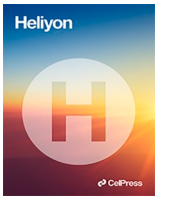
Heliyon 9 (2023) e14758

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon



Research article

Cash transfers and human capital outcomes of children in LMICs: A systematic review using PRISMA

Aurolipsa Das, Narayan Sethi *

Department of Humanities and Social Sciences, National Institute of Technology Rourkela, Odisha, 769008, India

ARTICLE INFO

Keywords:
Cash transfers
Education
Child health
Malnutrition
Systematic review
Low- and middle-income countries

ABSTRACT

With an increasing shift towards cash transfers and the proposition of Universal Basic Income (UBI) as a policy alternative to replace the existing schemes, there has been a rising discussion about the success and failure associated with cash transfers. Therefore, this article carries out a systematic review using PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) to draw inferences and generate evidences with respect to the influence of cash transfers on two aspects of human capital outcomes of children, viz., child health and nutrition, and educational outcomes in low- and middle-income countries (LMICs). Forty four studies were selected on the basis of a four-stage procedure that checked for identification, screening, eligibility and inclusion. The results indicate that majority of cash transfers based on conditionalities, like mandatory attendance in healthcare organisations and educational institutions, proved to be effective in the selected countries. While 7 studies (16%) showed no changes in the outcomes, 5 (11%) depicted negative impact and the rest (73%) presented a positive result. The selected studies suggest that a strong supply-side mechanism in place in LMICs, ensure functional and quality services at health centres and schools in the respective regions and reflect overwhelming outcomes. Furthermore, incentive design, anticipated termination, and supply-side interventions would be instrumental in avoiding a crisis or shock in the economic sense to recipient households.

1. Introduction

The low- and middle-income countries (LMICs) are characterized by acute and persistent impoverishment and uncertainty with regard to livelihood and life. The need for social protection has consequently gained importance in the wake of persistent deprivation of access to basic amenities and vulnerability of the living conditions of a large section of the population in the economies [19]. Social protection programs can be classified with respect to two aspects: (i) form of transfer (cash or in-kind) and (ii) targeting (universal or means-tested) [2]. While cash transfers (CTs) refer to the monetary transfers made by the Governments to the beneficiaries, in-kind transfers are representative of subsidised food, cooked meals, or medicines disbursed to the recipients.

CTs are non-contributory cash grants directed towards the target population to meet subsistence consumption needs. Non-contributory is indicative of the fact that the recipients are not required to pay into a system that eventually gives them the transfers [17 p18]. In-kind transfers, in the recent years, have been associated with leakages, corruption, mismanagement and exclusion errors [48]. As a response to the failure of such transfers, conditional cash transfers (CCTs) have emerged as a policy alternative for poverty alleviation, improving human capital indicators, improving educational and health outcomes among extremely poor

* Corresponding author.
E-mail addresses: aurolipsa12@gmail.com (A. Das), nsethinarayan@gmail.com (N. Sethi).

https://doi.org/10.1016/j.heliyon.2023.e14758
Received 28 October 2022; Received in revised form 10 March 2023; Accepted 16 March 2023
Available online 23 March 2023

households, ensuring food security and, changing the labour market dynamics. CTs can also be conditional (widely referred to as Conditional Cash Transfers or CCTs), where the transfer payments are made based on fulfilment of prerequisites, and unconditional (also referred to as Unconditional Cash Transfers or UCTs), where the transfers are made without any necessary qualification.

CCTs are seen to enhance the performance of children in school and reduce dropout rates, and utilization of health care resources [5,7,9,54]. Conditionalities attached to cash transfers mandate the recipients to '*invest into their own human capacities, by using basic health services or sending their children to school, which helps to break inter-generational poverty cycles*' [17 p3]. Moreover, cash transfers tend to increase the income of the household and hence, has multiplier effects, if a part of the transfer is used for productive purposes [70]. The fungibility aspect of such transfers also makes it alluring for the recipients. However, proponents of in-kind transfers argue that cash transfers would induce inflationary pressures in the economy; the fungibility aspect of it may lead to exchequers towards bad goods; lack of access to banks and private transaction and transition costs would entail a trade-off between time and respective working hours [46]. Moreover, the success of cash transfers is associated with both initial endowments [68] and the contextual conditions of the targeted population, where contextual conditions [55] include socio-economic characteristics, credit constraints and accessibility to the market and financial institutions and markets.

Countries in East Africa have been expeditiously working towards the implementation of cash transfer programs as social protection strategies in Uganda, Kenya, Rwanda, Tanzania, and Malawi. Similarly, Household Uplifting Programme of Nigeria, Social Assistance Grants for Empowerment (SAGE) in Uganda, Livelihood Empowerment against Poverty (LEAP) programme in Ghana, Bantuan Langsung Tunai in Indonesia, Malawi Social Cash Transfer Programme in Malawi and Productive Social Safety Net (PSSN) programme in Tanzania are a few examples of cash transfer programs in select low- and middle-income countries. Similarly, Program Keluarga Harapan (PKH), in Indonesia, is noted to provide educational assistance in the form of conditional cash transfer to poor students. These aforementioned transfer programs majorly target the poorest households, older population, children, and pregnant or lactating mothers, for the improvement of living standards, health, and nutrition, increase school enrolment, and ensure food security.

Contrary to the arguments put forth by the champions of in-kind transfers [1], find that transfers made towards pregnant women, the elderly, the differently abled and, the unemployed in Chile, have contributed towards the decline in the national poverty rates from 40% in 1987 to 13.6% in 2006. Similar findings have been reported for China, Namibia, Brazil, Latin America and Mexico, respectively [31,38,61,67,70,72]. Further, Asignaciones Familiares, a CCT program in Uruguay has positive effects on child education and poverty, while inequality persists [3]. Program effects of Familias en Acción have recorded an increase in school participation, by 5–7% among the 14 - 17-year-old children, while having a negligible impact on the enrolment of younger children [6]. Researchers also find positive outcomes associated with child health and a reduction in infant mortality as a result of the transfers made toward the target beneficiaries, essentially including pregnant and lactating mothers and children aged below 6 [8,9,11].

Cash transfers, according to critics, can foster a culture of dependency in which recipients become dependent on government assistance rather than engaging in constructive activities such as labour or entrepreneurship. This can reduce economic growth and cause long-term poverty [42]. Consequential inflation following increasing cash transfers, is expected to negate the benefits of the transfers and diminish the value of the assistance offered [43]. Futher, cash transfers can lead to the misallocation of resources and corruption, and put undue pressure on the local economy and weaken the empowerment of women [4,37]. Moreover, cash transfers can weaken the incentives to work, resulting in a decline in participation in the labour force and economic growth [29,44].

Earlier literature as cited above poses both positive and negative impacts of cash transfer programs in developing countries. The results remain inconclusive, which pose a dilemma for formulating cash transfer programs in such economies. This paper presents a systematic review concerning the impact of cash transfers on child health and nutrition, and educational outcomes in the LMICs. Ranganathan and Lagarde [56], Floate et al. [24], and Glassman et al. [35] are a few review articles that have focussed on promoting healthy behaviour and health outcomes, child nutrition and dietary diversification, and maternal and new-born health outcomes in LMICs. Although limited review papers on educational outcomes and child health, respectively have been published, an extensive review regarding both the components of human capital, encompassing LMICs has been missing. The present study addresses this gap.

