deficient on one or social goods; Extreme poverty: income < PL and deficient in three or more social goods	• Poor and extreme poor families. Extremely poor families: monthly per capita income < R$77.00($20.38 US) • Families with monthly per capita incomes between R$77 ($20.38 US) [a] and R$154 ($40.83 US)	• Families with children <18 years old living in poverty and extreme poverty based on the Selection System of Beneficiaries of Social Programs (SISBEN) • Special registry for displaced families • Indigenous families
Initiation date	1997	2004	2001
Sectors & Coordination	• Centralized and multi-sectorial • The program is under the Ministry of Social Development (SEDESOL) • The National Coordinator of *PROSPERA* (NCP) is an organism coordinating actions across sectors. • Inter-sectorial Advisory Board authorizes program's policies, defines program's guidelines and strategies • Technical Committee supports the work of the National Coordination of *PROSPERA*, formed by representatives of the Mexican Institute for Social Security and Health (IMSS), and directors working with all the ministries represented at the Advisory Board (Finance, Education, Health, Economy, Agriculture, and Labor) NCP works very closely with other *SEDESOL* programs such as *Programas de Escuela de Calidad* (PEC) (Quality Schools Program), Tutores Comunitarios de Verano (CONAFE), (Summer tutors) • NCP and technical committees work with state-level delegations • State delegations have a coordinator and municipal liaisons • Community Participation Committees, formed by representatives of *PROSPERA* beneficiaries from a community or neighborhood. 'These representatives or vocals are beneficiary mothers elected by other mothers, working voluntarily for the program.	• Inter-sectorial decentralized coordination • The Ministry of Social Development and Hunger Eradication (MDS), and The National Secretaria of Citizenship Income, (*Secretaria Nacional de Renda de Cidadania*, SENARC), are responsible for the management, monitoring and supervision • Registry (*Cadastro Único*) is used to identify and register eligible low-income families • MDS-SENARC works very closely with other ministries to link beneficiaries to other social programs and to conduct outreach with civil society • State governments provide technical support and training to municipalities • Municipalities implement the program through a local coordinator responsible for program monitoring and implementation at the local level and organization of social control councils	• Social Prosperity Department (DPS) within its Social Income Office (*Dirección de Ingreso Social*) • Decentralized system; municipalities in charge of program implementation and monitoring • It works in coordination with other childhood and youth initiatives, with the food security network, productive inclusion strategies from the labor department and housing programs from public services • Mother leaders are beneficiaries chosen by their communities to represent their interest
Coverage	In 2014: 25.7 million individuals; 6.1 million families; 116,025 communities; 2,456 municipalities	13.8 million households; about 50 million individuals	2.6 million families; 1,102 municipalities
Administration & Governance	The program's operational norms are published in the *Diario Oficial* and available to the public online. Budget approved by the federal government and allocated to the Ministry of Social Development (SEDESOL), the Ministry of Education (SEP) and the Ministry of Health (SSA), including the Mexican Institute of Social Security (IMSS)	• MDS uses the Decentralized Management Index to monitor the quality of the program implementation at the state and municipal level. • MDS-SENARC work with the *Caixa Econômica Federal*, a government owned financial institution, as the operating agent for making payments to beneficiaries through the electronic benefit cards. • MDS-SENARC work very closely with the Ministry of Health and Education implementing and monitoring the health and education conditions. Three control agencies: The General Controllers Office, the Federal Audits Court, and the Office of The Public Prosecutor. • Regular cross checks to the Cadastro internally and externally.	Payment of cash incentives through the *Agrarian and Davivienda Banks*. Point of payment system through local retailers for areas without a bank there.

(*Continued*)

TABLE 2. Continued

Characteristic	Mexico	Brazil	Colombia
Name(s)	*PROSPERA*	*Bolsa Família*	*Más Familias en Acción*
Management & Evaluation System	• Computerized management information system; interconnects local and state networks to the national central system; information system used by enrolment centers. **Evaluation:** CONEVAL in charge of the evaluation of the program based on the fulfillment of the program's goals and objectives. CONEVAL can contract external consultant(s) to conduct evaluations but it has to be announced using a bidding process. Evaluations must be annual or multiannual. Results must be published in the official diary.	• Online *Cadastro Único* accessed on-line by MDS and municipalities. Data entered at the local level is transferred to the central database managed by the *Caixa*, where it is consolidated into the national database. The *Caixa* verifies the information and for new enrolments produces a unique identification number. • MDS conducts internal and external audits of this database **Evaluation:** The Secretariat for Information Management and Evaluation (*Secretaria da Avaliação e Gestão da Informação*) evaluates the process and impact of the program.	• *Sistema de Información Familias en Acción*, is the information system used to register the families and to monitor conditionalities **Evaluation:** *Sistema Nacional de Evaluación de Gestión de Resultados* under the National Department of Planning and the Direction of Public Policies is in charge of program evaluation.
Annual Budget	In 2014: MP$91.5 billion (US $5.6 billion)	In 2013: R$24 billion (US$10.5 billion)	US$980 million

[a] Currency converter 1BRL=0.264642 dollars http://themoneyconverter.com/BRL/USD.aspx Accessed on 11/4/15

[1] This table was developed by the authors for this article based on the following sources: (13, 14, 15, 24, 25, 27, 39, 40, 41, 42, 43, 49, 50).

Table 3. Mexican CCT Studies Assessing the Health and Nutrition Impacts among Children Under Five[1]

