The Effect of Social Programs and Exposure to Professionals on the Educational Aspirations of the Poor

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Comments

Carlos Medina

- The Paper
  - The Program
  - Data
  - Empirical Strategy and Results
  - Theory and Evidence
- Comments
  - Theory and Evidence: Discussion
  - Results
  - Other Hypothesis
  - Identification Strategy

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The Program

- Progresa components: Education, Health, Nutrition; Applied in rural México:

- Objetive: To improve education, health and nutrition of poor families, in particular, their children y their mothers.

- Health component:
  - < 2: visit the clinic/ 2 months (growth monitoring, immunizations, baby care)
  - 2-5: visit the clinic/ 3 months (growth monitoring, child care, immunizations)
  - 5-16: visit the clinic/ 6 months
  - Other adolescents and adults: visit the clinic/ 1 year (physical check-ups)
  - Previously check-ups were both very low in rural Mexico
  - PROGRESA's beneficiaries exposed to nurses (14 yrs of educ) and doctors (>=18 yrs of educ.). Average educ. of the adult under consideration: 3 years.

The Program

Table B.3 — Annual Frequency of Health Care Visits Required by PROGRESA

Age Group	Frequency of Check-Ups
_ Children	
Less than 4 months	3 check-ups: 7 and 28 days, and at 2 months
4 months to 24 months	8 check-ups: 4, 6, 9, 12, 15, 18, 21 and 24 months with 1 additional monthly weight and height check-up
2 to 4 years old	3 check-ups a year: 1 every 4 months
5 to 16 years old	2 check-ups a year: 1 every 6 months
_ Women	
Pregnant	5 check-ups: prenatal period
During purpureum and lactation	2 check-ups: in immediate purpureum and 1 during lactation
_ Adults and youths	
17 to 60 years old	One check-up per year
Over 60 years old	One check-up per year

Source: Skoufias (2001)

The Program

- Education component:
  - Beneficiary households with children 6-17 enrolled in school and attending to 85 percent of classes receive conditional educational assistance that increases annually, and school materials.
  - Beneficiary households receive $197/month (US$ 19.7/month), 19.5 per cent of mean consumption of eligible households.

$\Rightarrow$ "After three years poor children in rural areas of Mexico where PROGRESA is currently operating are more likely to enroll in school. Mexico's primary school children typically maintain a primary school enrollment rate of 93% but generally begin dropping out of school after completing the 6th grade. Enrollment rates in general witness another steep decline as children transition to senior high school where enrollment typically drops again. Research reveals that PROGRESA has had **the largest impact on children who enter secondary school** and represents a percentage increase of enrollment over **20% for girls and 10% for boys**. The research revealed that much of the positive impact on enrollment is due to increasing continuation rates rather than on getting children who were out of school to return." (Skoufias, 2001)

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Data

- Experimental design in 506 localities:
  - Baseline: November 1997
  - 320 treated localities, since May, 1998
  - 186 control localities, **treated since December, 1999** (they were not informed they would be treated later)
- Elegibility based on poverty
- Rounds second, third and fourth contain information on households' aspirations:
  - Second to fourth rounds: "Up to what level would you like your **daughters** to study?" and "Up to what level would you like your **sons** to study?"
  - Rondas tercera y cuarta: the respondent was asked to declare the highest level of education that she would like **each** of her daughters (sons) to complete.