In doing so, this review would draw inferences and generate evidence from studies across developing nations with respect to the impact of conditional cash transfers on human capital outcomes. Furthermore, this study would play a pivotal role in social protection policy designing, since Universal Basic Income[1] is slowly garnering support worldwide [53] as a policy alternative to replacing the existing social welfare schemes. The research question concerned in the context of the present systematic review is how have cash transfers influenced child health and nutritional, and educational outcomes in the LMICs. This study primarily focuses on infants and children eligible to attend schools. This paper is divided into five sections, with the introduction followed by section 2 which briefly states the methodology of the study. Section 3 proceeds with the description of the selected studies; Section 4 discusses the impact of CCTs on human capital outcomes; and section 5 includes a discussion and conclusion alongside policy implications and recommendations.

2. Methodology

2.1. Study design

A systematic review of literature is carried out to document the impact of cash transfers on human capital outcomes concerning

[1] Universal Basic Income (UBI) is defined as an income paid by government at a uniform level and at regular intervals, to each citizen.

education and child health in LMICs. This robust form of review is used to identify, evaluate, and summarize the findings of all relevant individual studies across different sources. As opposed to the traditional review procedures, this study adopts a well-defined and structured approach for the systematic review, called PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) to enhance the accuracy of reporting. A four-stage flow diagram is employed in this study to check for identification, screening, eligibility, and inclusion. Further, this study uses a narrative synthesis as opposed to a meta-analysis, which aims to interpret the gathered evidence, by examining similarities and differences between the study findings and by systematically analysing probable causes for these similarities and discrepancies. PRISMA flow diagram is depicted in Fig. 1, which highlights the course of action followed for the study. This section will further entail the literature search strategy, the criteria used for the inclusion and exclusion of studies, and the selection process.

2.2. Information sources and search strategy

The selection of the relevant studies to be included in the review was entirely dependent on the keyword searches in journal databases like Web of Science, JSTOR, EBSCO, Science Direct, and backward search of research articles. The keywords were selected on the basis of already published articles [13,14,33] pertaining to the objective of the paper. Rather than limiting the keywords to child health and nutrition and education outcomes, keywords representing the components of the same, like malnutrition, infant mortality rate, school enrolment, drop-out rates, etc. were also incorporated. The search strategy for the review has been presented below in Table 1.

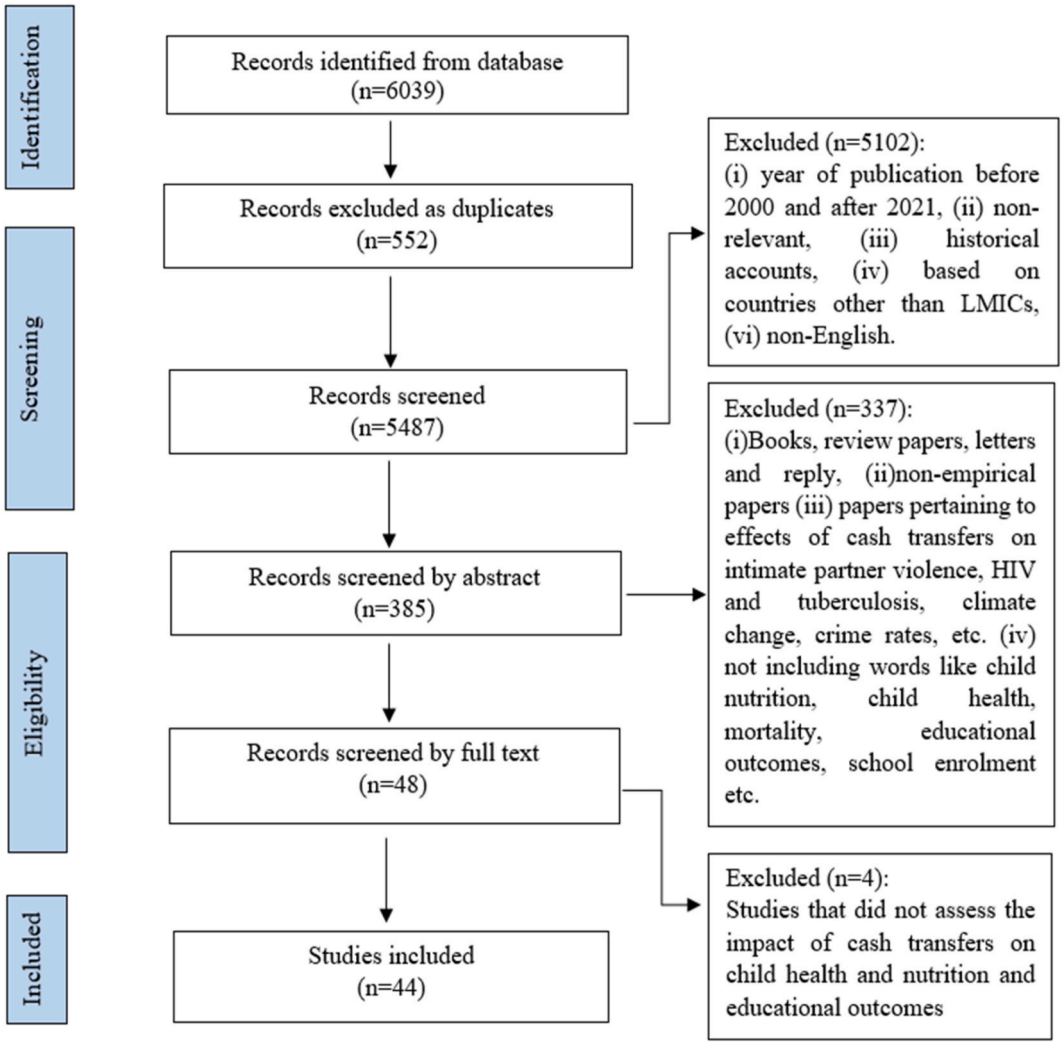


Fig. 1. PRISMA flow diagram for selection of studies.
Source: Authors' compilation.

2.3. Eligibility

Inclusion and exclusion criteria were used to select suitable studies from a set of 6039 articles from different data sources. Different components like the type of literature, language, time period, and country were assigned inclusion and exclusion criteria codes for sorting through the articles (See Table 2). Only journal-based articles published in the English language were taken in to consideration. Mexico's CCT namely, Progressa, later known as Oportunidaes, was one of the first conditional cash transfers to be implemented in the year 1997. Later, in the early 2000s, cash transfers gained popularity and there have been increasing efforts across the globe to design and roll out CCTs in the respective nations. Therefore, the time frame for this study has been limited to 2000–2021. Moreover, developing countries are identified with extreme levels of poverty which deprives people of quintessential capabilities, reflected not only through low income but also through multiple other indicators like malnutrition among children, illiteracy, poor health conditions, and early deaths [63]. Therefore, social protection policies in the form of cash and in-kind transfers play a pivotal role in the LMICs for poverty alleviation, employment generation, and ensuring the provision of basic amenities. Hence, articles adhering to studies conducted in the LMICs were particularly included.