Source	Objectives and Study Design	Outcomes	Results	Conclusions
Gertler (16)	**Objective:** To assess the impact of PROGRESA on child health outcomes. **Study Design:** • Randomized longitudinal study • Household eligibility: first, choosing underserved villages, and second choosing low income households within those villages that meet program's inclusion criteria • 505 rural villages located within 7 Mexican states were randomly assigned to 2 groups: • Treatment group: Eligible families currently receiving program's benefits (320 villages) Control group: Eligible families not receiving benefits (185 villages) Control communities matched to treatment community based on population size, socio economic index, location and infrastructure **Data collection/analyses:** • Baseline, 2, 8, 14, 20, and 24 months, • Program's impact based on time that the household has been receiving program's benefits • Analyses controlled for 11 socioeconomic baseline confounders	**Child morbidity:** • Mother's report of child's illness during the last 4 weeks prior to survey **Stunting:** Low height-for-age Height/length was measured in children aged 12-36 months at the time of the survey (N=1,049 treatment and 503 control children) Anemia: Hg <11g/dl Hemoglobin was measured in children aged 12-48 months at the time of the survey (N=1,404 treatment and 608 control children)	**Morbidity:** CCT associated with: • Newborns being 25.3% less likely to be ill during the previous month p<0.05 • Children between 0-3 years-old being 22.3% less likely to be ill during the previous month p<0.05. • 24 month olds being 39.5% less likely to be ill during the previous month **Anemia and Height:** • Children being 0.96 centimeters taller (p<0.004) • Children being 25.5% less likely to be anemic (p<0.012)	• CCT had a positive impact in the health of children • Dose-response effect. The longer the children had been exposed to the program the higher the health benefit • Difficult to assess independent effects from different program components
Rivera et al. (17)	**Objective:** • Assess the short term impact of PROGRESA on nutritional outcomes **Study Design:** • Randomized 2 year longitudinal study PROGRESA RCT sub-study: families with children <5 years; cohort of infants ≤12 months old randomly selected (461 intervention and 334 control) **SES Score** • Household possessions, household characteristics and materials, and household services related to water access and sanitation	**Growth Outcomes Measures** • Wt. n. (<2 years) and standing ht. (2–4 years) **Anemia Outcome Measure** • Hemoglobin levels measured from blood samples taken from children at ≥12 months. Anemia: Hb <11 g/dl **Supplement Consumption** • Maternal report of weekly frequency of consumption at one year follow-up. Four or more days of weekly consumption was considered high supplement consumption	**Growth** • Infants < 6 months old living in the poorest households had a higher age and length adjusted height (intervention group was 1.1. cm taller) **Anemia** • One year of exposure to program linked with higher Hb levels (11.12g/dl;95% confidence interval (CI) 10.9-11.3 g/dl) vs. those not receiving the intervention (10.75 g/dl;10.5-11.0 g/dl) (p=0.01). **Supplement** • 57% of the children on the intervention group consumed the nutrition supplement ≥4 days	• Program showed improvements in growth among the poorest infants <6 months. • Lower levels of anemia were found among the children receiving the intervention for one years when compared with those children not yet receiving intervention. • Difficult to assess the impact of the supplement on nutritional status since some control families also received the supplement, and the bioavailability of the iron in the supplement was low. • Limitation: High attrition rates among children <12 months

(Continued)

TABLE 3. Continued

Source	Objectives and Study Design	Outcomes	Results	Conclusions
Fernald et al. (18)	**Objective:** Explore the relationship between cumulative cash transfers received and child growth, health, and development outcomes. **Study design:** Quasi experimental • Random subsample from the original 506 communities with children under 5 years old • early CCT exposure: 24-68 months old children (n=1681); 5 years of exposure) • late CCT exposure 24-50 months old children (n=768); 3-5 years of exposure **Exposure variable:** Cumulative Cash Transfers defined as the total amount of cash that the household received over the entire period participating in the program • Cumulative cash transfer data obtained from program's records	**Anthropometry** • Height and Weight • Ht-Age z scores WHO • BMI percentiles calculated. **Health** • Hemoglobin assessed using a capillary sample. • Mothers were asked to report the number of child's sick days during the last month. **Development > 36 mo** • Gross Motor; McCarthy scale of children's abilities. • Cognitive development & language assessed with the "Peabody Vocabulary and Images Test"	Cumulative cash transfers associated with: • Increase in Ht for age Z score (p<0.0001). • Lower prevalence of stunting (p<0.0001). • Lower prevalence of overweight (p=0.0001) • Improvements in gross motor development (p=0.001), long term memory (p=0.002), short term memory (p<0.0001), visual integration (p=0.02), and language development (p<0.0001)	Cumulative cash transfers to the household positively associated with better child health, growth and development.
Barber & Gertler (19)	**Objective:** to assess the impact of *Oportunidades* CCT program on birthweight **Design:** Quasi-experimental • A fertility survey was applied on a random stratified subsample of women of reproductive age (15–49 years old) from *PROGRESA/ Oportunidades* randomized evaluation • Two groups: • Beneficiary (n=666): births that occurred after the household received their first cash transfer • Non-beneficiary: births that occurred prior to receiving the first cash transfer (n=174) • Date of first transfer received by beneficiary households obtained from administrative records • Program exposure intensity based on the number of months between the date of receiving the first cash transfer and the birth date	**Birthweight:** • determined by maternal retrospective report and whenever possible confirmed with medical records. **Health Care:** • Utilization was determined as the total number of prenatal visits determined by medical records.	• Non-beneficiaries had more prior pregnancies (5.1) than beneficiaries (4.7) • Program associated with: • 127.3 g higher birthweight (95% confidence interval (CI): 21.3,233.1; P=0.02) • 4.6 % point decrease in LBW	• *Oportunidades* associated with higher birthweight and lower incidence of low birthweight. • Limitation: retrospective maternal recollection of birthweight.
Leroy et al. (20)	**Objective:** • Evaluate the impact of Mexico's CCT Program on the growth of children <24 mo of age living in urban areas. **Study design:** RCT, longitudinal study. • stratified sample of 149 urban blocks located in 17 Mexican's states were chosen to evaluate the program. • groups: • intervention: children from eligible families receiving program's benefits (n=574). • control: children from eligible families not receiving benefits (n=159) • Enrollment in the program was self-reported and confirmed with administrative records • Households matched using a household propensity score, and baseline maternal height, child sex, gender, weight and height	**Growth** Maternal and child anthropometric data collected at baseline and follow up. Wt and recumbent length for children<24 mo., and standing Ht for children >24 mo. Child linear growth: Comparison of baseline and follow-up Ht/Age Z scores. Child weight gain: Comparison of baseline and follow-up Wt/Ht Z scores data.	• Children in intervention families <6 mo grew 1.5 cm more than children from control families (P<0.05). This association was not found among 6-24 months old children. • Children <6 mo in intervention families gained an additional 0.76kg (p<0.01) or 0.41 weight for height Z-score (p<0.05).	• Program had a positive impact on linear growth and weight gain among infants. • Limitation: High attrition rate.
Huerta (21)	**Objective:** to assess the effect of *PROGRESA* in reducing diarrhea and respiratory infectious diseases among children under 5 year old. • Morbidity data collected from three surveys **Design:** Quasi-experimental • Multivariable models used to compare morbidity change overtime of children between 0–23 months and 24–59 months controlled for confounding factors at the individual, household and community level • Morbidity data from the second and third follow up since; data not collected on baseline • Baseline data and 2nd and 3rd 6 months follow-ups.	• Incidence of diarrheal diseases two weeks prior to the survey • Incidence of respiratory infections two weeks prior to the survey	• The program reduce the prevalence of diarrhea by 5.2 percentage points among children under 5. This effect is higher among children between 0–23 months (7.1 percentage points) than children between 24–59 months (4.3 percentage points) • Program reduced prevalence of acute respiratory infection 3.6 percentage points for children 0–59 months and 4.4 percentage points for children 24–59 months old	• Biggest impact on diarrhea • For both diseases the highest morbidity decreases were seen among children 24–54 months • Author recommends to increase preventive health investments targeting young children • Study limitation: baseline morbidity data not available