Data

Table 1: Descriptive Statistics by Treatment Status, Fixing Household Structure as of Baseline (1997)

	Obs.	Mean Treatment	Control	T-stat
a) Characteristics of the head of the household				
Age	8,089	41.66	42.39	-2.09**
Educational level in years	8,078	2.88	2.78	0.85
Literate	8,100	0.72	0.71	0.26
Indigenous	8,096	0.41	0.42	-0.07
b) Characteristics of the spouse of the head of the household				
Age	7,361	36.70	36.86	-0.59
Educational level in years	7,348	2.65	2.63	0.16
Literate	7,359	0.63	0.62	0.56
Indigenous	7,353	0.41	0.41	0.00
c) Characteristics of the household				
Mean age of adults	8,104	36.16	36.55	-1.46
Mean educational level of adults	8,103	3.24	3.16	0.66
Proportion of literate adults	8,103	0.71	0.70	0.48
Proportion of indigenous adults	8,095	0.40	0.41	-0.06
Income	8,106	922.90	946.03	-0.56
d) Household structure				
Size	8,106	6.75	6.75	-0.02
Number of adults	8,106	2.68	2.68	0.15
Number of female adults	8,106	1.37	1.38	-0.44
Number of male adults	8,106	1.31	1.29	0.83
Proportion of male adults	8,102	0.48	0.48	0.61
Number of children	8,106	4.06	4.06	-0.10
Number of female children	8,106	1.96	2.01	-1.13
Number of male children	8,106	2.09	2.05	1.25
Proportion of male children	8,069	0.52	0.51	2.20**
Proportion of households with children less than 5 years old	8,106	0.65	0.63	1.18
Proportion of households with children between 2 and 5 years old	8,106	0.34	0.33	0.91
Proportion of households with children less than 2 years old	8,106	0.32	0.31	0.54
Birth spacing between children				
- between 1st and 2nd child	7,326	3.23	3.35	-1.24
- between 2nd and 3rd child	6,423	2.90	2.88	0.32
- between 3rd and 4th child	4,884	2.80	2.81	-0.19
- between 4th and 5th child	3,240	2.64	2.72	-1.29
- between 5th and 6th child	1,953	2.54	2.63	-1.25
- between 6th and 7th child	1,014	2.38	2.43	-0.61
- between 7th and 8th child	467	2.34	2.31	0.30
- between 8th and 9th child	184	2.12	2.19	-0.37
- between 9th and 10th child	94	1.95	1.76	0.89

Note: T-statistics of difference in means computed clustering at the village level. Differences significant at the *10%, **5%, or ***1% level.

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Empirical Strategy and Results

- Identification Strategy:
  - Effect of Progresa on Aspirations: DD estimates
  - Effect of Differential Exposure within Progresa on Aspirations: DDD estimates

- Results:
  - Progresa: Positive effects (1/3 school yr.) only on daughters after 6 months and 1 yr. $\rightarrow$ Effect equivalent to 2.3 yrs of education of parent's highest education
  - Differential Exposure: Positive effects (1/2 school yr.) only on daughters and only after 6 months $\rightarrow$ Effect equivalent to 2.9 yrs of education of parent's highest education

- Interpretation:
  - Different effects by gender: not much
  - 6 moths vs. 1years: $\exists$ threshold in No. visits required to increase aspirations.

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Theory and Evidence

- Previous evidence on:

  - Education/investment in human capital → reduce poverty (e.g., Becker, 1995).

  - Poverty: constraints ability to invest in HK, affects people attitudes and interest in education. Narrower opportunities → Lower capacity to aspire → Underinvestment in their children' education (Ray, 2006; Appadurai, 2004).

  - Parents' educational aspirations for their children are positively correlated with their children' educational outcomes (Goodman and Gregg, 2010; Gregg and Washbrook, 2009; and Gutman and Akerman, 2008a and 2008b), and that higher aspirations of the poor can lead to an increase in investment in human capital (Macours and Vakis, 2009).

- Suggested mechanisms under which differential exposure acts:

  - "This paper also relates to the active discussion on the fact that people'choices are affected by a limited considerations set. This basic idea has been discussed under a range of forms e.g., the literature on bounded rationality, narrowing bracketing, and limited attention"

  - "Our research is connected to studies on how people's choices are conditioned by their sense of identity…"

  - "…as well as to the empirical literature on social interactions and peer effects, which shows that residents of poor neighborhoods achieve lower socioeconomic outcomes and attain lower educational levels than do the residents of more affluent neighborhoods"

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Theory and Evidence: Discussion

- Progresa results: Very intuitive, consistent with change in expectations

$\Rightarrow$ Very clean results!