2.4. Selection procedure

The approach used for PRISMA comprises four stages namely, identification, screening, eligibility, and inclusion. The first stage involves identification of keywords to be used for the search of literature. Using keywords mentioned and limiting the time period of the search to 2000–2021, as mentioned in Table 1, 6093 articles were identified. About 552 articles were categorized as duplicate files which were then removed from the entire pool. For screening, inclusion and exclusion criteria were employed where articles pertaining to the following were excluded: (i) year of publication before 2000 and after 2021 (resulting from the backward search of research articles), (ii) non-relevant, (iii) historical accounts, (iv) based on countries other than LMICs, (vi) non-English. Consequently, 5102 papers were excluded and 385 papers were screened for eligibility. These articles were screened by title and abstract and concerned papers were excluded on the basis of the following: i) books, book chapters, review papers, letters and replies, (ii) non-empirical or theoretical papers. (iii) papers pertaining to the effects of cash transfers on intimate partner violence, the incidence of HIV and tuberculosis, climate change, crime rates, food security, poverty, and inequality, etc. (iv) not including words like child nutrition, child health, mortality, educational outcomes, school enrolment, and performance, etc. In the fourth stage, i.e., inclusion, 48 studies underwent full-text screening and 4 were further excluded because they did not adhere to the objective of assessing the impact of cash transfers on child health and nutrition, and educational outcomes. A total of 44 papers were, therefore, selected for the systematic review process. All four stages for this work were done using EPPI-Reviewer Web software.

3. Description of included studies

This section highlights important aspects of the selected studies, including the number of papers published each year, the number of citations of the studies, and a summary of the papers describing the type of data and methodologies followed in the selected studies. Fig. 2 presents the number of papers published each year from 2000 to 2021. The early 2000s (2000–2010) reported only 9 published papers (20.5%) concerning the stated objective. This might be due to the emergence of cash transfer programs during the period, after the implementation of Progressa (Mexico) in 1997. Further, it is observed that 35 papers (79.5%) were published since 2011, the highest being reported in 2017 with 8 papers (18.2%). Fig. 3 brings out the number of citations of the selected papers. It was found that around 9 papers were cited more than 100 times and around 20 papers (46%) were covered under the category of 0–20 citations. Further, Fig. 4 shows the studies pertaining to different countries during the selected time period. About 9 papers (20%) studied the impact of CCTs in Mexico and 6 papers (14%) in Brazil.

Table 3 summarizes the selected studies, on the basis of the programs that have been focussed on, their year of initiation and the methodologies used to measure the outcomes. Of the 44 papers, 9 papers have evaluated the impact of Progressa on indicators of human development i.e., child health and nutrition and educational outcomes. Moreover, 6 papers have assessed the impact of Bolsa Familia, a CCT in Brazil, on the targeted population. Further, 15 articles (34%) have taken primary data into consideration and the rest (66%) use secondary sources like municipality-level dataset of Mexico, school-level and student-level data of Davao Oriental Philippines [10], National Family Health Surveys of 1999, 2006 and 2016 [11], panel data from an international study on childhood poverty, i.e., Young Lives [26], and program administrative data concerning specific programs in countries like El Salvador and

Table 1
Database and keywords.

Databases	Keywords
Web of Science, JSTOR, Science Direct, and EBSCO	("Social welfare programs" OR "Cash transfers" OR "Conditional cash transfers") AND ("Cash transfers and In-kind transfers" OR "Cash and food transfers" OR "Conditional cash transfers" OR "Unconditional cash transfers" OR "child health" OR "infant mortality rate" OR "under-consumption" OR "malnutrition" OR "Balanced diet" OR "Nutritional status" OR "Stunting" OR "Childhood mortality" OR "School enrolment" OR "Drop-out rates" OR "Educational outcomes" OR "Participation" OR "Literacy rates") AND ("Anti-poverty schemes" OR "Beneficiaries" OR "Pilot programs")

Source: Authors' compilation

Table 2
Inclusion and Exclusion criteria.

Elements	Inclusion	Exclusion
Type of Literature	Journal research articles	Review articles, book chapters, conference papers, letters and replies, editorial
Language	English	Other languages except for English
Time period	2000–2021	Before 2000 and after 2021
Country	Low- and Middle-income Countries	High-income countries
Title and Abstract Screening	Impact of cash transfers on health and educational outcomes among the beneficiaries	Papers not focussing on the impact of cash transfers on health and educational outcomes among the beneficiaries
Full-text screening	Objective: Impact of cash transfers on child health and nutrition and educational outcomes	Not satisfying objective

Source: Authors' compilation

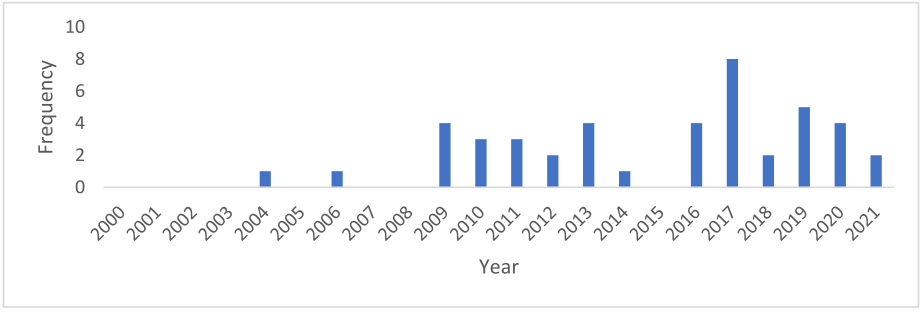


Fig. 2. Year-wise no. of papers published.
Source: Authors' compilation.

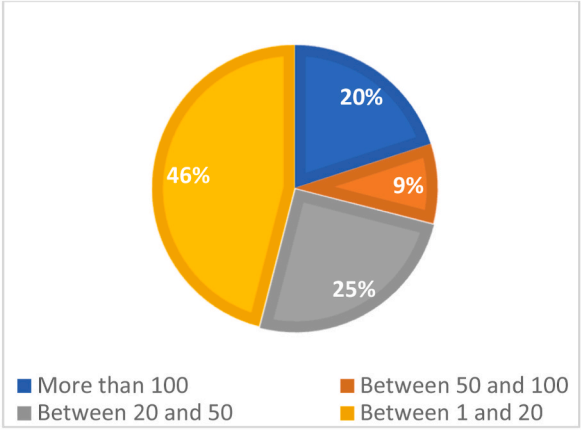


Fig. 3. No. of citations of the selected studies.
Source: Authors' compilation.

Mexico. It is also seen that around 11 articles (25%) use quasi-experimental design with difference-in-difference estimation to study the changes in selected outcomes over time between the population enrolled in the concerned programs (the treatment group) and the population that is not (the comparison group). Other studies [36,40,50] are also observed to make use of the regression discontinuity model, Poisson regression model, mixed-effects logistic regression model, fixed-effect regression models, simulations, and propensity score matching. The findings of the study are elaborately discussed in the next section.