(*Continued*)

TABLE 3. Continued

Source	Objectives and Study Design	Outcomes	Results	Conclusions
Barham (22)	**Objective:** Evaluate the impact of *PROGRESA* on infant and neonatal mortality. **Design:** Quasi-experimental • *PROGRESA* randomized evaluation database used. Baseline and follow up (1997–2001) • Exposure: Percentage of rural beneficiary households in a given year and municipality created with *PROGRESA* administrative records and 1990–2001 census data • Mortality data from municipalities datasets from administrative, census and vital statistics data from 1992-2001 • Using municipality and time-fixed models	• Infant Mortality Rates (IMR) defined as deaths after the first month of life but before 1 year of age. • Neonatal Mortality Rates (NMR) defined as deaths that occur within the first month of life.	• *PROGRESA* produced a 17% reduction in IMR and an average treatment effect of 8%. • No overall consistent significant reduction for NMR • Program effective in reducing both IMR and NMR among municipalities with high rates before the program began, and among municipalities with higher levels of illiteracy, and less access to electricity; less effective in areas with poor household sanitation	• *PROGRESA* associated with significant IMR reduction

[1] This table was developed by the authors reviewing the articles described on the table.

Brazil

Key program characteristics. In 2004, The *Bolsa Família* Program (BFP) was created by merging four programs (*Bolsa Escola, Bolsa Alimentação, Cartão Alimentação,* and *Auxílio Gás*). The Ministry of Social Development and Hunger Eradication (*Ministério do Desenvolvimento Social e Combate à Fome*, MDS) oversees the program through the National Secretariat of Citizenship Income (*Secretaria Nacional de Renda de Cidadania*, SENARC), which is responsible for BFP's management, including its beneficiaries registry (*Cadastro Único*), and the Caixa Econômica Federal (CEF), the distributor of cash incentives to beneficiaries through an electronic card (24–26). SENARC works with multiple ministries, including the Ministry of Health and the Ministry of Education, on implementation and monitoring of the health/nutrition and education conditions for program participation (24, 25). BFP is implemented using a national decentralized strategy that includes an indicator to assess the quality of implementation across multiple domains (24–26). BFP oversight also relies on an advisory group that includes municipal-level representatives working in health, education, and food security, and representatives from the government and civil society (24, 25). BFP is a well-established program with clear operational rules and processes. BFP outcomes are measured by an autonomous entity, the Secretariat of Evaluation and Information Management (*Secretaria de Avaliação e Gestão da Informação*, SAGI), which is in charge of implementing a comprehensive evaluation of the program's impact. Fiscal oversight of the BFP is conducted by the General Controllers Office, the Federal Audits Court, and the Office of The Public Prosecutor (Table 2).

BFP provides two types of monthly cash incentives—a basic benefit to families living under extreme poverty, and a variable benefit based on household size and composition for families that are poor but not extremely poor (27) (Table 1). Initiatives such as *Brasil Sem Miséria*, launched in 2010 as a national umbrella initiative to address the needs of the 16.2 families still living in extreme poverty, and *Brasil Carinhoso*, an integrated early childhood development program targeting families with children 0–6 years old, launched in 2014 to increase access to early education and health care, have built upon and strongly complement the BFP (25, 27). BFP currently reaches 13.8 million families representing almost a quarter of the total country's population (25, 27).

Impacts on child health and nutrition outcomes. Nine studies and two literature reviews assessing the impact of BFP on child health and nutrition outcomes were found in this review (Table 4). A study analyzing National Health and Nutrition Survey (*Pesquisa Nacional sobre Saúde e Nutrição*, PNSN) data found that children under 5 years old enrolled in BFP were significantly more likely to have adequate height-for-age and weight-for-age compared with those not enrolled in the program, and that after adjusting for confounders, this effect was greater among children 36–59 months old (28). A quasi-experimental cohort study of children 0–72 months old living in three Northeast municipalities found a significantly higher weight-for-age and height-for-age among children exposed to the *Bolsa Alimentação* program for a whole year compared to those that were never exposed to it (29). A cross-sectional study among children 6–89 months old did not find an association between the BFP and risk of anemia and other malnutrition indexes (30). On the other hand, one cross-sectional study assessing the nutritional status of urban children under 5 years old did not find any impact from BFP on their nutritional status (31). Another cross-sectional study found that children under 3 years old exposed to the BFP had significantly lower weight gain compared with those of the same age excluded from the program due to administrative errors. The authors of that study hypothesized that this result might have stemmed from a misunderstanding among participants that in order to remain eligible their children had to be malnourished (32). A literature review found that BFP beneficiaries had higher food intakes than non-beneficiaries, and three of the cross-sectional studies reviewed found improvements in food security among BFP beneficiaries, while two found better height-for-age and weight-for-age Z-scores and less stunting among BFP beneficiaries, but three other studies reviewed did not find any association between the BFP and child anthropometric outcomes (33). Another literature review examining 12 cross-sectional studies concluded that the BFP was not associated with nutritional status as proxied by anthropometric indicators (34). A prospective study of children under 7 years old found that the BFP had a positive association with vaccinations, attendance at medical checkup and growth monitoring sessions, and psychosocial health (35). Time-series

TABLE 4. Brazilian CCT Intervention Studies Assessing Health and Nutrition Impacts among Children Under Five[1]

