

USING RCTS TO ESTIMATE LONG-RUN IMPACTS IN DEVELOPMENT ECONOMICS

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INTRODUCTION

Economists specialized in development have created innovative techniques



Randomized Controlled Trials (RCTs)

It has been 20 years since these early interventions were conducted, allowing researchers to begin to assess truly long-run impacts.

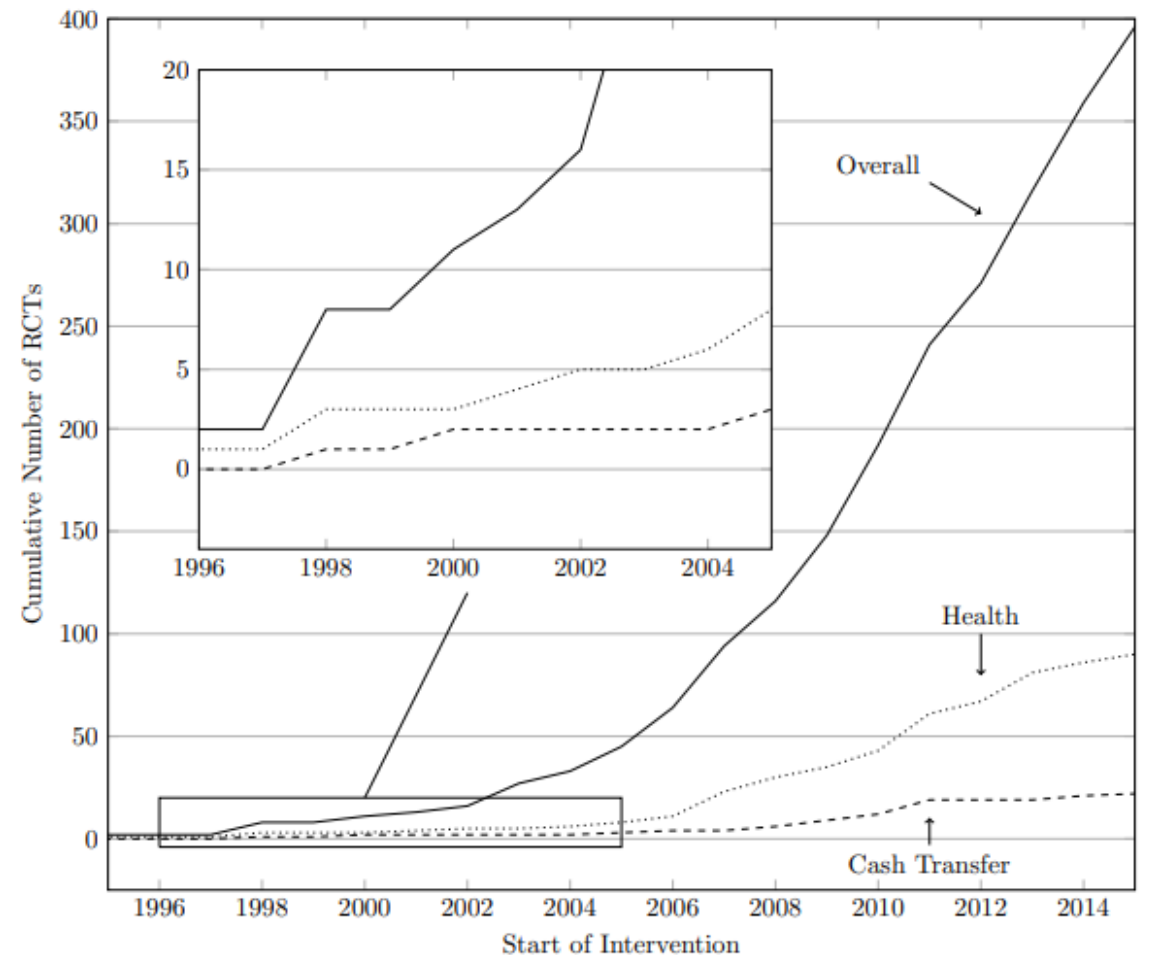


Figure 1: Cumulative Number of Completed RCTs in Low- and Middle-Income Countries from 1995 to 2015 in the AEA RCT Registry (<https://www.socialscisearch.org>)

WHAT HAVE WE LEARNED?