4. Impact of cash transfers on human capital outcomes of children

Cash transfers (CTs) are emerging as a successful poverty alleviation program in the low- and middle-income countries. Most cash transfer schemes are designed in a way to improve the human capital outcomes of children, particularly, health and nutrition, and educational outcomes. Conditional cash transfers (CCTs) are more common in Latin American countries, and unconditional cash

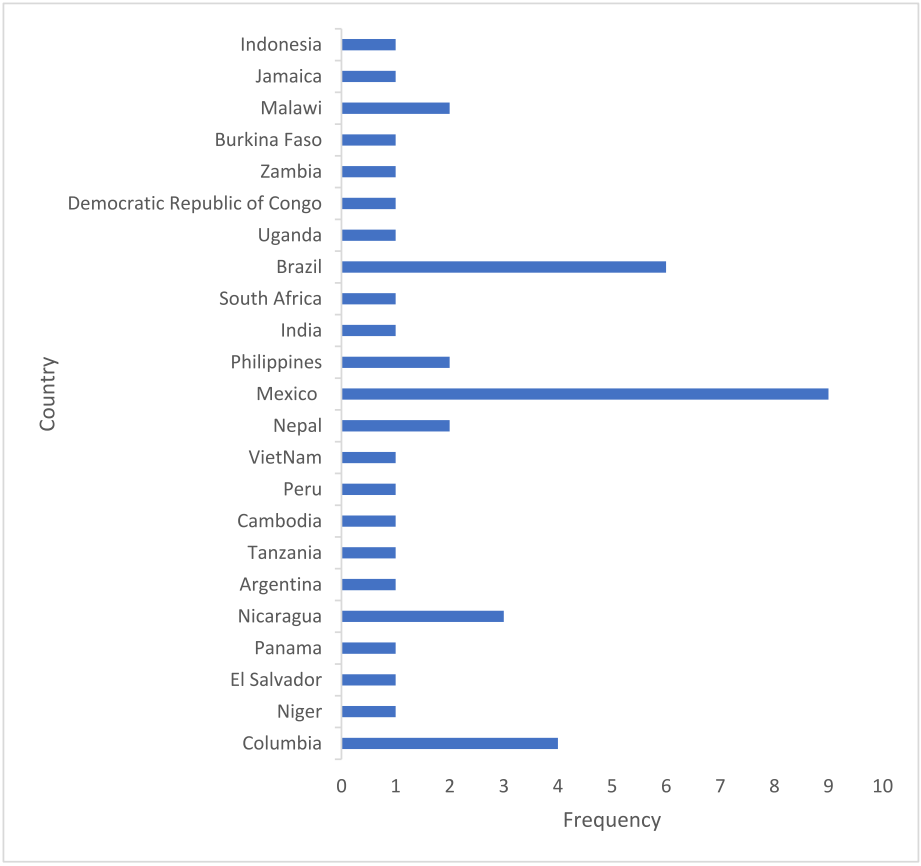


Fig. 4. Country-wise number of papers published.
Source: Authors' compilation.

transfers in sub-Saharan Africa [73]. The limited financial and human capacity form the major base for the unconditional transfer programs in Sub-Saharan Africa. Additionally, monitoring conditional cash transfers and inadequate health services are major concerns with regard to the demands enforced by these program conditions [73].

CTs in Brazil, Colombo, and Mexico were observed to cover 50–55% of the poor efficiently. However, higher coverage was also accompanied by higher leakages, with the number of beneficiaries exceeding the number of poor in countries like Ecuador and Mexico. Household data analysis of beneficiaries shows that they remain mostly poor or vulnerable, characterized by extremely low schooling levels and unstable labour market outcomes [67]. Dreze and Khera [18] also report that the proportion of respondents from eight states in India who preferred cash over food was only 28% percent in 2011 and even lower in 2013. The primary reasons attributable to this were speculation regarding cash transfers being indexed according to the future price level, fear of misuse of cash, inadequate banking facilities, and concerns regarding food inflation on account of the dismantling of Public Distribution System (PDS). Cash transfers have, however, mostly proven to be beneficial in education and access to health services, especially when associated with conditionalities. The latter also requires extensive public provisioning of services (supply side) to complement the demand-side response rightly [55].

The human capital outcome parameters under consideration have been classified into two sections, i.e., (i) child health, and nutrition, (ii) educational outcomes, and (iii) beyond the scope of the study. These have been further sub-categorized into (a) child health, (b) infant mortality, and (c) malnutrition, stunting, and wasting covered in the first category, and, (a) school enrolment and (b) other educational outcomes in the second category. Each of these components would be further elaborated in the following sub-sections. Above Fig. 5 represents the number of studies that have addressed at least one of the parameters taken into account. It is seen that around 73% of studies (32 articles) assessed the impact of CTs on child health and nutrition in the aforementioned LMICs, and around 59% (26 articles) assessed their impact on educational outcomes, in the concerned countries. Moreover, 14% of studies (6 articles) also looked into the influence of CTs in aspects like poverty and inequality, fertility rates, sanitation, and access to other basic amenities, alongside the two main parameters. Table 4 below presents the outcome chart indicating an increase, decline, or no change in the parameters as reported by the selected studies, which will be referred to in detail in the following sub-sections.

4.1. Child health and nutrition

Child health and nutrition in this paper encompasses sub-categories of (i) child health (ii) infant mortality rates, and (iii)

Table 3
Summary of selected studies.

Sl. no.	Country	Program	Year of initiation	Target population	Type of evaluation	References
1.	Columbia	Familias en Accion	2000	Households in poverty and vulnerability situation (SISBEN level I), in condition of displacement or indigenous with children under 18 years old.	Difference-in-difference estimation, Regression	[6, 27, 51, 71]
2.	Niger	Emergency Cash Transfer	2012	Extremely poor families	Multilevel mixed effects regression	[9]
3.	El Salvador	Comunidades Solidarias Rurales	2005	Extremely poor families with children under 21 years old and/or pregnant women living in municipalities with "severe" extreme poverty or in urban slums.	Regression Discontinuity Design	[62]
4.	Panama	Red de Oportunidades	2006	Households in extreme poverty. Specifically, mothers in extreme poverty with children from 0 to 18 years old; from 0 to 4 years old who are being cared for in their respective health centres; from 5 to 18 years old who are studying.	Propensity score matching	[13]
5.	Nicaragua	Red de Protección Social	2000	Families in extreme poverty.	Regression; Difference-in-difference estimation	[14, 33, 34]
6.	Uganda	Vulnerable Family Grant (VFG)	2011	Vulnerable households with restricted access to the labour market and high dependency ratios.	Micro-simulation model	[16]
7.	Argentina	Universal Child Allowance (AUH)	2009	Families with children under the age of 18 or children with disabilities and/or pregnant women who are unemployed or employed in informal economy.	Difference-in-difference estimation	[21]
8.	Tanzania	Tanzania's pilot CCT program	2010	Young children (ages 0–5) and the elderly (ages 60 and over) and children aged 7–15	Regression	[22]
9.	Cambodia	CESSP Scholarship Program (CSP)	2005	6th grade students conditional on enrolling in school in 7th grade, the first year of lower secondary school.	Regression discontinuity design	[23]
10.	Peru	Juntos	2005	Indigenous families inhabitants of the Amazon with households in extreme poverty having pregnant women, widowed parents, elderly and/or children up to age 19.	Difference-in-difference estimation	[26]
11.	VietNam	Cash transfers	–	Children under 15 years of age	Fixed-effect regression models; simulations	[32]
12.	Nepal	Unconditional Child Cash Grant	2009	Children under five years of age	Difference-in-difference estimation, Multi-level Generalized Linear Mixed Models (GLMMs) with normal, binomial, Poisson, or multinomial link	[59, 60]
13.	Mexico	PROGRESA-Oportunidades	1997	Households below the food poverty line	Structural economic model, Simulations, Fixed effects regressions, Program Impact Pathway Analyses,	[5, 7, 8, 15, 20, 28, 30, 41, 69]
14.	Philippines	Pantawid Pamilyang Pilipino Program	2007	Households with children 0–14 years of age and/or a pregnant woman at the time of the assessment	Difference-in-difference estimation; Test of balance	[10, 45]
15.	India	Mamata Conditional Cash Transfer	2011	Pregnant and lactating women aged ≥19 y	Difference-in-difference estimation	[11]
16.	South Africa	Child Support Grant	1998	Poorest 30% of children in South Africa, irrespective of race	Tobit model, Continuous treatment estimator, Inverse probability weighting approach	[12]
17.	Brazil	Bolsa Familia Bolsa Escola	2003 2001	Families with per capita income below the poverty line, according to household surveys. Families in extreme poverty with children aged 6 to 15 years.	Multivariate linear regression, Poisson regression models;	[25, 57, 58, 64, 65, 66]
18.	Democratic Republic of Congo	Cash Transfer Programs	–	Children with severe acute malnutrition (SAM)	Mixed-effects logistic regres-sion model; Linear mixed-effects regression model	[36]