Source	Objectives and Study Design	Outcomes	Results	Conclusions
Paes-Sousa et al. (28)	**Objective:** Identify factors associated with BFP[2] participation and anthropometric indicators among children under 5. **Study Design:** Probabilistic population based samples of children <5 years old. • Four Cross • sectional Health and Nutrition surveys. • 22 375 low income children < 5 years old from 419 municipalities with baseline and one year follow up data (9 152 exposed and 13 223 not exposed to BFP). Multivariate regression analyses.	Outcomes measured: Ht/Age Wt/Age Wt/Ht	Children <5 years old participating in BFP were more likely to have adequate: Ht/Age; OR 1.26 (1.16-1.37) p<0.001 [12-35 months old OR1.19 (1.04-1.37); 36-59 months old OR 1.41 (1.20-1.66)] Wt/Age; OR 1.26 (1.10-1.44) p<0.001	BFP improved anthropometric outcomes for children 12-59 months of age
Assis et al. (29)	**Objective:** Evaluate the effectiveness of a Brazilian's CCT on children's anthropometric indicators. **Study design:** Quasi-experimental prospective study Four northern municipalities with high levels of poverty. 2 163 0–72 months old were included in baseline, only 1 847 children completed baseline and 12 months follow up. 1 615 exposed and 232 not exposed to PBA benefits.	• Wt/Age • Ht/Age Z-scores	• Positive increase in weight-for-age Z-score 0.34 (CI95%–0.44-0.63) among children exposed continuously to the program compared with those children never exposed • Positive increase in height-for-age Z-score 0.38 (CI95%–0.05–0.70) among children exposed continuously to the program compared with those never exposed	Children participating continuously in PBA grew better than those who had never been exposed to program
Oliveira et al. (30)	**Objective:** Assess BFP associations with children's nutritional status. **Study design:** Cross-sectional study in Zona da Mata, Minas Gerais State • Groups: • registered in program but not receiving benefits (NBF) (*n*=184 children) • registered and currently receiving BF benefits (BF) (262 children) • Probabilistic sampling. • Socio economic indicators: – Family income including and excluding BFP • Number of household residents • Number of children under 15-years-old • Paternal and maternal education	**Anemia** (Hb levels <11 g/dl): • Hemoglobin levels measured from blood samples taken on children (≥12 months) by digital capital puncture • children 6-59 months **Anthropometry:** Z -scores Ht/length Wt/Age Wt/Ht Ht/Age Child Body Mass Index	• Significant socioeconomic characteristics differences between NFB and BF groups -beneficiaries with worse socio-economic conditions • No significant differences were found among groups for hemoglobin levels or anthropometric Z-scores	No differences in anemia or nutritional status among were found among children enrolled in the program and currently receiving benefits or those enrolled but not receiving them yet
Dias-Médici (31)	**Objective:** to assess the health and nutritional impacts of BFP on children under five living in an urban semi-arid area. **Study design:** Cross-sectional • 411 households with 189 children under five participated in the study. • Surveys collected data on environmental, socio-economic, and household sanitation characteristics, and child health, food intake and anthropometric measurements. • Bivariate analysis comparing BFP beneficiaries versus not beneficiaries. • Logistic regression analysis to assess associations of BFP with food consumption	**Anthopometry:** Z-scores based on WHO references: Weight-for-age Height-for-age Weight-for-height **Food intake** Food frequency questionnaire based on 23 foods eaten within the last week by the study child	• Anthropometric status of children< 5 years old receiving BFP was not different compared with those not receiving it • BFP participants and non participants had a low consumption of fruits and non-starchy vegetables. However, BFP participants were three times more likely to eat junk food (OR 3.06 CI 1.35-6.95)	• BFP did not have an impact on child anthropometry • BFP beneficiaries more likely to eat junk food
Morris (32)	**Objective:** compare the growth of children beneficiaries of *Bolsa Alimentação* (BA) with eligible children not receiving the benefit due to administrative mistakes **Study design:** Cross-sectional retrospective cohort study from four municipalities in the Northeast. • Compared beneficiary children versus those eligible but excluded due to administrative errors • Individual matched according to municipality, gender, age, socioeconomic characteristics • Two complementary data sets were used to assess child growth: a) Anthropometric data collected after 6 month of the program launching of all children under 7 years old b) Weight measurement recorded routinely on each child's Minister of Health growth monitoring card (no height available) among children < 36 months c) Children's growth trajectories were based on 10 weight-for-age records from the monitoring card • A total of 472 beneficiary children and 158 children under 3 yrs. of age unexposed to program included in the analysis	• Z-scores for weight-for-age over a 6 month period	• Among children < 3 yrs. at the time of the interview those receiving BA benefits gained 31g less per month over a period of 6 months when compared with those excluded from the program	• Beneficiaries may have misinterpreted program eligibility criteria (believing that children had to be malnourished to remain in program)

(*Continued*)

TABLE 4. Continued

Source	Objectives and Study Design	Outcomes	Results	Conclusions
Martins et al. (33)	**Objective:** analyze the influence of Brazilian CCT's on diet and nutrition outcomes among beneficiaries. **Study design:** Systematic literature review based on PRISMA protocol Studies' inclusion criteria: • original studies conducted in Brazil and published indexed in the selected databases • Studies published between January, 1990 and July, 2013, in English, Portuguese, or Spanish • Documents from official evaluations excluded	Data extracted from studies: Sample size, study design, time and place conducted, outcome(s), confounding factors and conclusions **Outcomes:** Dietary intake Food security	• 7 of 12 studies found a positive effect of BFP on children's nutrition outcomes • Four studies found positive influence on dietary intake • Three studies suggested a positive influence of BFP on food security	Most studies suggest a positive program effect on child nutritional statues and on dietary intake and food security Limitations: Cross-sectional analyses and small sample sizes
Wolf et. al. (34)	**Objective:** assess the impact of the BFP on the nutritional status among children under five **Study design:** Systematic literature review • Articles included if they had child anthropometry • Exclusion criteria: Articles with < 38 participants	Anthropometry • Wt • Ht	Only 2 studies suggested an association between BFP and improved anthropometric outcomes	BFP did not influence the nutritional status of beneficiaries Limitation: nine of the studies reviewed were cross-sectional or with no comparison group
Rasella et. al. (35)	**Objective:** Assess the effect of BFP on mortality rates of children under 5 years all due to poverty, malnutrition, diarrhea and lower respiratory infections **Study design:** Mixed ecological time trends design • Municipalities were unit of analysis • Created longitudinal dataset from surveys collected between 2004-2009 • Database from the Ministry of Social --Development was used to calculate BFP coverage • Brazilian Institute of Geography and Statistics databases for socioeconomic variables • Conditional negative binomial regression	• Mortality rate among children under 5 • Malnutrition related deaths	• Rate ratios (RR) for the effect of the BFP on overall under-5 mortality rate: 0.94 (95% CI 0.92–0.96) for intermediate coverage, 0.88 (0.85–0.91) for high coverage, and 0.83 (0.79–0.88) for consolidated coverage • Effect of consolidated BFP coverage was highest for under-5 mortality resulting from malnutrition (RR 0.35; 95% CI 0.24–0.50) and diarrhea (0.47; 0.37–0.61)	BFP decreased under 5 child mortality rates associated with malnutrition and diarrhea
Shei et al., (36)	**Study design:** Cross-sectional study • Data collected on 1,266 children: 841 BFP beneficiaries and 425 non beneficiary from a random sample of households living in a slum community in the city of Salvador Inclusion criteria: • Child <7 years old • Monthly income < R$250 • Single families • Data collected for 776 beneficiary children and 343 non-beneficiary children • Surveys administrated to mothers or female head of the household • Logistic and linear regression models used to estimate the impact of BFP • Propensity score adjustment	• BFP participation • Child's Health Care Utilization data obtained from hospital records • Frequency of Diarrhea, Fever and Cough in the last 3months, and 2 weeks • Health status measured based on the Quality Metric Incorporated SF-10	Among children under seven: BFP increased: • odds of any health post visits for growth monitoring (OR=3.1; p=0.001), • vaccinations (OR=2.8;p=0.002), • medical checkups (OR=1.6; p=0.068)	BFP positively associated with children's visits to health posts for preventive services including growth monitoring and immunizations

