

Medium-term Impacts of a Productive Safety Net on Aspirations and Human Capital Investments

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Motivation

- Intergenerational poverty traps – transmission of poverty
 - Role of investments in human capital
- Policies to change investment behavior of the poor
 - New interest in hope/aspirations (depression), to understand investment behavior
- Conditional cash transfers & human capital investments
 - Targeting poor households
 - Evidence on human capital investments in the short run
 - Fiszbein&Schady, 2009; Murnane&Ganimian, 2014
 - Designed with behavioral change as objective
 - Gender targeting
 - Social marketing
 - But also group dynamics

Sustainability of behavioral change after CCTs

- Questions about exit-strategies
- Inconclusive evidence on longer-term effects
 - Longer-term differential impacts, often from exposure at critical ages
 - Araujo, Bosch, Schady (2016); Behrman, Parker, Todd (2009a,b); Barham, Macours, Maluccio (2013a,b); Molina et al (2016)
- What happens after the transfer end?
 - Welfare & human capital outcomes
 - Baird, McIntosh, Ozler (2016); Barrera-Osorio, Linden and Saavedra (2015); Filmer and Schady (2014); Macours, Premand, Vakis (2013)
 - Medium-term change in human capital investment behavior
 - Macours, Schady, Vakis (2012)

Role of social dynamics for sustained behavioral change

- Literature on social spillovers
 - Social learning about agricultural technology
 - Social learning about benefits of new product or technology
 - In CCTs
 - Spillover effects through transfers (Albarran and Attanasio, 2004; Angelucci and De Giorgio, 2008; Angelucci et al, 2009; Angelucci, De Giorgi, Rasul, 2015)
 - Peer effects in schooling (Bobonis and Finan, 2008; Lalive and Cattaneo, 2006)
- Are there aspirational spillovers from social interactions with leaders?
 - ⇒ Analyze impact of social interactions on aspirations by considering both households' investments and attitudes towards the future

Aspirations and social interactions

- Relationship between poverty and aspirations, shaped by own experiences and those of others
 - Achievements of others that are close can help open the aspiration window (Ray, 2006; Genicot and Ray, 2009)
 - Key role for social interactions, communication, social gatherings (Appadurai, 2004)
 - Psychological evidence also indicates leaders can affect aspirations through communicating an inspiring vision (Latham and Saari, 1979; Bass, 1985)
 - ⇒ Suggests that those who do better and those that are motivated to share and communicate are likely to affect others' aspirations and investments
- Literature about mental models and attitudinal changes
 - Jensen and Oster 2009; La Ferrara, Chong, and Duryea 2012; World Bank, 2014
- Emerging empirical evidence on aspirations
 - Beaman et al, 2012; Bernard et al, 2014; Glewwe, Ross, Wydick 2015

Role of leaders for behavioral change

- Importance of leadership in the performance of groups
 - Jones and Olken (2005), Kosfeld and Rustagi (2015)
- Female leaders found to lead to higher investment in human capital
 - Beaman et al (2012), Clots-Figueras (2012), Pathak and Macours (2016)
- Many interventions targeting human capital investment in through local facilitators
 - Attanasio et al (2014), Fitzsimons et al (2014)
- Large multiplier effects of empowering/motivating local female leaders on education& nutrition investment of CCT
 - Macours and Vakis (2014)

Outline

- CCT (plus) experiment
 - Design
 - Role of leaders for sustained investments 2 years after the intervention
 - Aspirations
- Implications for design of interventions

The pilot program: “Atención a Crisis”

- Program of the ministry of social protection (MIFAMILIA)
- 6 municipalities in rural Nicaragua with high levels of extreme poverty and frequent droughts
 - 82% live on less than 1 US \$ per capita per day
 - Average years of education household head: 2.5 years
- Combine CCT with interventions aiming to increase the productive capacity of poor and households
 - 1000 hh: CCT
 - 1000 hh: CCT + vocational training
 - 1000 hh: CCT + productive investment grant
 - 1000 hh: control
- November 2005 - December 2006
- Social marketing on nutrition and education

Timing and Data

- Randomized selection in two steps
 - Random Control (50) and Treatment communities (56)
 - Within treatment: Lottery to allocate families to 3 packages
- Baseline in 2005
 - No baseline differences between treated and control households, nor between different treatment groups
- First follow up survey – July-August 2006
 - 9 months after the program began
- Program ends December 2006
- Second follow-up survey in 2008-2009
 - ~ 2 years after end program