(*continued on next page*)

Table 3 (*continued*)

Sl. no.	Country	Program	Year of initiation	Target population	Type of evaluation	References
19.	Zambia	Child Grant	2010	Families with children under age 5	Multivariate difference-in-differences (DD) estimation	[39]
20.	Burkina Faso	Moderate Acute Malnutrition Out (MAM'Out)	2013	Children <36 months old	Multilevel,mixed-effects Poisson regression model; Kenward-Roger adjustment for continuous outcomes and bootstrap methods.	[40]
21.	Malawi	Social Cash Transfer Program	2006	Ultra-poor, labour constrained	Difference-in-difference estimation, regression	[47, 52]
22.	Jamaica	Programme of Advancement through Health and Education	2001	Poor households with children below 17 years, adults above 60 years, disabled, pregnant and/or lactating women, and/or unemployed adults between 18 and 64 years.	Full regression discontinuity model	[50]
23.	Indonesia	Program Keluarga Harapan (PKH)	2007	Pregnant or lactating mother; at least one child below the age of 6 years or at least one child aged 7–21 years and attending school or at least one child aged 16–21 years who has not yet completed basic education.	Difference-in-difference estimation	[49]

Source: Authors' compilation

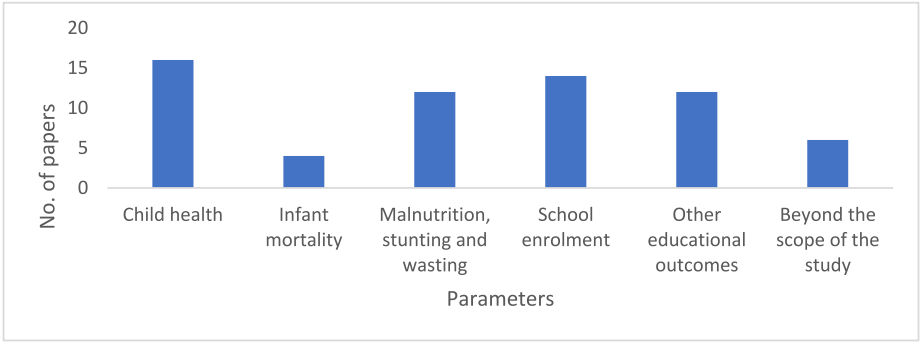


Fig. 5. Number of studies that studied at least one parameter of human capital outcomes of children.
Source: Authors' compilation.

malnutrition, stunting, and wasting. The first sub-category of child health includes measures like height for age z-scores (HAZ), weight for age ratio z-scores (WAZ), morbidity rates, the probability of the child being prone to respiratory diseases or other illnesses, and exposure to dietary diversity. It is observed that a total of 16 studies (36%) use such measures to evaluate the impact of CTs on child health, with 13 of them reporting positive outcomes, 1 study reporting negative outcome, and 3 with neutral findings (See Table 4). Further, 4 studies (9%) report a decline in infant mortality rates and 10 studies (23%) report a decline in malnutrition, stunting, and wasting among the beneficiary households. Moreover, only 2 articles, concerning the impact of Moderate Acute Malnutrition Out (MAM'Out) in Burkina Faso [40] and Bolsa Familia in Brazil [66], show no change in the malnutrition status of the children of concerned programs.

CCTs have been effective in improving child health and nutrition through several potential pathways. An additional income from the transfer facilitates an improvement in dietary diversity. Moreover, conditions of mandatory attendance at family development sessions, timely prenatal and antenatal care, and regular inspection of growth and utilization of health services are observed to accentuate diet diversity and clinical counseling. Both factors together, promote greater investments in children's welfare, and improved health, and sanitation [45]. Garcia-Guerra A et al. [28], Gertler [30], and Renzaho et al. [59] are some of the studies that record a positive relationship between child anthropometric measures and morbidity rates and cash transfers. Similarly, Handa et al. [39] found a strong significant impact of the Zambian Child Grant Program on food security and consumption, children's material well-being, and asset accumulation.

Lopez-Arana et al. [51] demonstrate a reduction in thinness among the children in the treatment group, i.e., included in Familias Accion in Columbia. However, the program did not record any significant difference in the height for age z-scores and Body Mass Index between the children in the treatment group and that in the control group. Similarly, Houngbe et al. [40] observe no significant decline in the incidence of wasting among the children of the beneficiary household. No significant changes were observed in the linear growth of children and stunting as well. Results were mainly attributable to the disbursement of the cash transfers towards household expenses, to tackle the seasonal increase in hunger, instead of being exclusively invested in child development. The study also suggests

that the improvement in dietary diversity would have been too small to reflect any significant changes in children's anthropometric measures.

4.2. Educational outcomes

The impact of CTs on educational outcomes is primarily measured using parameters such as school enrolment rates, dropout rates, performance in the school, test scores, etc. This paper classifies educational outcomes into two subgroups, (i) school enrolment rates and, (ii) other educational outcomes. The second sub-category entails the performance and participation of children in respective schools, dropout rates, and completion rates. Of the 26 studies addressing the impact of CTs on educational outcomes, 14 studies (32%) focus on the changes in school enrolment rates as a consequence of the introduction of CTs in the respective countries, and 12 studies (27%) reflect on other educational outcomes. Again, out of 14 studies included in the first sub-category 12 papers reported positive results, 1 study reported a negative impact and 2 papers reported no changes in the parameter among the target group. Further, 11 out of 12 studies in the second sub-category, recorded positive outcomes, and only 2 studies recorded otherwise.

Levy and Ohls [50] showed a statistically significant increase in school enrolment by 3% above the baseline level, i.e., by 0.5 days per month. However, they found no positive evidence on the performance of the students in tests and upgradation to higher classes or health status in the long run. They highlight two major explanations for such findings, one being the time frame considered for looking into long-term outcomes was too short, and the other being inadequate infrastructure of schools and health centres and lower standards in the quality of services provided in these sectors. Ford et al. [25] find similar outcomes for Brazil's Bolsa Familia, where although the school enrolment is observed to increase, an improvement in performance, progression, and the quality of education was not guaranteed. Children eligible for Mexico's Progressa showed an increase in educational attainment due to improvement in their nutritional status which was in turn ensured by the concerned program [8]. Moreover, full participation in the CCTs like Familias en Accion resulted in a higher number of years of education and increasing rates of school registration. However, the resulting increase did not ensure an equivalent increase in the labour force participation rates or school completion rates [71]. Catubig and Villano [10] show disparities between school-level enrolment data and student-level enrolment data regarding the impact of the 4Ps of Philippines. While the former shows a negative effect of the CCTs, the latter presents positive results. However, the results concerning student-level data were more reliable as they were taken from the household-level database.