Long-run Impacts of Cash Transfers

Unconditional cash transfers

- Evidence remains scarce
- Baird et al. (2016b): cash transfer program in Malawi. Delay in the timing of marriage, fertility, and HIV infection, effects fade out

Entrepreneurial grants

- Effects similarly mixed
- Assets gradually run down over time, generating little permanent impact.
- Programs that connect asset transfers with extensive training and support: Bandiera and Banerjee

Conditional Cash Transfers

- Experimental evidence on their long-term impacts remains limited
- Buchmann et al. (2018): program aimed at reducing child marriage in Bangladesh.
- Mode of delivery is important for outcomes

Scholarship Programs

- Gains in educational attainment, benefits in the labour market
- Bettinger et al. (2018): the PACES voucher program in Colombia.
- Long follow-up periods may be necessary to confidently

WHAT HAVE WE LEARNED?

Long-run Impacts of Child Health Interventions

Deworming

- Bleakley (2007) studied the successful eradication of hookworm disease from the American South
- Kenya Life Panel Survey (KLPS)

Nutritional Supplementation

- The earliest experimental evidence: INCAP experiment in rural Guatemala.
- evidence that childhood health and nutrition gains can have large returns in terms of adult labour productivity.

Cognitive Stimulation

- Jamaica experiment provides compelling evidence benefits of early childhood psychosocial stimulation in a low-income country.
- Efforts to scale up interventions have been less successful.

Perinatal Interventions

- Little attention from economics researchers to date
- Charpak et al. (2016), study the 20-year impacts of a kangaroo mother care (KMC) intervention in Colombia

OPPORTUNITIES AND LIMITATIONS

- Long-term follow up studies on Cash Transfers and Child Health Interventions RCTs
- Focus on impact in living standards and economic productivity of individuals and households
- Screening: Studies needed to have been implemented before 2010 to allow for long term follow up, as well as a large enough sample size for them to be relevant.
- Results: The table shows effects of cash transfers "re-surface" in the long run even after a fadeout of short run impacts, potential opportunity for long term research

Table 2: Selected Cash Transfer Studies for Potential Long-term Follow-up

Study Acronym	Country	Type	Start of Intervention	Phase-in Design ^a	Already Followed-Up (> 5 years)	Short-Term Impacts			
						Economic	Education	Health	Adult Labor Market
1 PROGRESA (Behrman et al., 2005)	Mexico	CCT	1998	yes	yes	+	+	+	0
2 PRAF II (Galiani & McEwan, 2013)	Honduras	UCT	2000	no	no		+		0
3 RPS (Maluccio & Flores, 2005)	Nicaragua	CCT	2000	yes	yes	+	+	+	-
4 BDH (Paxson & Schady, 2010)	Ecuador	UCT	2003	yes	yes		+	+	
5 PAL (Cunha, 2014)	Mexico	UCT	2003	no	no	+		+	
6 SCAE (Barrera-Osorio et al., 2011)	Colombia	CCT	2005	no	yes	+	+		
7 AAC (Macours et al., 2012)	Nicaragua	CCT	2005	no	no	+	+	+	
8 YOP (Blattman et al., 2013)	Uganda	UCT	2006	no	yes				
9 MDICP (Kohler & Thornton, 2011)	Malawi	CCT	2006	no	no			0	
10 BRAC TUP (Bandiera et al., 2017)	Bangladesh	UCT	2007	yes	yes	+			+
11 NCTPP (Akresh et al., 2016)	Burkina Faso	Both	2008	no	no	+	+	+	
12 TASSYR (Benhassine et al., 2015)	Morocco	Both	2008	yes	no	+	+		
13 ZOMBA (Baird et al., 2011)	Malawi	Both	2008	no	no	+	+		
14 Women Plus (Green et al., 2015)	Uganda	UCT	2009	yes	no	+			+
15 Respect (Damien de Walque, 2014)	Tanzania	CCT	2009	no	no			+	
16 CGP Zambia (Natali et al., 2016)	Zambia	UCT	2010	yes	no	+			+
17 TASAF (Evans et al., 2014)	Tanzania	CCT	2010	yes	no	+	+	+	
18 BONO (Benedetti et al., 2016)	Honduras	CCT	2010	yes	no	+	+	+	+

UCT: Unconditional Cash Transfer; CCT: Conditional Cash Transfer.

+ indicates significant and positive effects, - indicates significant and negative effects, 0 indicates non-significant effects.

^a For cases where it is unclear whether there is a phase-in design, we write "no" here, but more precisely, this means not to our knowledge.

