Development Economics
Cash Transfers and General Equilibrium

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AEA Continuing Education

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Roadmap

1. Cash Transfers
2. Cash Benchmarking
3. General Equilibrium Effects and Fiscal Multipliers
4. Extra: Universal Basic Income

Conditional Cash Transfers

Conditional Cash Transfers popular and well-studied:

- Progresa/Oportunidades in Mexico, 1997
  - Conditioned transfers ($300/yr) + nutrition assistance on school attendance, health visits
  - Means tested at geographic and HH level
  - Randomized initial implementation $\implies$ rigorous eval. of SR effects
    - SR↑ education, less grade repetition, more schooling attainment (esp continuing past primary) (Schultz 2004)
    - Improved health, especially for young children (Barber and Gertler 2008), more food consumption, better dietary diversity (Hoddinott and Skoufias 2004)

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More recent trend toward unconditional cash transfers (UCTs)

- View that CCTs are paternalistic, HHs might have "better" use of cash (Baird et al 2011,2013, Blattman et al 2014)
- CCTs include additional monitoring costs that could be paid out to beneficiaries
- Give Directly (GD) founded by economists, active in research
    - Very low overhead, transfers made through mobile money

Haushofer and Shapiro 2016

- GD give large, unconditional cash transfers avg $709 PPP, almost 2 years worth of expenditures, randomly
  - Randomize treatment across villages
  - Among eligible households, randomize treatment within village
  - Also vary: size of the transfer ($404 PPP vs. $1,525 PPP), male vs. female, lump sum vs. spread over 9 months

Haushofer and Shapiro 2016

- GD give large, unconditional cash transfers avg $709 PPP, almost 2 years worth of expenditures, randomly
  - Randomize treatment across villages
  - Among eligible households, randomize treatment within village
  - Also vary: size of the transfer ($404 PPP vs. $1,525 PPP), male vs. female, lump sum vs. spread over 9 months
- Sample frame
  - Treatment eligibility: thatched roof
  - T vs. C within treated village
  - T vs. C across villages (permits spillover analysis)

	(1) Control mean (std. dev.)	(2) Treatment effect	(3) Female recipient	(4) Monthly transfer	(5) Large transfer	(6) N
Value of nonland assets (US$)	494.80 (415.32)	301.51*** (27.25) [0.00]***	−79.46 (50.38) [0.52]	−91.85** (45.92) [0.28]	279.18*** (49.09) [0.00]***	940
Nondurable expenditure (US$)	157.61 (82.18)	35.66*** (5.85) [0.00]***	−2.00 (10.28) [0.92]	−4.20 (10.71) [0.99]	21.25** (10.49) [0.22]	940
Total revenue, monthly (US$)	48.98 (90.52)	16.15*** (5.88) [0.02]**	5.41 (10.61) [0.92]	16.33 (11.07) [0.59]	−2.44 (8.87) [0.84]	940
Food security index	0.00 (1.00)	0.26*** (0.06) [0.00]***	0.06 (0.09) [0.92]	0.26** (0.11) [0.13]	0.18* (0.10) [0.25]	940
Health index	0.00 (1.00)	−0.03 (0.06) [0.82]	0.10 (0.09) [0.72]	0.01 (0.10) [0.99]	−0.09 (0.09) [0.72]	940
Education index	0.00 (1.00)	0.08 (0.06) [0.43]	0.06 (0.09) [0.92]	−0.05 (0.10) [0.99]	0.05 (0.09) [0.84]	823
Psychological well-being index	0.00 (1.00)	0.26*** (0.05) [0.00]***	0.14* (0.08) [0.43]	0.01 (0.08) [0.99]	0.26*** (0.08) [0.00]***	1,474
Female empowerment index	0.00 (1.00)	−0.01 (0.07) [0.88]	0.17* (0.10) [0.51]	0.05 (0.12) [0.99]	0.22** (0.11) [0.22]	698
Joint test (p-value)		.00***	.11	.04**	.00***	

- Lump sum: ↑ assets, monthly: ↑ food security
- Consistent with savings and borrowing constraints