5. Discussion and conclusion

Human capital outcomes have been divided into two categories in the paper, the first addressing child health and nutrition and the

Table 4
Outcome assessment of selected Studies.

Sl.no	Authors (Year)	Program	Data Source	Child health	Infant Mortality	Malnutrition and stunting	School enrolment	Educational outcomes	Beyond the scope of study
1	Attanasio (2010)	Familias en Accion	Primary						
2	Attanasio et al. (2012)	Progresa	Primary						
3	Barham (2011)	Progresa	Secondary						
4	Behrman et al. (2009)	Oportunidades	Primary						
5	Bliss et al. (2018)	Emergency Cash Transfer Programs	Primary						
6	Catubig and Villano (2017)	Pantawid Pamilyang Pilipino Program	Secondary						
7	Chakrabarti et al. (2021)	Mamata Conditional Cash Transfer	Secondary						
8	Chico et al. (2020)	Comunidades Solidarias Rurales	Secondary						
9	Coetzee (2013)	Child Support Grant	Secondary						
10	Corrales-Herrero et al. (2021)	Red de Oportunidades	Secondary						
11	da Silva and Paes (2019)	Programa Bolsa Familia	Primary						
12	Dammert (2009)	Red de Proteccion Social	Secondary						
13	de Brauw and Hoddinott (2011)	Progresa	Secondary						
14	Dietrich et al. (2020)	Vulnerable Family Grant (VFG)	Secondary						
15	Dubois et al. (2012)	Oportunidades	Secondary						
16	Edo and Marchionni (2019)	Universal Child Allowance (AUH)	Secondary						
17	Evans et al. (2019)	Tanzania's pilot CCT program	Primary						
18	Filmer and Schady (2011)	CESSP Scholarship Program (CSP)	Primary						

19	Ford et al. (2020)	Bolsa Familia	Primary						
20	Gaentzsch (2020)	Juntos	Secondary						
21	Garcia and Hill (2010)	Familias en Acción	Secondary						
22	Garcia-Guerra et al. (2019)	Prospera-Oportunidades-Progresa Conditional Cash Transfer Program (CCT-POP)	Primary and Secondary						
23	Gertler (2004)	Progresa	Secondary						
24	Giang and Nguyen (2017)	Cash transfers	Secondary						
25	Gitter and Barham (2009)	Red de Proteccio´n Social (RPS)	Secondary						
26	Gitter et al. (2013)	Red de Protección Social	Secondary						
27	Grellety et al. (2017)	Cash Transfer Programs	Primary						
28	Handa et al. (2016)	Child Grant	Primary						
29	Houngbe et al. (2017)	Moderate Acute Malnutrition Out (MAM'Out)	Primary						
30	Huerta (2006)	Progresa	Secondary						
31	Kandpal et al. (2016)	Pantawid Pamilyang Pilipino Program	Primary						
32	Kilburn et al. (2017)	Social Cash Transfer Program	Secondary						
33	Kusuma et al. (2017)	Program Keluarga Harapan (PKH)	Secondary						
34	Levy and Ohls (2009)	Programme of Advancement through Health and Education	Secondary						
35	Lopez-Arana et al. (2016)	Familias en Acción (FA)	Secondary						
36	Luseno et al. (2014)	Social Cash Transfer Pilot Scheme	Secondary						
37	Rasella et al. (2013)	Bolsa Familia	Secondary						
38	Reis (2010)	Bolsa Escola	Secondary						
39	Renzaho et al. (2017)	Unconditional Child Cash Grant	Primary						
40	Renzaho et al. (2019)	Unconditional Child Cash Grant	Primary						
41	Shei (2013)	Bolsa Familia	Secondary						
42	Sperandio et al. (2017)	Bolsa Familia	Secondary						
43	Valadez-Martinez (2016)	PROGRESA-Oportunidades	Secondary						
44	Villa (2018)	Familias en Accion	Secondary						

Source: Authors' compilation

Note:

Increase
Decline
Neutral

second addressing educational outcomes. Child health and nutrition is classified into three sub-categories, i.e., child health, infant mortality rates, and malnutrition, stunting and wasting. Educational outcomes include two sub-groups, namely, school enrolment rates and, other educational outcomes entailing performance and participation of children in respective schools, dropout rates, and completion rates. Our results depict a larger proportion of studies reporting a positive impact of cash transfers on health and nutrition [28,30,60] and educational outcomes [25,50] in the countries under consideration [56]. However, few studies also report a status-quo, or rather negative impacts in the elements taken into account.

There have been few systematic reviews that consider the impact of cash transfers on child health and mortality and educational outcomes, respectively. This review is hence an attempt to throw light on the aforementioned broad area. The paper considers 44 papers, selected on the basis of the four-phased PRISMA method. One of the strengths of this study is the relative abundance of rigorous research on the effects of large-scale cash transfer programmes performed in various nations. This extensive and generally solid body of research demonstrates that CCTs are effective tools for enhancing health and education, in low- and middle-income countries. Excluding papers on maternal health and mortality, neo-natal care and education of pregnant and lactating mothers is, on the other hand, one of the major limitations of this study. Moreover, the impact of CCTs on child labour, crime rates, older adults, HIV-AIDS, tuberculosis, and intimate partner violence could not be taken into account owing to the specificity of human capital outcomes and

the limited scope of the study. However, future studies can focus on the above-mentioned aspects and effects of cash transfers in both high-income countries and low- and middle-income countries as well.

This review presents insightful recommendations regarding the extent of impact cash transfers can have on the human capital outcomes of children. The selected studies suggest a strong supply-side mechanism in place in the LMICs, would ensure functional and quality services at the health centres and schools in the respective region, and would consequently lead to overwhelming outcomes. Moreover, confusion attached to the preference of the beneficiaries, contextual conditions, and the mechanism of cash transfers should be taken into consideration before the implementation of the same. Furthermore, the incentive design and the anticipated termination should also be looked at carefully, to avoid a crisis or shock in the economic sense to the recipient households. Monitoring compliance, and co-responsibility alongside supply-side interventions would also enable successful execution of CTs in the respective countries. The abovementioned recommendations also serve as a pre-requisite for the roll-out of Universal Basic Income (UBI), especially in LMICs.

Production notes

Author contribution statement

Ms. Aurolipsa Das: Conceived, designed and performed the review; analyzed and interpreted the data; Wrote the paper.
Dr. Narayan Sethi: Contributed reagents, materials, analysis tools or data and reviewed the draft; Wrote the paper.

Funding statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Data availability statement

No data was used for the research described in the article.

Declaration of interest's statement

The authors declare no conflict of interest.

Acknowledgement

The authors are thankful to the editor(s) and anonymous reviewers for their constructive comments which have helped in improving the quality of the paper significantly.

