

# Do Conditional Cash Transfers Increase Food Consumption?

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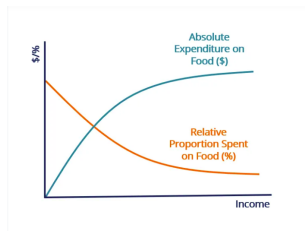
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# Introduction

## Conditional Cash Transfer:

- *Conditional*: Conditionalities, usually related to health and education
- *Cash*: Recipients have more freedom of choices to make expenditure decisions
- *Objectives*: Reduce poverty in the short & long run

## Engel's Law



- This curve is violated in extreme poverty cases

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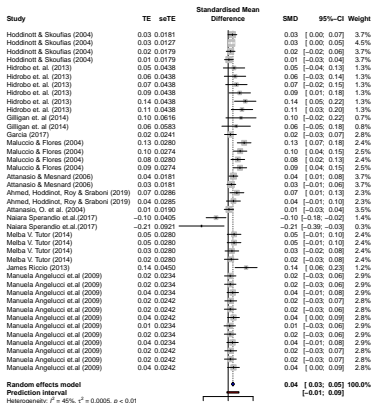
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# Overview of Studies

- In the final list: 11 studies from 9 different CCT programs.

Author	Method	Dependent Variable	Total observations	Country	Start Year
Hoddinott & Skoufias (2004)	FE Regression	log(total calories)	13142	Mexico	1998
Hidrobo et. al. (2013)	ANCOVA	dollars (food consumption)	2087	Ecuador	2011
Gilligan et. al (2014)	FE	log(dollars)	2111	Uganda	2007
Garcia (2017)	FE	Fraction of food consumption	11394	Peru	2005
Maluccio & Flores (2004)	DiD	Annual average on per capita food expenditure	5236	Nicaragua	2000
Attanasio & Mesnard (2006)	DiD	log(food consumption)	12200	Colombia	2002
Ahmed, Hoddinot, Roy & Sraboni (2019)	ANCOVA	Monthly food consumption per capital	4895	Bngladesh	2012
Attanasio, O. et al. (2004)	Propensity Score Matching	monthly food consumption per household in pesos	11462	Colombia	2002
Naiara Sperandio et.al.(2017)	Propensity Score Matching + the nearest-neighbor pairing algorithm	Northeast: caloric consumption	4259	Brazil	2003
Melba V. Tutor (2014)	Propensity Score Matching	food expenditure (Nearest neighbor N=1)	5252	Philippine	2007
James Riccio (2013)	OLS	Food security (1 = low; 4 = high)	1982	USA	2007
Manuela Angelucci et.al (2009)	Propensity Score Matching	Log consumption	7,320	Mexico	1998

# Synthesizing Effect Sizes



## Standardize the Effect Sizes

- Mostly: Partial Correlation

$$p.c. = t / \sqrt{t^2 + df}$$

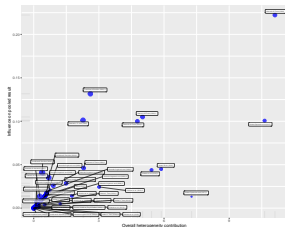
- Few: Mean Difference

$$g = t \times \sqrt{\frac{1}{n_e} + \frac{1}{n_c}}$$

## Random-Effects Model

# Analyzing Effect Sizes

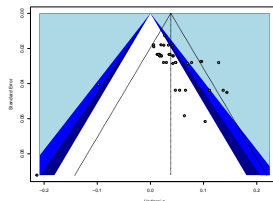
## Detecting Outliers



(Baujat Plot)

- Find a study with negative effect size

## Publication Bias



(Funnel Plot)

- Find a highly asymmetrical form



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# The MRA Model

We model heterogeneity using the following MRA model (Stanley et al., 2013):

$$r_{ij} = \beta_1 + \sum \beta_k Z_{ki} + \beta_0 SE_{ij} + \epsilon_{ij}$$

- where  $r$  is the standardized effect size
- $i = 41$  estimates
- $j = 11$  studies
- $Z$  = vector of explanatory variables
- inverse variance of the effect sizes used as weights
- clustered standard errors at study level

- ▶ *Measures of Total Consumption*
- ▶ *Country*
- ▶ *Wealth of the household*
- ▶ *Duration of the experiment*
- ▶ *Frequency of Transfers*
- ▶ *Geographical Fixed Effects*
- ▶ *Targeting Women*
- ▶ *Household Head Characteristics*
- ▶ *Food Diversity*
- ▶ *Basis of Conditional Cash Transfer(CCT): School.CT and Awareness.CT.*
- ▶ *Rural/Urban Divide and Well-functioning Markets*
- ▶ *Publication*