[1] This table was developed by the authors reviewing the articles described on the table.
[2] BFP: Bolsa Familia Program.

analyses corresponding to the 2004–2009 period (n = 2 853) documented a significant decrease in under-5 mortality rates associated with higher BFP coverage (36).

In sum, evidence for the impact of the BFP on child anthropometry are mixed. Two of the studies with positive anthropometric findings were conducted among the poorest areas in Brazil (28, 29). Moreover, studies suggest that the program does improve food security and food intake among young children as well as children's overall health and survival.

Colombia

Key program characteristics. *Familias en Acción* (FA), modeled after *PROGRESA,* was launched in 2000 as a temporary poverty relief program at a time when the country was immersed in an economic recession and experiencing a worsening of internal armed conflicts (37). An external evaluation that documented a positive impact of FA on children's health and nutrition outcomes led to its stepwise scaling up at the national level (38). FA was initially implemented in 672 Colombian municipalities with 100000 or less inhabitants that had a bank, and program eligibility was determined via the welfare index generated by the Colombian System for the Selection of Beneficiaries of Social Programs (*Sistema de Selección de Beneficiarios de Programas Sociales*, SISBEN), which targeted families living in extreme poverty, who were classified as "SISBEN Level 1" (37, 38). In 2003, the Ministry of Social Protection was created and FA was scaled up to reach the 1.5 million families living in extreme poverty, including 413000 internally displaced families—a goal that was met by 2007 (39). The program became part of the *Red*

Unidos (Unidos Network), a complementary government strategy to reduce poverty (40). In 2011, FA was renamed *Más Familias en Acción* (MFA) and a law was enacted that formally recognized the program as part of the Ministry of Social Protection's Department of Social Prosperity (*Departamento para la Prosperidad Social*, DPS), which was responsible for its coordination (40, 41). MFA targeted families living under extreme poverty, families that had been internally displaced, and indigenous and Afro-Colombian communities, and by the end of 2012 was serving 2.1 million families (39). All indigenous and displaced families receive the maximum benefit regardless of number of children (42). Enrollment into the program is always open for displaced families but for other groups is only during specific enrollment periods (42). MFA also has an "income for prosperity" component known as *Jóvenes en Acción*, a cash incentive program for low-income youth and young adults that wish to continue their post-secondary education (42, 43). In 2013, MFA began working in coordination with the early childhood development government initiative known as *De Cero a Siempre* (44). Colombia's CCT evolved from being an emergency response program to becoming the main national program for poverty reduction and child health.

Impacts on child health and nutrition outcomes. An external quasi-experimental evaluation of FA found that in 2002–2003 the program was associated with an increase in food consumption in both rural and urban areas and that the increase was more pronounced for animal protein food sources such as milk, chicken, and meat (38, 45). The study also found that a higher percentage of beneficiary children < 24 months and between 24 and 48 months old were brought to preventive health care visits compared with children from the same age groups that were not participating in the program (40% versus 17.2% and 66.8% versus 33.6% respectively). Infants exposed to the program ended up being taller than non-beneficiary children, with a 0.44-cm differential reported among 1-year-old boys.

DISCUSSION

The three programs presented in this review began as antipoverty strategies seeking to effectively address the roots of poverty in the context of each country's economic and political crises. In all three countries, the programs began as small-scale projects with a strong and clear vision, mission, and design and were quickly scaled up due in part to strong political commitment, good focalization of the target population, and their ability to show short-term positive antipoverty, education, and health and nutrition outcomes. All of the CCTs reviewed became part of their countries' social protection strategies, allowing them to secure funding and develop clear, strong, and transparent structures rooted in rigorous monitoring and evaluation systems and social participation mechanisms. The combination of these factors may explain their political resilience, including their implementation at scale and sustainability (4, 25, 40, 46) despite numerous changes in government administrations. Furthermore, these CCTs evolved over time, based on evaluation data, which has helped strengthen their countries' social policies. As shown in the current findings, all three programs seek to improve their beneficiaries' ability to break the poverty cycle and thus become less reliant on the program over time.

CCT benefits, structure, and governance

Unlike previous reviews (47, 48), this review analyzed CCT impacts within the context of the programs' operations and structure, including governance. This realist review is likely to have generated results more useful to policy-makers than those from previous studies. Although it has not been without challenges overall, the experience with CCTs has demonstrated that it is possible to provide adequate oversight of cash transfers and participant compliance with health/nutrition- and education-related program conditions. This has been accomplished through complex intersectoral coordination based on clear operational principles and processes overseen by transparent governance structures that include the participation of civil society. Brazil's CCT had the strongest management information system of the three programs. The strength of this system has allowed for strong decentralization of implementation decisions as well as in-depth analyses of process indicators and program impacts from the national to the municipal level, supporting the hypothesis that proper monitoring and evaluation can affect program governance (4, 25, 38). Brazil's CCT also had the strongest program oversight mechanisms at all levels, including exemplary structures for social participation. The Colombian CCT demonstrated the feasibility of implementing the social protection strategy, even in areas with internally displaced populations. The fact that CCTs have spread rapidly across Latin America and continue to show similar education, health, and nutrition benefits in very diverse contexts indicates that the CCT model is extremely relevant and replicable as a social protection system. The pioneering Mexican CCT generated important know-how on intersectoral program coordination at the national level. The robust, quasi-experimental evaluation component of the Mexican program, included since its inception, has allowed for relatively quick documentation of the health and nutrition impacts and thus very likely contributed to its political resilience. In that way, the Mexican CCTs greatly benefitted the design of the CCTs in Brazil, Colombia, and beyond.