Compliance and selection

- High level of compliance with experimental assignment
 - 95 percent of eligible households in treatment communities received CCT
 - Of households who received benefits, more than 95 percent received the full amount of the transfer for which they were eligible
 - 95% take-up productive investment grant
 - 89% take up vocational training;
 - Only 1 household in control communities received transfers
- Very low level of attrition
 - Less than 2.4 % of households 3-4 years after baseline

Identifying spillovers from leaders

- Aspirations are function of own experiences and those of people that are similar but doing better
 - Random variation in own experiences
 - Random treatment and control communities
 - Within treatment communities, random assignment of 3 different interventions to beneficiaries
 - Random variation in experiences of local leaders
 - Random assignment of same 3 interventions to female leaders, and leaders' with largest positive shock have better outcomes
 - Communication with leaders, and hence their motivation to communicate, enhances the spillovers
 - Program design encourages such interactions
- ⇒ Are impacts different for households who live in the proximity of leaders that got the largest and "most exciting" intervention?

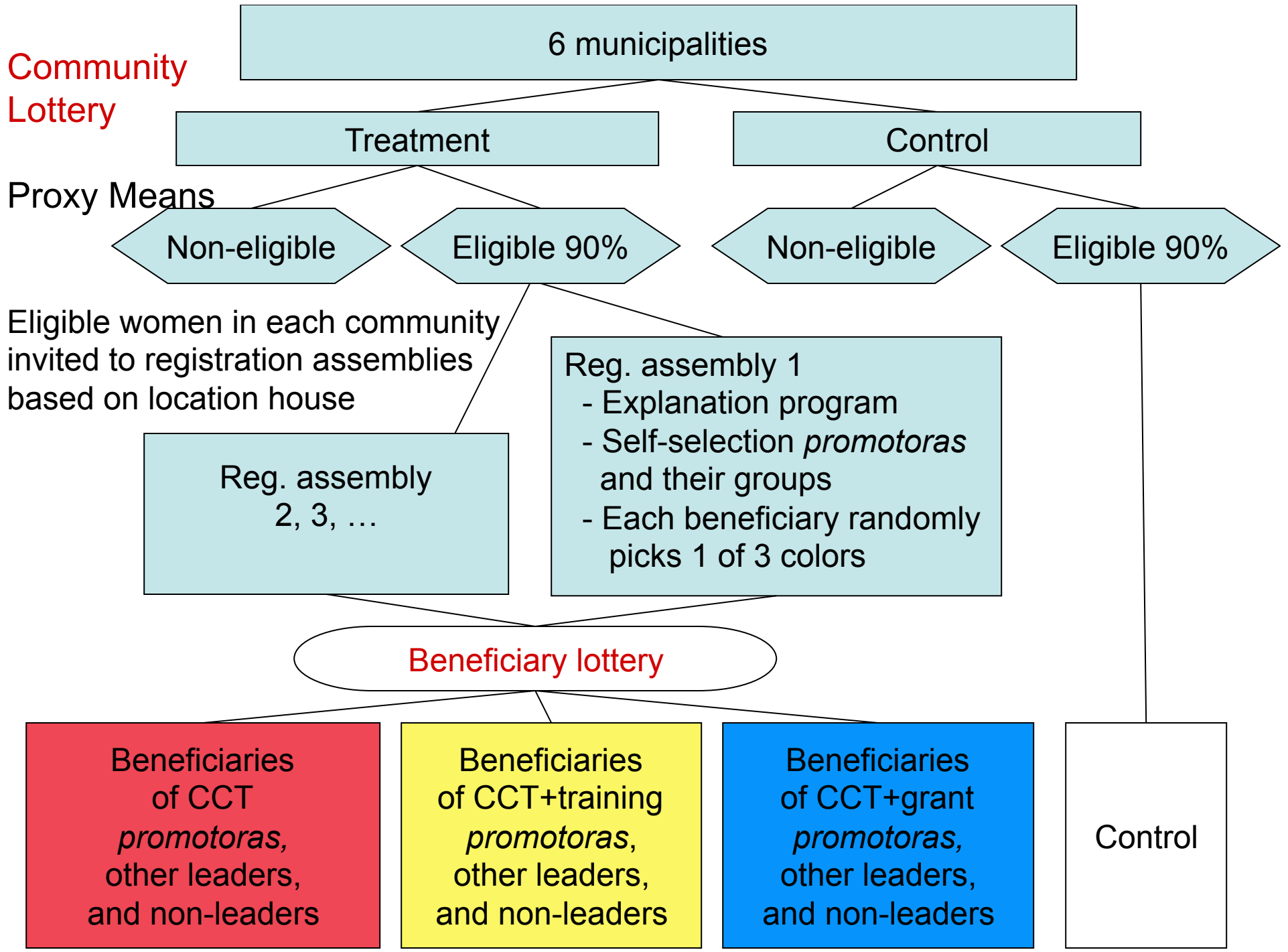
Beneficiaries of the productive investment package