# Meta Regression Variable Definitions

Statistic	Definition	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Total.Consumption	= 1 if included in the study	41	0.252	0.446	-0.196	-0.040	0.200	1.132
Duration	= duration of study in months	39	29.723	20.947	5.844	12.088	36.163	108.044
Cash	= 1 if included in the study	40	0.339	0.464	-0.184	-0.024	0.852	1.185
Rural_urban	= 1 if included in the study	41	0.200	0.472	-0.199	-0.115	0.168	1.190
Wealth	= 1 if included in the study	41	0.825	0.392	-0.173	0.825	1.077	1.197
Age	= 1 if included in the study	40	0.755	0.468	-0.175	0.637	1.114	1.195
Food.Diversity	= 1 if included in the study	40	0.479	0.518	-0.168	0.012	1.046	1.198
Head.Education	= 1 if included in the study	40	0.862	0.350	-0.183	0.854	1.079	1.161
Head.Gender	= 1 if included in the study	40	0.936	0.293	-0.134	0.884	1.092	1.193
Geographical.FE	= 1 if included in the study	40	0.492	0.480	-0.197	0.070	0.983	1.178
Markets	= 1 if included in the study	41	0.161	0.393	-0.196	-0.071	0.172	1.160
Cash.percent	= cash as a percentage of total consumption	37	0.204	0.251	-0.008	0.096	0.202	1.004
Published	= 1 if included in the study	41	0.862	0.378	-0.164	0.825	1.119	1.191
Frequency	=number of transfers per year	33	10.217	3.294	0.652	10.990	11.892	12.923
School.CT	= 1 if conditioned on school attendance	41	0.802	0.368	-0.112	0.821	1.055	1.172
Awareness.CT	= 1 if conditioned on awareness workshop attendance	41	0.756	0.445	-0.197	0.816	1.042	1.180
Women.Targeted	= 1 if women targeted in the study	41	0.306	0.493	-0.194	-0.022	0.851	1.186
n	=number of observations	41	6,663.763	4,751.545	1,053.123	4,261.446	7,321.479	26,598.860
d	= effect size	41	0.040	0.059	-0.214	0.018	0.066	0.144

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# MRA Results

	Dependent variable		
	<i>d</i>		
	OLS	coefficient	test
	(1)	(2)	(3)
Cash-percent	0.029 (0.176)	0.106 (0.142)	0.394*** (0.0003)
Duration	0.0003 (0.0004)	-0.0004 (0.001)	-0.001*** (0.00005)
Frequency	-0.003 (0.002)	-0.005 (0.007)	-0.004*** (0.00013)
School CT	-0.026 (0.028)	-0.045 (0.049)	0.009*** (0.0001)
Awareness CT	0.049* (0.024)	0.049 (0.031)	0.054*** (0.00022)
Women Targeted	0.005 (0.009)	0.012 (0.043)	-0.005*** (0.0004)
Total Consumption		-0.021 (0.015)	-0.027*** (0.00011)
Rural/urban		-0.005 (0.007)	-0.007*** (0.00022)
Wealth		0.012 (0.024)	0.015*** (0.00022)
Age		-0.002 (0.015)	0.007*** (0.0001)
Food Diversity		-0.003 (0.043)	0.014*** (0.0005)
Head Education		-0.007 (0.002)	-0.011*** (0.0001)
Head Gender		0.004 (0.043)	-0.008*** (0.0001)
Geographical FE		-0.015 (0.013)	-0.032*** (0.00001)
Markets		-0.025 (0.045)	-0.006*** (0.0001)
Published		-0.020 (0.027)	-0.039*** (0.00022)
<i>L</i> -test	1.185* (0.019)	1.027 (1.196)	2.131 (1.571)
Constant	0.007 (0.016)	-0.011 (0.01)	0.039 (0.186)
Observations	41	20	20
R <sup>2</sup>	0.066	0.073	0.028
Adjusted R <sup>2</sup>	0.062	0.059	0.035
Residual Std. Error	1.319 (df = 39)	0.594 (df = 20)	0.610 (df = 20)
F Statistic	3.663* (df = 1, 39)	1.683*** (df = 1, 20)	2.027** (df = 1, 19)

Note:

\**p* < 0.1, \*\**p* < 0.05, \*\*\**p* < 0.01

- ▶ Column 1: Stanley's (2008) FAT-PET test results
- ▶ Column 2: program characteristics such as *Cash-percent*, *Duration*, *Frequency*, *School.CT*, *Awareness.CT* and *Women.Targeted*
- ▶ Column 3: study characteristics such as *Total.Consumption*, *Rural.urban*, *Wealth*, *Age*, *Food.Diversity*, *Head.Education*, *Head.Gender*, *Geographical.FE*, *Markets* and *Published*.
- ▶ Column 4: robust estimates
- ▶ Key Results
  - ▶ Cash Value: +ve effect
  - ▶ Duration and Frequency of cash transfers: poor implementation?
  - ▶ Basis of Conditional Cash Transfer(CCT) : +ve effect
  - ▶ Econometric Specification: statistical significance, explain 82% of the variance
  - ▶ Average Effect of CCTs on Food Consumption: 4%

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- ▶ Conservative effect size - 4% , could be a false positive (Stanley, 2019)
- ▶ Duration, frequency, and monetary scope of program matter
- ▶ Always control for geographical fixed effects
- ▶ Importance of demographic characteristics of the household head
- ▶ Mandatory nutritional awareness workshops as effective tools of behavior change
- ▶ A replicable framework to evaluate future research (Stanley, 2001).
- ▶ Cash transfer sizes not truly comparable
- ▶ Engel curve not analysed - sticky or temporary behaviours?
- ▶ Need to fund and publish replication RCT's
- ▶ Thanks!

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