- Suggested mechanisms under which differential exposure acts:

    – "This paper also relates to the active discussion on the fact that people'choices are affected by a limited considerations set. This basic idea has been discussed under a range of forms e.g., the literature on bounded rationality, narrowing bracketing, and limited attention"

    $\Rightarrow$ How many more visits are required to expand your consideration set?

    – "Our research is connected to studies on how people's choices are conditioned by their sense of identity…"

    $\Rightarrow$ How many more visits are required to change your sense of identity?

    – "…as well as to the empirical literature on social interactions and peer effects, which shows that residents of poor neighborhoods achieve lower socioeconomic outcomes and attain lower educational levels than do the residents of more affluent neighborhoods"

    $\Rightarrow$ How many more visits are required to become autonomous in your aspirations beyond those of your peers?

Theory and Evidence: Discussion

- Evidence provided by Gertler (2000) (Based on data of households:) shows that:
  - Total health care utilization of children 0-2 and 3-5 was similar for treatment than control groups

Table 5— Means and Standard Deviations of Visits to Medical Care Providers

Age	Sample	Mean Visits Per Month				Sample Size
		Total Visits	Public Clinics	Hospitals (Inpatient)	Private Providers	
< 3	PROGRESA	.081 (1.42)	.066 (1.41)	.012 (0.09)	.003 (0.13)	5,110
	Non-PROGRESA	.115 (1.62)	.079 (1.58)	.011 (0.03)	.025 (0.27)	4,110
3 to 5	PROGRESA	.097 (1.29)	.075 (1.27)	.005 (0.10)	.017 (0.18)	6,443
	Non-PROGRESA	.068 (0.41)	.046 (0.33)	.004 (0.13)	.018 (0.21)	5,717
6 to 17	PROGRESA	.041 (1.05)	.034 (1.05)	.002 (0.07)	.005 (0.10)	28,526
	Non-PROGRESA	.027 (0.68)	.017 (0.64)	.001 (0.05)	.008 (0.21)	25,259
18 t0 50	PROGRESA	.071 (0.95)	.050 (0.91)	.005 (0.11)	.016 (0.26)	26,702
	Non-PROGRESA	.071 (0.95)	.050 (0.91)	.005 (0.11)	.016 (0.26)	26,702
> 51	PROGRESA	0.139 (1.47)	0.095 (1.33)	0.006 (0.11)	0.038 (0.49)	6,927
	Non-PROGRESA	0.139 (1.47)	0.095 (1.33)	0.006 (0.11)	0.038 (0.49)	6,927

Notes: Standard errors in parentheses.

Theory and Evidence: Discussion

- Evidence provided by Gertler (2000) (Based on data of households:) shows that:
  - Total health care utilization of children 0-2 and 3-5 did not change because of the program (neither it did based on data from providers)
  - Total health care utilization of adults 18-50 (the more likely parents of children under 5) did not change

Table 6—Difference-in-Difference Estimates of PROGRESA Program Impact on Health Care Utilization by Age and Provider