CCT impacts on children's health and nutrition

In agreement with a previous review (7) that did not examine Brazil's BFP, and a review that examined all CCTs without grouping them by country (48), this review found strong evidence, based on data from the three largest and most long-standing programs in Latin America, that the CCT model for social protection has benefitted health and nutrition outcomes, especially among the most vulnerable children. However, none of the 17 reviewed research studies were able to disentangle the proportion of health and nutrition benefits that can be attributed to the different benefits and conditions of the CCTs. This might be a useful question to consider in future research to 1) help determine program costs per sector (e.g., health/nutrition versus education and/or social development); 2) avoid redundancies across sectors; and 3) identify any gaps.

Implications

These results strongly support the notion that well-designed CCTs that are

launched with strong and sustained political support and include transparent policies and adequate monetary, health, and education resources are effective at improving the health and nutrition outcomes of young children in Latin America.

Limitations

The main limitation of this review was that it only included three of the 18 CCTs in Latin America. However, a small sample was chosen by design, using very specific inclusion criteria, to ensure that the CCTs that were studied were the most mature and stable in the region and would thus generate data that would be most useful to policy-makers.

Conclusions

Analysis of the CCT framework developed in Latin America and now benefiting the rest of the world clearly illustrates that social protection models that are conceptually sound and address social determinants of health can have a positive impact on education, health, and nutrition outcomes among the poorest families in the region. A key future challenge is how to reform these programs in the region so that, together with more equitable economic policies, they can help families escape not only extreme poverty, but any kind of poverty, in order to lead healthy and productive lives, as called for in the post-2105 Sustainable Development Goals.

Acknowledgments. The authors thank Luis Galicia Cano for his insights and support with the development of this manuscript.

Conflicts of interest. None.

Funding. This review was commissioned by PAHO with funding from the Micronutrient Initiative (Ottawa, Canada).

Disclaimer. Authors hold sole responsibility for the views expressed in the manuscript, which may not necessarily reflect the opinion or policy of the *RPSP/PAJPH* or the Pan American Health Organization (PAHO).

REFERENCES

1. Ferreira HGF, Robalino D. Social Protection in Latin America: Achievements and Limitations. Policy Research Working Paper 5305 WPS5305. The World Bank, Latin America and the Caribbean Region Office of the Chief Economist & Human Development Network Social Protection and Labor Unit, May 2010. Available at: http://www10.iadb.org/intal/intalcdi/PE/2010/05495.pdf Accessed 28 November 2015.
2. Stampini M, Tornarolli L. The growth of conditional cash transfers in Latin America and the Caribbean: did they go too far? Inter-American Development Bank, 2012.IDB Policy Brief; 185. Available at: http://publications.iadb.org/handle/11319/1448?locale-attribute=en Accessed 28 November 2015.
3. Carutti P, Fruttero A, Grosh M, Kostenbaum S, Olivery ML, Rodriguez-Alas C, Strokova V. Social Assistance and Labor Market Programs in Latin America. Social Protection & Labor 88769. Discussion Paper No. 1401. The World Bank, June 2014. Available at: http://wwwwds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2014/06/27/000470435_20140627092449/Rendered/PDF/887690WP0P-1321085243B00PUBLIC001401.pdf Accessed 28 November 2015.
4. Skoufias E, McClafferty B. "Is PROGRESA Working? Summary of the Results of an Evaluation by IFPRI. Report submitted to PROGRESA. Washington: International Food Policy Research Institute. 2001. Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.58.3872&rep=rep1&type=pdf Accessed 28 November 2015.
5. Adato M, Roopnaraine T. Womem's Status, Gender Relations, and Conditional Cash Transfers. In: Adato M. and Hoddinott J., editors. Conditional Cash Transfers in Latin America. International Food Policy Research Institute (IFPRI) and The Johns Hopkins University Press Baltimore, 2010: 284-314. Available at: http://www.ifpri.org/publication/conditional-cash-transfers-latin-america Accessed 28 November 2015.
6. Ruel MT, Alderman H, the Maternal and Child Nutrition Group. Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? The Lancet. 2013;382(9891):536-551.
7. Wong G, Greenhalgh T, Westhorp G, Pawson R. Development of methodological guidance, publication standards and training materials for realist and meta-narrative reviews: the RAMESES (Realist And Meta-narrative Evidence Syntheses – Evolving Standards) project. Southampton (UK): NIHR Journals Library, 2014. Available at: http://www.ncbi.nlm.nih.gov/books/NBK260013/pdf/Bookshelf_NBK260013.pdf Accessed 28 November 2015.
8. Bassett L. Can Conditional Cash Transfer Programs Play a Greater Role in Reducing child Undernutrition? SP Discussion Paper No. 0835. Social Protection & Labor. The World Bank. October 2008. Available at: http://siteresources.worldbank.org/SOCIALPROTECTION/Resources/SP-Discussion-papers/Safety-Nets-DP/0835.pdf Accessed 28 November 2015.
9. Adato M, Hoddinott J. Conditional Cash Transfers in Latin America. International Food Policy Research Institute (IFPRI) and The Johns Hopkins University Press Baltimore, 2010. Available at: http://www.ifpri.org/publication/conditional-cash-transfers-latin-america Accessed 28 November 2015.
10. Gutiérrez JP, Bertozzi S, Gertler P. Evaluación de la identificación de familias beneficiarias en el medio urbano. Evaluación de Resultados de Impacto del Programa de Desarrollo Humano Oportunidades. Instituto Nacional de Salud Pública. Marzo 2003. Available at: http://www.2006-2012.sedesol.gob.mx/work/models/SEDESOL/EvaluacionProgramasSociales/2002/EE_Oportunidades_2002/Evaluacion_Focalizacion_Final_marzo03.pdf Accessed 28 November 2015.
11. Cruz C, De la Torre R, Velázquez C. Evaluación externa de impacto del Programa Oportunidades 2001-2006. Informe compilatorio. Instituto Nacional de Salud Pública, Cuernavaca, México 2006 (HN113.5/E83/2006). Available at: https://www.prospera.gob.mx/EVALUACION/es/wersd53465sdg1/docs/2006/insp_2001_2006_compilatorio.pdf Accessed 28 November 2015.
12. Arroyo Ortiz, JP, Ordaz Díaz J., Li Ng, J.J. and Zaragoza López, ML. A diez años de intervención: Evaluación externa del Programa Oportunidades 2008 en zonas rurales (1997-2007). Available at: http://evaluacion.oportunidades.gob.mx:8010/es/wersd53465sdg1/docs/2008/2008_consumo_inversion.pdf Accessed 28 November 2015.
13. Government of Mexico. CONEVAL. Programa de Desarrollo Humano Oportunidades. Ficha de Monitoreo 2013, Mexico. Available at: http://evaluacion.oportunidades.gob.mx:8010/en/ficha/ficha12_13.php Accessed 28 November 2015.
14. Government of Mexico. SEDESOL. National Coordination of the Human Development Program Opportunities: A New Generation Social Policy. May, 2014. Available at: http://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/genericdocument/wcms_246597.pdf Accessed 28 November 2015.