	(1) Control mean (std. dev.)	(2) Treatment effect	(3) Female recipient	(4) Monthly transfer	(5) Large transfer	(6) N
Food total (US$)	104.46	19.46***	−1.81	1.79	8.28	940
	(58.50)	(4.19)	(7.37)	(7.42)	(7.59)	
Cereals (US$)	22.55	2.23**	0.37	−1.06	2.68	940
	(17.18)	(1.13)	(1.87)	(1.86)	(2.07)	
Meat & fish (US$)	12.97	5.05***	0.87	−2.93	2.52	940
	(13.75)	(1.01)	(1.82)	(1.92)	(1.63)	
Alcohol (US$)	6.38	−0.93	1.56	1.03	−1.42	940
	(16.56)	(0.99)	(1.62)	(1.64)	(1.33)	
Tobacco (US$)	1.52	−0.15	0.12	0.42	−0.29	940
	(4.13)	(0.22)	(0.34)	(0.33)	(0.30)	
Social expenditure (US$)	4.36	2.43***	−2.06**	−0.52	0.62	940
	(5.38)	(0.48)	(0.97)	(0.99)	(0.90)	
Medical expenditure past month (US$)	6.78	2.58***	2.06	−1.34	−0.29	940
	(13.53)	(0.99)	(1.86)	(1.86)	(1.74)	
Education expenditure (US$)	4.71	1.08**	0.48	−0.02	1.15	940
	(8.68)	(0.51)	(0.88)	(0.87)	(0.91)	
Non-durable expenditure (US$)	157.61	35.66***	−2.00	−4.20	21.25**	940
	(82.18)	(5.85)	(10.28)	(10.71)	(10.49)	
Joint test (p-value)		.00***	.47	.13	.01***	

- Increases in health, education expenditure, no impact on outcomes
- No increase in alcohol/tobacco

Cash Transfers: Taking Stock

In one regard, results unsurprising – HHs spend the transfer

- CCT likely better at changing behavior associated with conditionality (Baird et al 2011)
- But, fears of "mis-spending" unwarranted

Two different follow-on threads:

1. Cash as a benchmark
   - Should judge performance of other programs against cash
2. Given UCTs largely spent / invested, what are the impacts "at scale" from such interventions
   - Impacts on prices?
   - Fiscal multipliers?

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Cash Benchmarking: Job Training

McIntosh and Zeitlin (2022) study the impacts of a USAID job training program in Rwanda vs. Cash. RCT comparing:
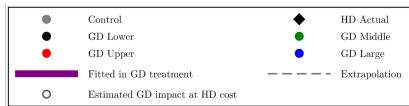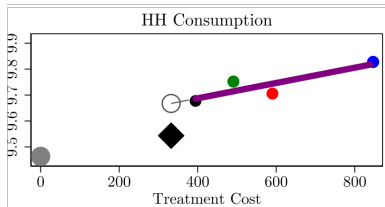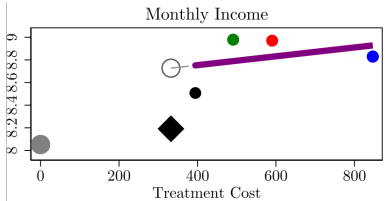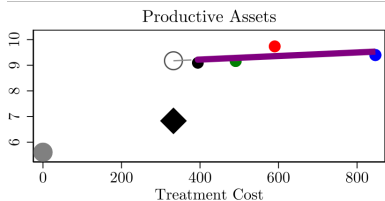
- Huguka Dukore (HD): program for underemployed youth. training, soft skills, networking
- Transfers from Give Directly

Ideally, compare program to cash transfers with same *ex post* costs. Need to pick cash transfer amts

- Ex ante costing exercise
- Authors chose three "bracketing" values in range of predicted costs ("GD Lower", "GD Middle", "GD Upper")

Can also consider changes to baseline program

- "Combined" HD + Cash (could be complements)
- Larger cash transfer ("GD Large")

Productive Assets / Monthly Income / HH Consumption

Legend:
- Control
- GD Lower
- GD Upper
- Fitted in GD treatment
- Estimated GD impact at HD cost
- HD Actual
- GD Middle
- GD Large
- Extrapolation

- Program cheaper than anticipated, so predict impact at actual ex post program cost (need multiple UCT levels)
- Equivalent cash transfer would have led to higher assets, income, consumption vs. HD
- HD only outperforms cash on business knowledge (unreported)
- GD Large not cost effective, better to add training to cash

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Cash Transfers and Fiscal Multipliers

Egger et al (2021) explore the GE impacts of UCTs from Give Directly

- $1000 one-time transfers distributed to over 10,500 households
- 653 vilages, population of 300,000
- Implied fiscal shock: 15% of GDP in treatment villages

Question: If GD scales up, what are the impacts on the economy?

- Will prices rise to offset gains?
- Will non-beneficiaries benefit through transfers and improved prosperity / labor demand?
- Will business competition dampen positive impacts?

$\implies$ What is the fiscal multiplier from a large cash infusion at scale?