References

[1] C.A. Agostini, P.H. Brown, Cash transfers and poverty reduction in Chile, J. Reg. Sci. 51 (3) (2011) 604–625.
[2] H. Alderman, U. Gentilini, R. Yemtsov (Eds.), The 1.5 Billion People Question: Food, Vouchers, or Cash Transfers?, The World Bank, 2017.
[3] V. Amarante, R. Arim, A. Vigorito, Cash transfer programmes, income inequality and regional disparities. The case of the Uruguayan Asignaciones Familiares, Camb. J. Reg. Econ. Soc. 4 (1) (2011) 139–154.
[4] I. Amundsen, Covid-19, Cash Transfers, and Corruption, vol. 901, Policy Guidance for Donors, 2020, p. U4.
[5] O.P. Attanasio, C. Meghir, A. Santiago, Education choices in Mexico: using a structural model and a randomized experiment to evaluate Progresa, Rev. Econ. Stud. 79 (1) (2012) 37–66.
[6] O. Attanasio, E. Fitzsimons, A. Gomez, M.I. Gutierrez, C. Meghir, A. Mesnard, Children's schooling and work in the presence of a conditional cash transfer program in rural Colombia, Econ. Dev. Cult. Change 58 (2) (2010) 181–210.
[7] T. Barham, A healthier start: the effect of conditional cash transfers on neonatal and infant mortality in rural Mexico, J. Dev. Econ. 94 (1) (2011) 74–85.
[8] J.R. Behrman, S.W. Parker, P.E. Todd, Schooling impacts of conditional cash transfers on young children: evidence from Mexico, Econ. Dev. Cult. Change 57 (3) (2009) 439–477.
[9] J. Bliss, K. Golden, L. Bourahla, R. Stoltzfus, D. Pelletier, An emergency cash transfer program promotes weight gain and reduces acute malnutrition risk among children 6-24 months old during a food crisis in Niger, J. Glob. Heal. 8 (1) (2018).
[10] M.C.L. Catubig, R.A. Villano, Conditional cash transfer and school outcomes: an evaluation of the pantawid pamilyang pilipino program in Davao oriental, Philippines, Asian Econ. J. 31 (4) (2017) 403–421.
[11] S. Chakrabarti, A. Pan, P. Singh, Maternal and child health benefits of the Mamata conditional cash transfer program in Odisha, India, J. Nutr. 151 (8) (2021) 2271–2281.
[12] M. Coetzee, Finding the benefits: estimating the impact of the South African child support grant, S. Afr. J. Econ. 81 (3) (2013) 427–450.
[13] H. Corrales-Herrero, M.H. Camaño, B. Miranda-Escolar, O.O. Canabal, Anti-poverty transfers and school attendance: Panama's Red de Oportunidades, Int. J. Soc. Econ. 48 (2) (2021) 204–220.
[14] A.C. Dammert, Heterogeneous impacts of conditional cash transfers: evidence from Nicaragua, Econ. Dev. Cult. Change 58 (1) (2009) 53–83.
[15] A. De Brauw, J. Hoddinott, Must conditional cash transfer programs be conditioned to be effective? The impact of conditioning transfers on school enrollment in Mexico, J. Dev. Econ. 96 (2) (2011) 359–370.
[16] S. Dietrich, D. Malerba, A. Barrientos, F. Gassmann, P. Mohnen, N. Tirivayi, Human capital returns to cash transfers in Uganda: does it matter in the long run? J. Dev. Effect. 12 (1) (2020) 54–73.
[17] O. Doetinchem, K. Xu, G. Carrin, World Health Organization, Conditional Cash Transfers: What's in it for Health? World Health Organization, 2008. No. WHO/HSS/HSF/PB/08.01).
[18] J. Drèze, R. Khera, Recent social security initiatives in India, World Dev. 98 (2017) 555–572.
[19] J. Dreze, J. Hills, A. Sen, in: E. Ahmad (Ed.), Social Security in Developing Countries, Clarendon, Oxford, 1991.