15. Government of Mexico. SEDESOL/PROSPERA.Diario Oficial de la Federación, DOF: 30/12/2013 ACUERDO por el que se emiten las Reglas de Operación del Programa de Desarrollo Humano Oportunidades, para el ejercicio fiscal 2014. Available at: https://www.prospera.gob.mx/Portal/wb/Web/documentos_de_normatividadp. Accessed 28 November 2015.
16. Gertler P. Do Conditional Cash Transfers Improve Child Health? Evidence from PROGRESA's controlled randomized experiment. Am. Econ Rev. 2004;94;336-41.
17. Rivera JA, Sotres-Alvarez D, Habicht JP, Shamah T, Villalpando S. Impact of the Mexican Program for Education, Health, and Nutrition (Progresa) on rates of Growth and Anemia in Infants and Young Children. JAMA. 2004;291 (21): 2563-70.
18. Fernald LC, Gertler PJ, Neufeld LM. Role of cash in conditional cash transfer programmes for child health, growth, and development: an analysis of Mexico's Oportunidades. Lancet 2008;371(9615): 828-37.
19. Barber SL, Gertler PJ. The impact of Mexico's conditional cash transfer programme, Oportunidades, on birthweight. Trop Med Int Health. 2008;13(11):1405-14.
20. Leroy JL, García-Guerra A, García R, Dominguez C, Rivera J, Neufeld LM. The Oportunidades program increases the linear growth of children enrolled at young ages in urban Mexico. J Nutr. 2008;138(4): 793-8.
21. Huerta MC. Child Health in Rural Mexico: Has Progresa Reduced Children's Morbidity Risks? Social Policy & Administration. 2006;40(6):652-677.
22. Barham T. A Healthier start: The effect of conditional cash transfer on neonatal and infant mortality in rural Mexico. Journal of Development Economics. 2011;94(1):74-85.
23. The World Bank. Implementation Completion and Result Report (IBRD-77080 IBRD 79680) Support to OPORTUNIDADES Project. Report No. ICR2932. June 26,2014. Available at: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/LCR/2013/04/13/090224b081ab0b77/1_0/Rendered/PDF/Mexico000Suppo0Report000Sequence008.pdf Accessed 28 November 2015.
24. Lindert K, Linder A, Hobbs J, De la Brière B. The Nuts and Bolts of Brazil's Bolsa Família Program: Implementing Conditional Cash Transfers in a Decentralized Context. Available at: http://siteresources.worldbank.org/INTLACREGTOPLABSOCPRO/Resources/BRBolsaFamiliaDiscussionPaper.pdf Accessed 28 November 2015.
25. Campello T, Côrtes Neri M. Bolsa Familia Program: a decade of social inclusión in Brazil. Executive Summary. Institute for Applied Economic Research. 2014. Brazil. Available at: http://www.ipea.gov.br/portal/images/stories/PDFs/140321_pbf_sumex_ingles.pdf Accessed 28 November 2015.
26. The World Bank. Implementation Completion and Result Report (IBRD-72340) Bolsa Familia. Report No. ICR00001486. June 28, 2010. Available at: wwwds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/07/21/000333037_20100721025323/Rendered/PDF/ICR14860P087711ffi-cial0Use0Only0191.pdf Accessed 28 November 2015.
27. Ministry of Social Development Official Website. Government of Brazil. Available at: http://www.mds.gov.br Accessed 28 November 2015.
28. Paes-Sousa R, Santos LM, Miazaki ÉS. Effects of a conditional cash transfer programme on child nutrition in Brazil. Bull World Health Organ. 2011;89(7):496-503
29. Assis AM, Costa PR, Santana ML, Pitanqueira JC, Fonseca NS, Pinheiro SM, Santos SM. Effectiveness of the Brazilian Conditional Cash Transfer Program –Bolsa Alimentação- on the variation of linear and ponderal increment in children from northeast of Brazil. Nutr Hosp. 2014;31(2):689-97.
30. Oliveira Fde C, Cotta RM, Sant'Ana LF, Priore SE. Bolsa Família Program and child nutritional status: strategic challenges. Cien Saude Colet. 2011;16 (7): 3307-16
31. Dias-Médici, S.S, Ferraz Silvia F.R., and Nascimiento Saldivia P.H., Anthropometric assessment and food intake of children younger than 5 years of age from a city in the semi-arid area of the Northeastern region of Brazil partially covered by the bolsa família program. Revista de Nutricao-Brazilian Journal of Nutrition. 2010;23 (2):221-229
32. Morris SS, Olinto P, Flores R, Nilson EA, Fiqueiró AC. Conditional cash transfers are associated with small reduction in the rate of weight gain of preschool children in northeast Brazil. J Nutr. 2004 September;134(9):2336-41
33. Martins AP, Canella DS, Baraldi LG, Monteiro CA. Cash transfer in Brazil and nutritional outcomes: a systematic review. Rev Saude Publica. 2013;47(6):1159-71.
34. Wolf MR, Barros Filho Ade A. Nutritional status of beneficiaries of the ¨Bolsa Família¨ Program in Brazil a systematic review. Cien Saude Colet. 2014;19(5):1331-8.
35. Shei A, Costa F, Reis MG, Ko AI. The impact of Brazil's Bolsa Família conditional cash transfer program on children's health care utilization and health outcomes. BMC Int Health Hum Rights. 2014 (April 1);14:10.
36. Rasella D, Aquino R, Santos CA, Paes-Sousa R, Barreto ML. Effect of a conditional cash transfer programme on childhood mortality: a nationwide analysis of Brazilian municipalities. Lancet. 2013;382(9886):57-64.
37. The World Bank. Implementation Completion and Result Report. Familias en Acción (IBRD-73370-IBRD-74330) Report No. ICR0000775. June 29, 2009. Available at: http://wwwwds.worldbank.org/servlet/WDSContentServer/IW3P/IB/2009/08/11/000333038_20090811233307/Rendered/PDF/ICR77500P089441C0disclosed081101091.pdf Accessed 28 November 2015.
38. Attanasio O, Syed M, Vera-Hernández M. (2003), Early Evaluation of a New Nutrition and Education Programme in Colombia. The Institute for Fiscal Studies (IFS) Briefing Note no. 44. Available at: www.ifs.org.uk/publications.php?publication_id=1792 Accessed 28 November 2015.
39. Arias Duarte, JF. Seminario Internacional: Evolución y desafíos de los programas de Transferencia Condicionales. El Caso de Colombia: Programa Familias en Acción. November 2007. Available at: http://www.cepal.org/dds/noticias/paginas/1/30291/Colombia_JFArias_DNP.pdf Accessed 28 November 2015.
40. Comisión Económica para América Latina y el Caribe (CEPAL) and Unión De Naciones Suramericanas. Transferencias de ingresos para la erradicación de pobreza. Dos décadas de experiencias en los países de la Unión de Naciones Suramericanas (UNASUR). Naciones Unidas. 14-20810 Santiago de Chile, Noviembre de 2014. Available at: http://repositorio.cepal.org/bitstream/handle/11362/37390/S1420810_es.pdf?sequence=1 Accessed 28 November 2015.
41. Gobierno de Colombia. Normatividad Ley 1532 de Junio de 2012. Por medio de la cual se adoptan unas medidas de política y se regula el funcionamiento del programa Familias en Acción. Available at: http://wsp.presidencia.gov.co/Normativa/Leyes/Documents/ley153207062012.pdf Accessed 28 November 2015.
42. Departamento Administrativo para la Prosperidad Social. Agosto, 2015. Gobierno de Colombia , August, 2015 available from: https://www.gobiernoenlinea.gov.co/web/guest/home/-/government-agencies/7967/maximized?entidad=Departamento%20Administrativo%20para%20la%20Prosperidad%20Social
43. Gobierno de Colombia. El Abecé de Más Familias en Acción. July 1, 2015. Available at: http://www.urnadecristal.gov.co/gestion-gobierno/abc-mas-familias-en-accion Accessed 28 November 2015.
44. Gobierno de Colombia. De Cero a Siempre. Todos por un nuevo país. Agosto 2015. Available from:http://www.deceroasiempre.gov.co/QuienesSomos/Paginas/Documentos.aspx Accessed 28 November 2015.
45. The Institute for Fiscal Studies. How Effective are Conditional Cash Transfers? Evidence from Colombia. Briefing note No.44. Available from: http://www.ifs.org.uk/bns/bn54.pdf Accessed 28 November 2015.
46. Pérez-Escamilla R. Can experience-based household food security scales help improve food security governance? Glob Food Sec. 2012;1(2):120-125.
47. Lagarde M, Haines A, Palmer N. The impact of conditional cash transfers on health outcomes and use of health ser-