Experimental Design

Full study sample
653 villages
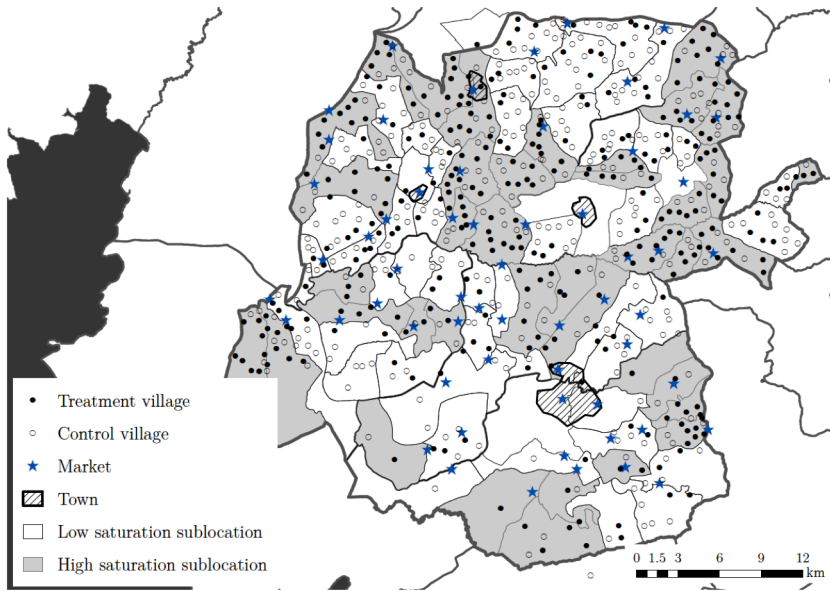68 saturation groups

Low saturation
329 villages
35 saturation groups

High saturation
324 villages
33 saturation groups

2/3 of villages

1/3 of villages

1/3 of villages

2/3 of villages

Control
214 villages

Treatment
115 villages

Control
111 villages

Treatment
213 villages

No households
receive UCT

Eligible
households
receive UCT

No households
receive UCT

Eligible
households
receive UCT

•	Treatment village
○	Control village
★	Market
▨	Town
☐	Low saturation sublocation
▦	High saturation sublocation

0 1.5 3   6   9   12
km

Empirical Strategy

Benchmark regression

$$y_{ivs} = \alpha_1 Treat_v + \alpha_2 HighSat_s + \delta_1 y_{ivs,t=0} + \delta_2 M_{ivs} + \varepsilon_{ivs},$$

Not appropriate if spillovers across sublocation boundaries (likely).
Instead use:

$$y_{iv} = \alpha + \beta Amt_v + \sum_{r=2}^{R} \beta_r Amt_{v,r}^{-v} + \delta_1 y_{iv,t=0} + \delta_2 M_{iv} + \varepsilon_{iv}.$$

- Amt_v: cash per capita transferred to own village v over study
- $Amt_{v,r}^{-v}$: cash per capita transferred to other villages, radius r
- Instrument all Amt terms with treatment status and eligibility share

GE of Cash Transfers: Results

Authors interested in:

- Impacts on HHs
  - Directly eligible
  - Ineligible residents of exposed villages
- Impacts on businesses
- Impacts on prices at village or market level
  - Wages, land prices, interest rates
  - Prices of goods in the market

Main Results:

- Substantial impacts on consumption and assets for both beneficiaries and non-beneficiaries
  - Large spill-over surprising
- Increase in wages and labor earnings
- Businesses increase revenues, wage bill increases, limited investment $\implies$ modest gains to profits (unreported)
- Significant but very small increases in prices