Dependent Variable	Independent Variable	Age 0-2		Age 3-5		Age 6-17		Age 18-50		Age 51+	
Total Visits	Treatment	-0.029	-0.032	0.033	0.027	0.015	0.016	0.007	0.011	0.037	0.038
		(-0.887)	(-0.871)	(1.695)	(1.439)	(1.653)	(1.893)	(0.655)	(1.019)	(1.819)	(1.845)
	Income		0.002		0.006		-0.001		-0.004		0.000
			(0.459)		(1.258)		(-0.299)		(-1.669)		(-0.147)
Public Clinic Visits	Treatment	-0.010	-0.011	0.032	0.027	0.017	0.015	0.014	0.015	0.045	0.045
		(-0.297)	(-0.314)	(1.655)	(1.487)	(1.905)	(1.858)	(1.674)	(1.624)	(2.451)	(2.471)
	Income		0.001		0.005		0.001		-0.001		0.000
			(0.350)		(1.100)		(0.913)		(-0.792)		(-0.016)
Public Hospital Visits	Treatment	-0.007	-0.008	0.001	0.001	0.001	0.001	-0.006	-0.004	-0.006	-0.007
		(-2.081)	(-2.086)	(0.300)	(0.350)	(1.776)	(1.794)	(-1.319)	(-0.894)	(-2.339)	(-2.225)
	Income		0.001		0.000		0.000		-0.001		0.001
			(0.651)		(-0.462)		(-0.365)		(-0.707)		(0.751)
Private Provider Visits	Treatment	-0.012	-0.012	0.000	-0.001	-0.003	-0.001	-0.001	0.001	-0.001	0.000
		(-2.500)	(-2.246)	(0.094)	(-0.194)	(-1.847)	(-0.664)	(-0.479)	(0.182)	(-0.179)	(-0.016)
	Income		0.000		0.001		-0.002		-0.002		-0.001
			(0.080)		(0.790)		(-1.478)		(-1.360)		(-0.586)
Sample Size		9,212	9,212	12,160	12,160	53,785	53,785	53,090	53,090	15,399	15,399

Theory and Evidence: Discussion

- Evidence provided by Gertler (2000) (Based on data of households:) shows that:
  - Baseline level of 1.3 visits per semester (too low, not complying? Required 3 for 0-2 yrs. Old, and 1.5 for 3-5 yrs. Old $\cong$ 2.2 visits per semester).

Table 7— Mean Child Growth Monitoring Visits

		PROGRESA	Non-PROGRESA
Age 0-2	Baseline	0.219 (0.217)	0.216 (0.212)
	8 months Post Baseline	0.281 (0.206)	0.241 (0.242)
	15 months Post Baseline	0.596 (0.339)	0.411 (0.345)
	20 months Post Baseline	0.258 (0.382)	0.190 (0.319)
	Sample Size	5,420	2,148
Age 3-5	Baseline	0.221 (0.219)	0.222 (0.229)
	8 months Post Baseline	0.267 (0.223)	0.218 (0.234)
	15 months Post Baseline	0.433 (0.377)	0.309 (0.337)
	20 months Post Baseline	0.001 (0.037)	0.000 (0.000)
	Sample Size	11,322	4,050

Notes: Standard errors in parentheses

Theory and Evidence: Discussion

- Evidence provided by Gertler (2000) (Based on data of households:) shows that:
  - Visits of children 0-2 and 3-5 increase in about 0.056 per month after 8 months, that is, about 0.35 per semester…
  - Visits of children 0-2 and 3-5 increase in about 0.115 per month after 15 months, that is, about 0.7 in the second semester…
  - In both cases (0-2 and 3-5) larger the effect after 15 than after 8 months

Table 8— Difference-in-Difference Estimates of PROGRESA Impact on Nutrition Visits

	Age 0-2		Age 3-5	
8 months Post Baseline	0.056 (3.660)	0.054 (3.375)	0.052 (5.583)	0.052 (5.322)
15 months Post Baseline	0.135 (8.863)	0.133 (7.819)	0.097 (10.466)	0.097 (9.438)
20 months Post Baseline	0.071 (4.408)	0.069 (3.883)	-0.003 (-0.263)	-0.003 (-0.250)
Log (Income Per Capita)		0.001 (0.327)		0.000 (0.021)
Sample Size	9707	9707	19885	19885

Notes: T-statistics are reported in the parentheses. Included in the model, but not reported in the table, are individual fixed effects and dummies indicating the round of the observation.

Theory and Evidence: Discussion

- Progresa results: Very intuitive, consistent with change in expectations
⇒ Very clean results!