vices in low and middle income countries. Cochrane Database Syst Rev. 2009;(4):CD008137.
48. Owusu-Addo E, Cross R. The Impact of conditional Cash transfers on child health in low-and middle-income countries: a systematic review. International Journal of Public Health. 2014:59(4): 609-618
49. Consejo Nacional de Evaluación de la Política de Desarrollo Social, Coneval. Informe de Pobreza en México. 2013. Mexico, D.F. (cited 2015August, 15) Available at: http://www.coneval.gob.mx/Informes/Pobreza/Informe%20de%20Pobreza%20en%20Mexico%202012/Informe%20de%20pobreza%20en%20M%C3%A9xico%202012_131025.pdf Accessed 28 November 2015.
50. Mexican Government. SEDESOL PROSPERA web site. Información General. Available at: https://www.prospera.gob.mx/Portal/wb/Web/informacion_general Accessed 28 November 2015.

Manuscript received on 20 August 2015. Revised version accepted for publication on 4 December 2015.

RESUMEN

Los programas de transferencias de efectivo condicionadas y la salud y alimentación de los niños latinoamericanos

Objetivo. (1) Describir los beneficios, requisitos, cobertura, financiamiento, objetivos, gobernanza y estructura de programas bien consolidados de transferencias de efectivo condicionadas (TEC) en América Latina y (2) determinar su efecto en la salud y el estado nutricional de los niños menores de 5 años.

Métodos. Se llevó a cabo una revisión realista. Se incluyeron en ella los programas de TEC que satisfacían los siguientes criterios de inclusión: (1) programa de alcance nacional en curso; (2) cobertura de 50% de la población destinataria como mínimo; (3) funcionamiento en gran escala sin interrupción durante 10 años o más; (4) descripción explícita de la estructura, fuentes de financiamiento y gobernanza; (5) requisitos para la participación basados en criterios de salud y nutrición, así como de educación; y (6) disponibilidad de estudios de evaluación de efectos con indicadores de salud, desarrollo o estado nutricional en niños menores de 5 años. Tres programas de TEC (uno en el Brasil, uno en Colombia y otro en México) satisficieron estos criterios.

Resultados. Hay pruebas contundentes de que los tres programas de TEC seleccionados para la revisión tuvieron efectos favorables en la salud y el estado nutricional de los niños en sus respectivos países. En los tres países los programas se ampliaron y los efectos positivos se documentaron con relativa rapidez. Los tres programas gozaron de un sólido apoyo político y tuvieron estructuras de gobernanza explícitas y transparentes con mecanismos de rendición de cuentas y de participación social, lo cual podría explicar sus buenos resultados y sostenibilidad.

Conclusiones. En América Latina, las TEC han tenido un efecto favorable en la salud de los niños y en el estado nutricional de las familias más pobres. Un reto para el futuro estriba en reformar estos programas para ayudar a las familias a salir no solo de la extrema pobreza, sino de la pobreza en general a fin de que puedan llevar vidas saludables y productivas, en conformidad con los Objetivos de Desarrollo Sostenible para después del 2015.

Palabras clave Bienestar social; asistencia social; nutrición del niño; Brasil; Colombia; México; América Latina.