	(1)	(2)	(3)	(4)
	Recipient Households		**Non-recipient Households**	
	1(Treat village) Reduced form	Total Effect IV	Total Effect IV	Control, low saturation mean (SD)
Panel A: Expenditure				
Household expenditure, annualized	292.98*** (60.09)	338.16*** (109.36)	333.73*** (123.24)	2,536.86 (1,934.09)
Non-durable expenditure, annualized	186.96*** (58.55)	226.74** (99.62)	316.62*** (119.79)	2,471.49 (1,877.82)
Food expenditure, annualized	71.61* (36.93)	133.55** (63.98)	132.84** (58.58)	1,578.43 (1,072.31)
Temptation goods expenditure, annualized	6.51 (5.79)	5.88 (8.82)	−0.71 (6.50)	37.10 (123.59)
Durable expenditure, annualized	95.18*** (12.64)	109.07*** (20.23)	8.41 (12.50)	59.44 (230.90)
Panel B: Assets				
Assets (non-land, non-house), net borrowing	178.09*** (24.61)	182.01*** (44.25)	132.63* (78.32)	1,132.15 (1,420.22)
Housing value	372.78*** (25.25)	480.68*** (38.88)	72.58 (215.70)	2,033.72 (5,030.37)
Land value	50.86 (186.08)	153.09 (262.48)	572.07 (458.28)	5,030.72 (6,607.61)
Panel C: Household balance sheet				
Household income, annualized	77.62* (43.66)	134.02 (93.83)	229.46*** (88.59)	1,023.45 (1,634.70)
Net value of household transfers received, annualized	−1.68 (6.81)	−7.44 (13.06)	8.75 (19.10)	130.18 (263.75)
Tax paid, annualized	1.95 (1.28)	−0.09 (2.02)	1.66 (2.02)	16.93 (36.51)

	(1)	(2)	(3)	(4)
	Recipient Households		**Non-recipient Households**	
	1(Treat village) Reduced form	Total Effect IV	Total Effect IV	Control, low saturati mean (SD)
Panel A: Labor				
Hourly wage earned by employees	0.11***	0.04	0.19*	0.70
	(0.03)	(0.04)	(0.10)	(0.89)
Household total hours worked, last 7 days	2.44	1.41	−4.70	63.20
	(1.71)	(3.69)	(3.17)	(54.14)
Panel B: Land				
Land price per acre	166.84	365.44	556.83	3,952.86
	(201.20)	(290.86)	(412.34)	(3,148.52)
Acres of land owned	−0.19	−0.10	0.08	1.42
	(0.14)	(0.09)	(0.10)	(2.37)
Panel C: Capital				
Loan-weighted interest rate, monthly	−0.01	0.01	−0.01	0.06
	(0.01)	(0.01)	(0.01)	(0.07)
Total loan amount	5.55	3.13	6.36	80.61
	(4.95)	(8.34)	(13.21)	(204.36)

- Increase in wage, possible (but noisy) increase in land prices

		(1)	(2)	(3)	(4)
		Overall Effects		**ATE by market access**	
		ATE	Average maximum effect (AME)	below median	above median
All goods		0.0010*	0.0042	0.0017*	0.0007
		(0.0006)	(0.0031)	(0.0009)	(0.0007)
By tradability	More tradable	0.0014	0.0062	0.0023	0.0021
		(0.0015)	(0.0082)	(0.0023)	(0.0018)
	Less tradable	0.0009	0.0034	0.0015	0.0001
		(0.0006)	(0.0032)	(0.0011)	(0.0008)
By sector	Food items	0.0009	0.0036	0.0016	0.0002
		(0.0006)	(0.0033)	(0.0012)	(0.0008)
	Non-durables	0.0014	0.0061	0.0026	0.0019
		(0.0017)	(0.0089)	(0.0026)	(0.0019)
	Durables	0.0019*	0.0070	−0.0009	0.0034**
		(0.0011)	(0.0061)	(0.0011)	(0.0016)
	Livestock	−0.0008	−0.0027	−0.0008*	−0.0017
		(0.0010)	(0.0052)	(0.0004)	(0.0020)
	Temptation goods	−0.0011	−0.0112	−0.0008	−0.0003
		(0.0026)	(0.0143)	(0.0036)	(0.0035)

Framework and Fiscal Multipliers

Two additional exercises in paper:

1. Model for understanding welfare
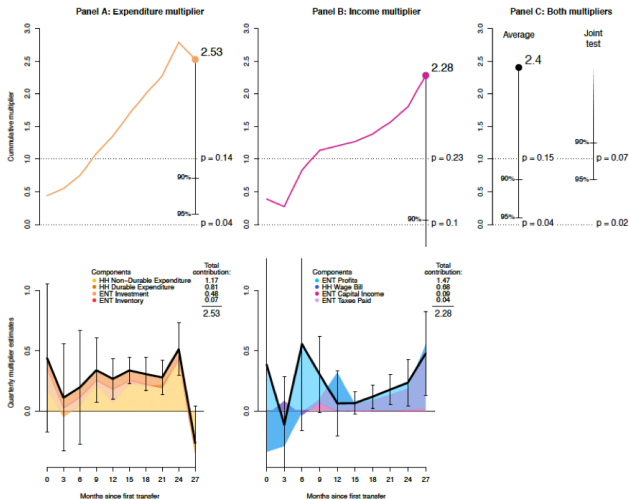   - PE: $1 transfer increases welfare by $1.
   - GE: further changes through budget sets (prices, wages, firm profits), externalities from peer behaviors (e.g., public good provision).
   - Finding: GE impacts driven by budget set expansion through improvements in productivity. Consistent with slackness in factors a priori.