- Suggested mechanisms under which differential exposure acts:
    - "This paper also relates to the active discussion on the fact that people'choices are affected by a limited considerations set. This basic idea has been discussed under a range of forms e.g., the literature on bounded rationality, narrowing bracketing, and limited attention"
    ⇒ How many more visits are required to expand your consideration set?
    - "Our research is connected to studies on how people's choices are conditioned by their sense of identity…"
    ⇒ How many more visits are required to change your sense of identity?
    - "…as well as to the empirical literature on social interactions and peer effects, which shows that residents of poor neighborhoods achieve lower socioeconomic outcomes and attain lower educational levels than do the residents of more affluent neighborhoods"
    ⇒ How many more visits are required to become autonomous in your aspirations beyond those of your peers?

⇒ How much could 0.35 additional visit (out of about 2) change aspirations?
⇒ Why would it be that the threshold to change aspirations is achieved around, say, 2.35 visits, rather than after 2 visits (so that we find effect after 6 but not after 12 months)…?

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Results

- Why are there different effects by gender?
- ⇒ There is a catch-up in the aspirations by gender: a problem of intra-household allocation?
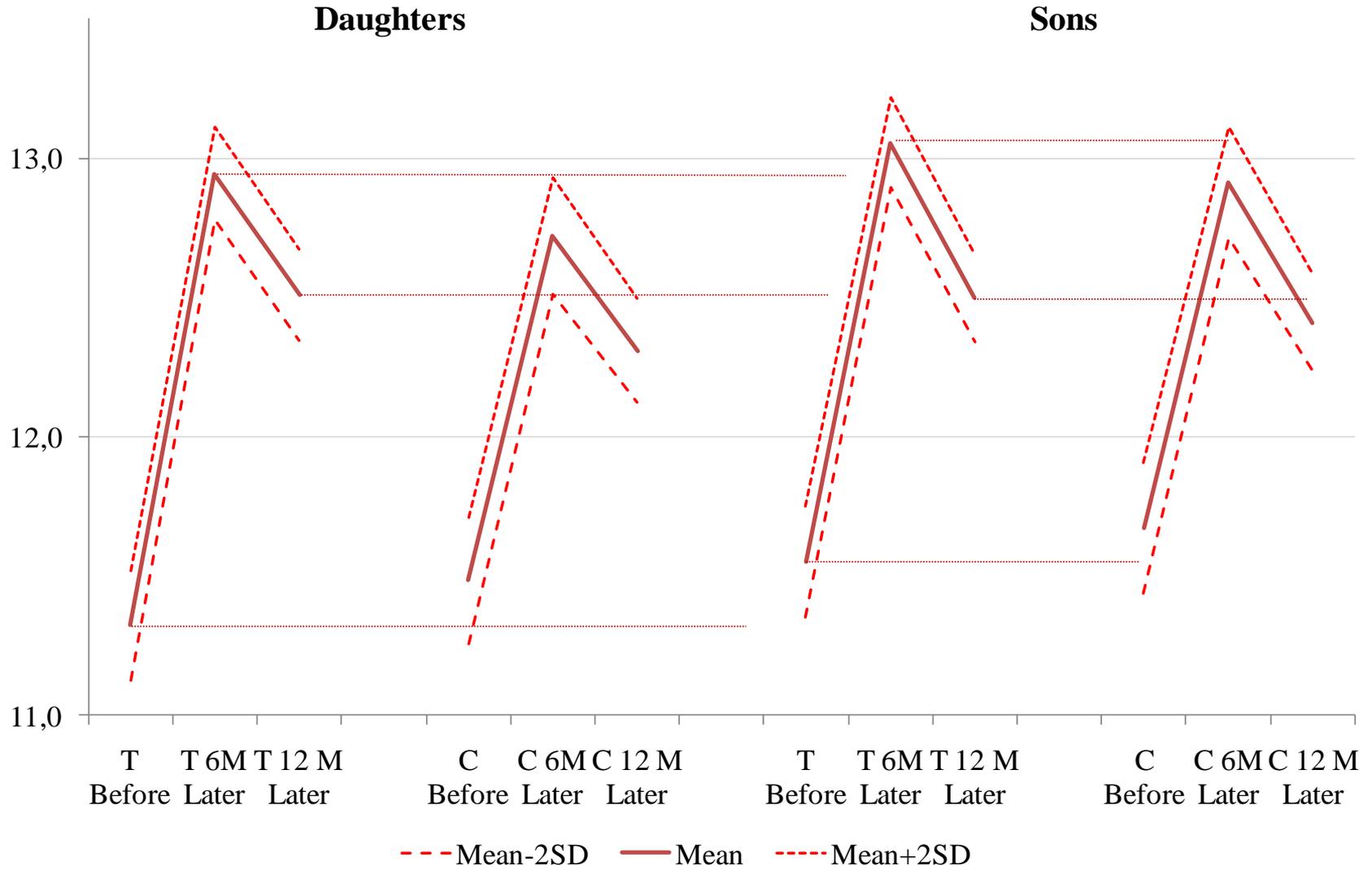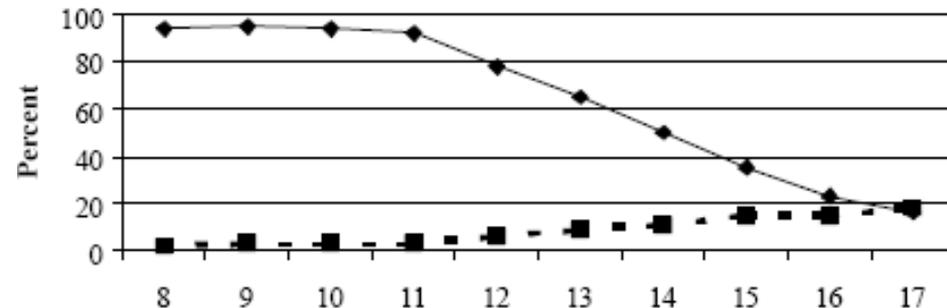
Results