[20] P. Dubois, A. De Janvry, E. Sadoulet, Effects on school enrollment and performance of a conditional cash transfer program in Mexico, J. Labor Econ. 30 (3) (2012) 555–589.
[21] M. Edo, M. Marchionni, The impact of a conditional cash transfer programme on education outcomes beyond school attendance in Argentina, J. Dev. Effect. 11 (3) (2019) 230–252.
[22] D.K. Evans, B. Holtemeyer, K. Kosec, Cash transfers and health: evidence from Tanzania, World Bank Econ. Rev. 33 (2) (2019) 394–412.
[23] D. Filmer, N. Schady, Does more cash in conditional cash transfer programs always lead to larger impacts on school attendance? J. Dev. Econ. 96 (1) (2011) 150–157.
[24] H.J. Floate, G.C. Marks, J. Durham, Cash transfer programmes in lower-income and middle-income countries: understanding pathways to nutritional change—a realist review protocol, BMJ Open 9 (5) (2019), e028314.
[25] K.J. Ford, B.H. Lourenço, F. Cobayashi, M.A. Cardoso, Health outcomes of the Bolsa Família program among Brazilian Amazonian children, Rev. Saude Publica 54 (2020) 2.
[26] A. Gaentzsch, Do Conditional Cash Transfers (CCT) raise Educational Attainment?: A Case Study Of Juntos In Peru, 2017.
[27] S. Garcia, J. Hill, Impact of conditional cash transfers on children's school achievement: evidence from Colombia, J. Dev. Effect. 2 (1) (2010) 117–137.
[28] A. García-Guerra, L.M. Neufeld, A. Bonvecchio Arenas, A.C. Fernández-Gaxiola, F. Mejía-Rodríguez, R. García-Feregrino, J.A. Rivera-Dommarco, Closing the nutrition impact gap using program impact pathway analyses to inform the need for program modifications in Mexico's conditional cash transfer program, J. Nutr. 149 (Supplement_1) (2019) 2281S–2289S.
[29] S. Garganta, L. Gasparini, M. Marchionni, Cash transfers and female labor force participation: the case of AUH in Argentina, IZA J. Labor Pol. 6 (1) (2017) 1–22.
[30] P. Gertler, Do conditional cash transfers improve child health? Evidence from PROGRESA's control randomized experiment, Am. Econ. Rev. 94 (2) (2004) 336–341.
[31] J. Ghosh, Cash transfers as the silver bullet for poverty reduction: a sceptical note, Econ. Polit. Wkly. (2011) 67–71.
[32] L.T. Giang, C.V. Nguyen, How would cash transfers improve child welfare in Viet Nam? Child. Youth Serv. Rev. 82 (2017) 87–98.
[33] S.R. Gitter, B.L. Barham, Conditional cash transfers, shocks, and school enrolment in Nicaragua, J. Dev. Stud. 45 (10) (2009) 1747–1767.
[34] S.R. Gitter, J. Manley, B.L. Barham, Early-childhood nutrition and educational conditional cash transfer programmes, J. Dev. Stud. 49 (10) (2013) 1397–1411.
[35] A. Glassman, D. Duran, L. Fleisher, D. Singer, R. Sturke, G. Angeles, M. Koblinsky, Impact of conditional cash transfers on maternal and newborn health, J. Health Popul. Nutr. 31 (4 Suppl 2) (2013) S48.
[36] E. Grellety, P. Babakazo, A. Bangana, G. Mwamba, I. Lezama, N.M. Zagre, E.A. Ategbo, Effects of unconditional cash transfers on the outcome of treatment for severe acute malnutrition (SAM): a cluster-randomised trial in the Democratic Republic of the Congo, BMC Med. 15 (1) (2017) 1–19.
[37] M. Grimes, L. Wängnerud, Curbing corruption through social welfare reform? The effects of Mexico's conditional cash transfer program on good government, Am. Rev. Publ. Adm. 40 (6) (2010) 671–690.
[38] P. Harvey, R. Slater, J. Farrington, Cash Transfers: Mere" Gadaffi Syndrome", or Serious Potential for Rural Rehabilitation and Development? Overseas Development Institute, 2005.
[39] S. Handa, D. Seidenfeld, B. Davis, The social and productive impacts of Zambia's child grant, Tembo, G., & Zambia Cash Transfer Evaluation Team, J. Pol. Anal. Manag. 35 (2) (2016) 357–387.
[40] F. Houngbe, A. Tonguet-Papucci, C. Altare, M. Ait-Aissa, J.F. Huneau, L. Huybregts, P. Kolsteren, Unconditional cash transfers do not prevent children's undernutrition in the Moderate Acute Malnutrition Out (MAM'Out) cluster-randomized controlled trial in rural Burkina Faso, J. Nutr. 147 (7) (2017) 1410–1417.
[41] M.C. Huerta, Child health in rural Mexico: has PROGRESA reduced children's morbidity risks? Soc. Pol. Adm. 40 (6) (2006) 652–677.
[42] G.K. Ikiara, Political Economy of Cash Transfers in Kenya, Overseas Development Institute, 2009, pp. 1–34.
[43] D. Jones, I. Marinescu, Universal cash transfers and inflation, Natl. Tax J. 75 (3) (2022) 627–653.
[44] N. Kabeer, C. Piza, L. Taylor, What Are the Economic Impacts of Conditional Cash Transfer Programmes ? A Systematic Review of the Evidence, EPPICentre, Social Science Research Unit, Institute of Education, University of London, London, 2012. Technical report.
[45] E. Kandpal, H. Alderman, J. Friedman, D. Filmer, J. Onishi, J. Avalos, A conditional cash transfer program in the Philippines reduces severe stunting, J. Nutr. 146 (9) (2016) 1793–1800.
[46] R. Khera, Cash vs. in-kind transfers: Indian data meets theory, Food Pol. 46 (2014) 116–128.
[47] K. Kilburn, S. Handa, G. Angeles, P. Mvula, M. Tsoka, Short-term impacts of an unconditional cash transfer program on child schooling: experimental evidence from Malawi, Econ. Educ. Rev. 59 (2017) 63–80.
[48] M. Kozicka, R. Weber, M. Kalkuhl, Cash vs. in-kind transfers: the role of self-targeting in reforming the Indian food subsidy program, Food Secur. (2019) 1–13.
[49] D. Kusuma, M. McConnell, P. Berman, J. Cohen, The impact of household and community cash transfers on children's food consumption in Indonesia, Prev. Med. 100 (2017) 152–158.
[50] D. Levy, J. Ohls, Evaluation of Jamaica's PATH conditional cash transfer programme, J. Dev. Effect. 2 (4) (2010) 421–441.
[51] S. Lopez-Arana, M. Avendano, I. Forde, F.J. Van Lenthe, A. Burdorf, Conditional cash transfers and the double burden of malnutrition among children in Colombia: a quasi-experimental study, Br. J. Nutr. 115 (10) (2016) 1780–1789.
[52] W.K. Luseno, K. Singh, S. Handa, C. Suchindran, A multilevel analysis of the effect of Malawi's Social Cash Transfer Pilot Scheme on school-age children's health, Health Pol. Plann. 29 (4) (2014) 421–432.
[53] J. Manza, If universal basic income is the answer, what is the question? Theor. Soc. (2022) 1–15.
[54] R.J. Murnane, J. GanimianA, Improving Educational Outcomes in Developing Countries: Lessons from Rigorous Evaluations."NBER Working Paper, No. 20284, Inter-American Development Bank, Washington DC, 2014.
[55] S. Narayanan, A case for reframing the cash transfer debate in India, Econ. Polit. Wkly. (2011) 41–48.
[56] M. Ranganathan, M. Lagarde, Promoting healthy behaviours and improving health outcomes in low and middle income countries: a review of the impact of conditional cash transfer programmes, Prev. Med. 55 (2012) S95–S105.
[57] D. Rasella, R. Aquino, C.A. Santos, R. Paes-Sousa, M.L. Barreto, Effect of a conditional cash transfer programme on childhood mortality: a nationwide analysis of Brazilian municipalities, Lancet 382 (9886) (2013) 57–64.
[58] M. Reis, Cash transfer programs and child health in Brazil, Econ. Lett. 108 (1) (2010) 22–25.
[59] A. Renzaho, W. Chen, S. Rijal, P. Dahal, I.R. Chikazaza, T. Dhakal, S. Chitekwe, The impact of unconditional child cash grant on child malnutrition and its immediate and underlying causes in five districts of the Karnali Zone, Nepal–A trend analysis, Arch. Publ. Health 77 (1) (2019) 1–18.
[60] A. Renzaho, S. Chitekwe, W. Chen, S. Rijal, T. Dhakal, P. Dahal, The synergetic effect of cash transfers for families, child sensitive social protection programs, and capacity building for effective social protection on children's nutritional status in Nepal, Int. J. Environ. Res. Publ. Health 14 (12) (2017) 1502.
[61] S. Rocha, Poverty and indigence in Brazil: some empirical evidence based on PNAD 2004, N. Econ. 16 (2) (2006) 265–299.
[62] A. Sanchez Chico, K. Macours, J.A. Maluccio, M. Stampini, Impacts on school entry of exposure since birth to a conditional cash transfer programme in El Salvador, J. Dev. Effect. 12 (3) (2020) 187–218.
[63] A. Sen, Development as Freedom (1999). *The Globalization and Development Reader: Perspectives On Development and Global Change*, vol. 525, 2014.
[64] A. Shei, Brazil's conditional cash transfer program associated with declines in infant mortality rates, Health Aff. 32 (7) (2013) 1274–1281.
[65] E.S.D.A.D. Silva, N.A. Paes, Bolsa Família Programme and the reduction of child mortality in the municipalities of the Brazilian semiarid region, Ciência Saúde Coletiva 24 (2019) 623–630.
[66] N. Sperandio, C.T. Rodrigues, S.D.C.C. Franceschini, S.E. Priore, Impact of Bolsa Família program on the nutritional status of children and adolescents from two Brazilian regions, Rev. Nutr. 30 (2017) 477–487.
[67] M. Stampini, L. Tornarolli, *The Growth of Conditional Cash Transfers in Latin America and the Caribbean: Did They Go Too far?*(No. 49, IZA Policy Paper, 2012.
[68] R. Thaler, Toward a positive theory of consumer choice, J. Econ. Behav. Organ. 1 (1) (1980) 39–60.

[69] L.J. Valadez-Martinez, Household income trajectories, PROGRESA-oportunidades, and child well-being at pre-school age in rural Mexico, J. Hum. Develop. Capab. 17 (4) (2016) 516–539.
[70] M. Van den Berg, N.V. Cuong, Impact of public and private cash transfers on poverty and inequality: evidence from Vietnam, Dev. Pol. Rev. 29 (6) (2011) 689–728.
[71] J.M. Villa, The continuous treatment effect of an antipoverty program on children's educational attainment: Colombia's Familias en Accion, Rev. Dev. Econ. 22 (3) (2018) 1239–1262.
[72] A.M. Wu, M. Ramesh, Poverty reduction in urban China: the impact of cash transfers, Soc. Pol. Soc. 13 (2) (2014) 285–299.
[73] B. Schubert, R. Slater, Social cash transfers in low-income African countries: conditional or unconditional? Dev. Pol. Rev. 24 (5) (2006) 571–578.