Average impact grant and training, 2 years after end of program: returns

	Nonagr. wage income	Brut income in non-agri. self empl.	Profits of nonagr. business	Value livestock sold or consumed	Value business assets	Exp. increase in profits in 12 months
CCT + Grant	-179.3 (449.7)	1,216*** (265.6)	603.1*** (154.7)	220.7*** (46.2)	233.1*** (82.4)	178.4*** (63.5)
CCT + Training	1,061** (485.2)	-88.67 (261.7)	-286.8* (154.8)	-32.66 (38.2)	-22.12 (89.9)	-54.91 (51.7)
CCT	241.8 (409.8)	213.5 (267.4)	98.03 (164.5)	-2.467 (41.2)	-88.13 (98.0)	78.76 (65.4)
Mean in control	3559	2820	1579	836	606	345
Observations	3,880	3,879	3,878	3,880	3,882	1,204

Note: *** p<0.01, ** p<0.05, * p<0.1; s.e. clustered by community in parentheses; Dependent variables trimmed for 1% highest outliers. ITT estimates, including all hh controls (see note table 2) and block F.E.



Program design and social dynamics

- Wide program coverage: 90% of households in treatment communities benefited
- Many joint program activities:
 - workshops, capacity training, payment days, ...
- New female leadership positions created by program:
Promotoras
 - self-selected coordinators, responsible for information sharing, motivating and monitoring small group of beneficiaries (aprox. 10)
- Short-term results: The program increased social interactions
 - This holds for beneficiaries of the 3 intervention packages, though impacts are strongest for beneficiaries of the largest package.

Do social spillovers increase impacts on human capital investments?

- Female leaders (*promotoras* + other women with leadership positions in the assembly) were randomly assigned to one of the three intervention packages
 - We know which beneficiaries live in their proximity, as they were invited to the same registration assembly
 - Beneficiaries and leaders with the productive investment package had received largest and most exciting benefit
 - Investigate whether program impacts depend on % female leaders of one's registration assembly (i.e. proximity) who obtained the productive investment package (mean 33%)
- => Identification based on random assignment of packages to leaders

Recap short-term results

Spillovers during the program

- Strong evidence that social spillover effects increased program impacts
 - proximity to female leaders with largest program package increased impacts on
 - Human capital
 - Productive investments
 - Impacts larger for beneficiaries who themselves had largest package
 - Similar and strong spillovers on
 - Positive attitudes towards the future
 - Reduction CESD (and “fatalism?”)
 - Questions on measurement (see Laajaj and Macours, 2016)

Short-term spillovers on education and nutrition investments

	Education			Nutrition	
	Attending school (7-18 year olds)	Number of days absent from school (7-18 year olds)	School expenditures (7-18 year olds)	Share of food expenditures for animal products	Share of food expenditures for vegetables and fruit
Intent-to-treat*	0.062*	-1.760***	191.7***	0.022	0.014**
% leaders largest package	(0.032)	(0.669)	(70.9)	(0.017)	(0.006)
Intent-to-treat	0.050***	-1.352***	188.6***	0.055***	0.019***
	(0.019)	(0.405)	(34.8)	(0.010)	(0.004)
Mean control	0.761	6.209	300.9	0.152	0.066
Observations	5176	5169	5153	3278	3279

Robust standard errors in parentheses, corrected for clustering at the community level. *** p<0.01, ** p<0.05, * p<0.1

Macours and Vakis (2014)