2. Calculate fiscal multiplier - total change in real GDP per real amount T transferred

   $$\mathbb{M} = \frac{1}{T}\left(\int_{t=0}^{t=\bar{t}} \Delta GDP_t\right)$$

   - Two complementary approaches
   - Expenditure-based: $GDP_t = C_t + I_t + G_t + NX_t$
   - Income-based: $GDP_t = W_t + R_t + \Pi_t + Tax_t - NFI_t$

Figure 1: Transfer multiplier over time

- Much larger than values in developed countries: 1.5-2.0 (Chodorow-Reich 2019)
- Low savings rates, local consumption, ex ante factor slackness
- Comparable to back of envelope multiplier of 2.9 from credit in India (Breza and Kinnan 2021)

GE Impacts as a Research Agenda

- Rise of RCT methodology has produced large body of partial equilibrium evidence

- But, if successful policies adopted, need to understand impacts *at scale*

- Very difficult to use RCTs to speak to GE impacts
  - GD paper special exception
  - Also see Muralidharan et al (2022) - GE effects of improvements to workfare

- Central role for natural experiments to play – accessible to PhD students

- Lots of room to use more structure to unpack estimates.
  - Clever sources of exogenous variation to unpack mechanisms within model

- Parallel macro-development literature more theoretical. Opportunity to link these threads together.

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Universal Basic Income in Kenya
Banerjee, Faye, Kreuger, Niehaus, Suri 2023

RCT testing Universal Basic income (UBI) with Give Directly:

- Control group
  - No transfer
- "Long term" UBI
  - Biweekly transfers worth $0.75 per day for 12 years
- "Short term" UBI
  - Biweekly transfers worth $0.75 per day for 2 years
- "Lump sum" transfer
  - Equivalent present value to short term UBI paid in 2 installments

Timing:

- Transfers began: early 2018, short-run UBI ended pre-COVID
- Endline survey: Q4 2019
- At Endline roughly equivalent total transfer across arms

Universal Basic Income in Kenya

Banerjee, Faye, Kreuger, Niehaus, Suri 2023

	# Enterprises (1)	Revenues (2)	Costs (3)	Net Revenues (4)	Assets (5)
Long Term Arm	9.93**	61379.40**	32055.20*	28226.05**	36050.66***
	[3.96]	[24346.05]	[16478.13]	[12334.27]	[12589.11]
Short Term Arm	3.39	23177.47	8497.42	14824.71*	16441.81
	[3.57]	[16080.92]	[10462.44]	[8143.69]	[10029.27]
Lumpsum Arm	14.67***	107746.75***	71903.23***	35576.39***	29404.54***
	[3.92]	[34895.03]	[24360.84]	[13382.81]	[10977.68]
R-squared	.3	.24	.19	.27	.4
Control Mean	73.23	150207.24	92636.84	54533.59	100036.59
Control Median	70.07	126344.96	71651.40	45200.76	83927.59

	Overall		Wage Employment		Self Employment (Non-Ag)		Self Employment (Ag)	
	Hours (1)	Income (2)	Hours (3)	Income (4)	Hours (5)	Income (6)	Hours (7)	Income (8)
Long Term Arm	61.92	503.40	-99.85**	-275.53***	95.70*	692.69**	66.07	4.99
	[67.8]	[314.8]	[46.45]	[105.3]	[54.74]	[284.59]	[53.18]	[59.81]
Short Term Arm	110.23	671.60*	-68.73	323.03	90.72**	215.67	88.24**	94.10*
	[77.59]	[365.13]	[47.18]	[217.4]	[45.69]	[285.76]	[40.92]	[52.68]
Lumpsum Arm	79.42	1274.80**	-27.30	272.42*	81.79	875.18*	24.94	41.59
	[78.02]	[571.56]	[40.01]	[149.54]	[51.89]	[520.79]	[37.81]	[50.11]
R-squared	0.13	0.03	0.11	0.03	0.04	0.01	0.12	0.05
Control Mean	2752.04	2517.63	1031.87	1478.71	522.78	589.43	1197.39	491.62

- Large increase in businesses, assets, net revenues
- No change in total labor supply, large shift out of wage employment into non-ag self-employment
- Larger effect of lump sums, consistent with lumpy investments, credit and savings constraints, increasing returns