CHILD HEALTH INTERVENTIONS

- Focus on improving the overall health of a child from utero through adolescence. This includes Physical and Psychological health interventions as well as Pre-School development interventions
- Screening: 5 categories, nutrition, perinatal, sanitation, diseases and stimulation
- Results: The table shows two interventions that stand out, Vitamin A supplements and Mixed Supplementation studies. Vitamin A RCTs showed mortality reduction and overall positive impact in the short term. Mixed Supplementation RCTs showed positive impact on cognitive and motor development in children in the short run. Both these studies offer exciting long term research opportunities
- Limitation: Due to ethical reasons, medical staff decided to provide supplementation to children with more severe nutritional problems, removing the randomness from the trials

Table 3: Selected Child Nutrition Studies for Potential Long-term Follow-up

Study	Country	Description	Start of Intervention	Clustered RCT	Sample Size ^a	Age of Children	Short-Term Impacts	
							Health	Cognition
1 Sommer et al. (1986b)	Indonesia	VA	1983	yes	450	12–71 mo	+	
2 Rahmathullah et al. (1990) ^b	India	VA	1985	yes	206	6–60 mo	+	
3 Vijayaraghavan et al. (1990)	India	VA	1987	yes	84	1–5 y	0	
4 Herrera et al. (1992) ^b	Sudan	VA	1988	no	28,753	9–72 mo	+	
5 Stansfield et al. (1993)	Haiti	VA	1988	no	11124	6–83 mo	–	
6 Dibley et al. (1996) ^b	Indonesia	VA	1989	no	1,407	6–47 mo	+/-	
7 Ross et al. (1993) (VAST) ^b	Ghana	VA	1989	yes	185	6–90 mo	+	
8 Barreto et al. (1994)	Brazil	VA	1990	no	1240	6–48 mo	+	
9 West Jr et al. (1991) ^b	Nepal	VA	1991	yes	261	6–72 mo	+	
10 Shankar et al. (1999)	Papua NG	VA	1995	no	480	6–60 mo	+	
11 Jinabhai et al. (2001)	South Africa	VA & Deworming	1995	no	579	8–10 y	+	0
12 Sempértegui et al. (1999) ^b	Ecuador	VA	1996	no	400	6–36 mo	+	
13 Lind et al. (2004)	Indonesia	Iron & Zinc	1997	no	680	6–12 mo	+	+
14 Rahman et al. (2001) ^b	Bangladesh	VA & Zinc	1997	no	800	12–35 mo	+/-	
15 Solon et al. (2003)	Philippines	MMN & Deworming	1998	no	831	6–14 y	+	+
16 Sivakumar et al. (2006)	India	MMN	1999	yes	20	6–16 y	+	+
17 Awasthi et al. (2013b) (DEVTA)	India	VA & Deworming	1999	yes	72	6–72 m	+	
18 Group (2008) (SUMMIT)	Indonesia	MMN	2001	yes	262	in utero	+	
19 Manger et al. (2008)	Thailand	MMN	2002	no	569	5–13 y	+	+
20 Faber et al. (2005)	South Africa	MMN	2002	no	361	6–12 mo	+	+
21 Sazawal et al. (2010)	India	MMN	2002	no	1,257	1–4 y	+	
22 NEMO Study Group (2007) (NEMO)	Indonesia	MMN & Fatty Acid	2003	no	384	6–10 y	+	+
23 Long et al. (2006)	Mexico	VA & Zinc	< 2005 ^c	no	736	6–15 mo	+/-	
24 Aboud et al. (2009)	Bangladesh	Responsive Feeding	2007	yes	37	8–20 mo	0	+
25 Suchdev et al. (2012) ^b	Kenya	MMN	2007	yes	60	6–35 mo	+	
26 Aboud & Akhter (2011)	Bangladesh	MMN & Responsive Feeding	2008	yes	45	8–20 mo	+	+

HOW CAN WE DO BETTER

- How can we effectively assess long run impacts of an intervention that already happened and how can we improve the studying of long run impacts?
 - Advantage: If measurements are taken frequently, Phase-in designs can be used to identify long-term treatment effects.
- Phase-in designs: Treatment groups receive the interventions first, then control groups receive the same interventions. This design guarantees similarity between both groups.
 - Data: The most common data sources for the assessment of long run impacts are follow-up surveys and existing administrative data. Surveys are an excellent way of gathering relevant original data but are very expensive to employ. Administrative data is very cost-effective and extremely useful, however high-quality sources of it are very rare, especially in developing countries, and they may lack specific information needed to conduct the long-term assessments.
 - New data sources: These include sources like machine learning in computer science and earth sciences to measure poverty. However, they are similar to administrative data in the sense that they are very rare and may lack relevant information on some issues.

CONCLUSION