Spillovers on education and nutrition investments two years after end transfers

	Education			Nutrition	
	Attending school (7-18 year olds)	Number of days absent from school (7-18 year olds)	School expenditures (7-18 year olds)	Share of food expenditures for animal products	Share of food expenditures for vegetables and fruit
Intent-to-treat*	0.045	-1.506*	310.9***	0.039**	0.022***
% leaders largest package	(0.040)	(0.88)	(118)	(0.017)	(0.008)
Intent-to-treat	-0.008	0.197	-68.80	-0.005	0.001
	(0.026)	(0.58)	(62.5)	(0.010)	(0.004)
Mean control	0.777	6.341	493.4	0.154	0.0581
Observations	5228	5228	5205	3214	3214

Robust standard errors in parentheses, corrected for clustering at the community level. *** p<0.01, ** p<0.05, * p<0.1

Spillovers on education and nutrition investments two years after end transfers

	Education			Nutrition	
	Attending school (7-18 year olds)	Number of days absent from school (7-18 year olds)	School expenditures (7-18 year olds)	Share of food expenditures for animal products	Share of food expenditures for vegetables and fruit
Product. investment package*	0.093*	-2.676**	485.4**	0.050**	0.034***
% leaders largest package	(0.050)	(1.09)	(200)	(0.019)	(0.011)
Training package*	0.029	-1.017	246.2	0.038*	0.023**
% leaders largest package	(0.061)	(1.38)	(165)	(0.021)	(0.011)
Basic package*	-0.001	-0.538	192.8	0.032	0.011
% leaders largest package	(0.053)	(1.15)	(154)	(0.020)	(0.012)
P social effect on T1 vs T2	0.671	0.744	0.779	0.743	0.350
P social effect on T3 vs T1	0.109	0.116	0.193	0.252	0.069*
P social effect on T3 vs T2	0.360	0.291	0.348	0.575	0.373

Note: Robust standard errors in parentheses, corrected for clustering at the community level. *** p<0.01, ** p<0.05, * p<0.1

Interpretation

- Results robust to different specifications and tests
- Two years after end of intervention
 - leaders with largest package are still
 - doing better than other leaders (economically)
 - doing better than non-leaders with same package
 - Leaders have higher level of HK investments than other beneficiaries
 - => Continue to provide positive examples to aspire too
- No significant impacts when no leader in assembly got the large package
 - ⇒ Interactions with leaders crucial to sustain program impacts on investments
 - ⇒ 2 years after end transfers social spillover still as large as during the intervention

Social interaction effects on educational attainment and parental beliefs

	Years of education attained	Mother's expectation on total years of education	Mother expects child to get professional job	Mother expects child to get professional or skilled wage job
9-15 year olds				
Intent-to-treat*	0.777***	0.936*	0.042**	0.162***
% leaders largest package	(0.22)	(0.49)	(0.020)	(0.059)
Intent-to-treat	-0.251	-0.217	0.003	-0.034
	(0.16)	(0.28)	(0.009)	(0.031)
Mean control	3.686	8.612	0.022	0.254
Observations	3348	3329	3323	3323

Note: Robust standard errors, corrected for clustering at the community level. *** p<0.01, ** p<0.05, * p<0.1

Conclusions this paper

- Strong evidence that social spillover effects key for sustaining shift in human capital investment
 - proximity to female leaders with largest/exciting program package increases impacts on
 - Human capital and productive investments of other beneficiaries
 - Attitudes and expectations/aspirations
- Social spillovers likely facilitated by
 - increased social interactions due to program
 - higher motivation/effort by female leaders and beneficiaries with productive investment grant
 - both leaders and non-leaders benefitted
 - clear social marketing by program

Implications for design effective interventions

- Shifting parental investment in part about shifting norms and pre-conceived notions shared by all households
- Social interactions and changing aspirations might be important for sustainability of program impacts
 - Look beyond “technical” social spillovers towards role of attitudes and aspirations
- Program design can facilitate multiplier effects by building in mechanisms to enhance social interactions
- But social interactions with positive multiplier effects don't happen automatically

Lessons for program design

- Leaders can have important positive role
 - Positive experiences of, and interactions with, nearby leaders can help open people's aspiration window
 - This does not imply (just) targeting leaders: multiplier effects are the largest when both leaders and other beneficiaries received the largest package
- Design that encourage reinforcing social interactions
 - Role of training and empowerment of local opinion leaders?
 - Facilitating interactions with well-informed and motivated leaders?
- Need to start from good understanding of social dynamics and existing opinions
 - Potential challenge for interventions at scale
 - Need for piloting

Thank you