- Why are there different effects by gender?

$\Rightarrow$ Worse performance of girls in terms of enrollment gives room for larger improvements of aspirations under Progresa

Source: Skoufias (2001)

School enrollment and Labor Force Participation of Boys in PROGRESA Communities Prior to Program Implementation
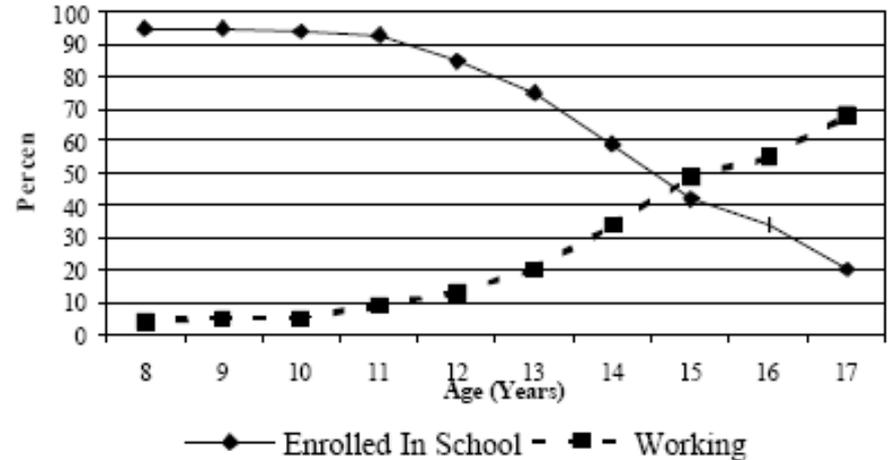

School Enrollment and Labor Force Participation of Girls in PROGRESA Communities Prior to Program Implementation
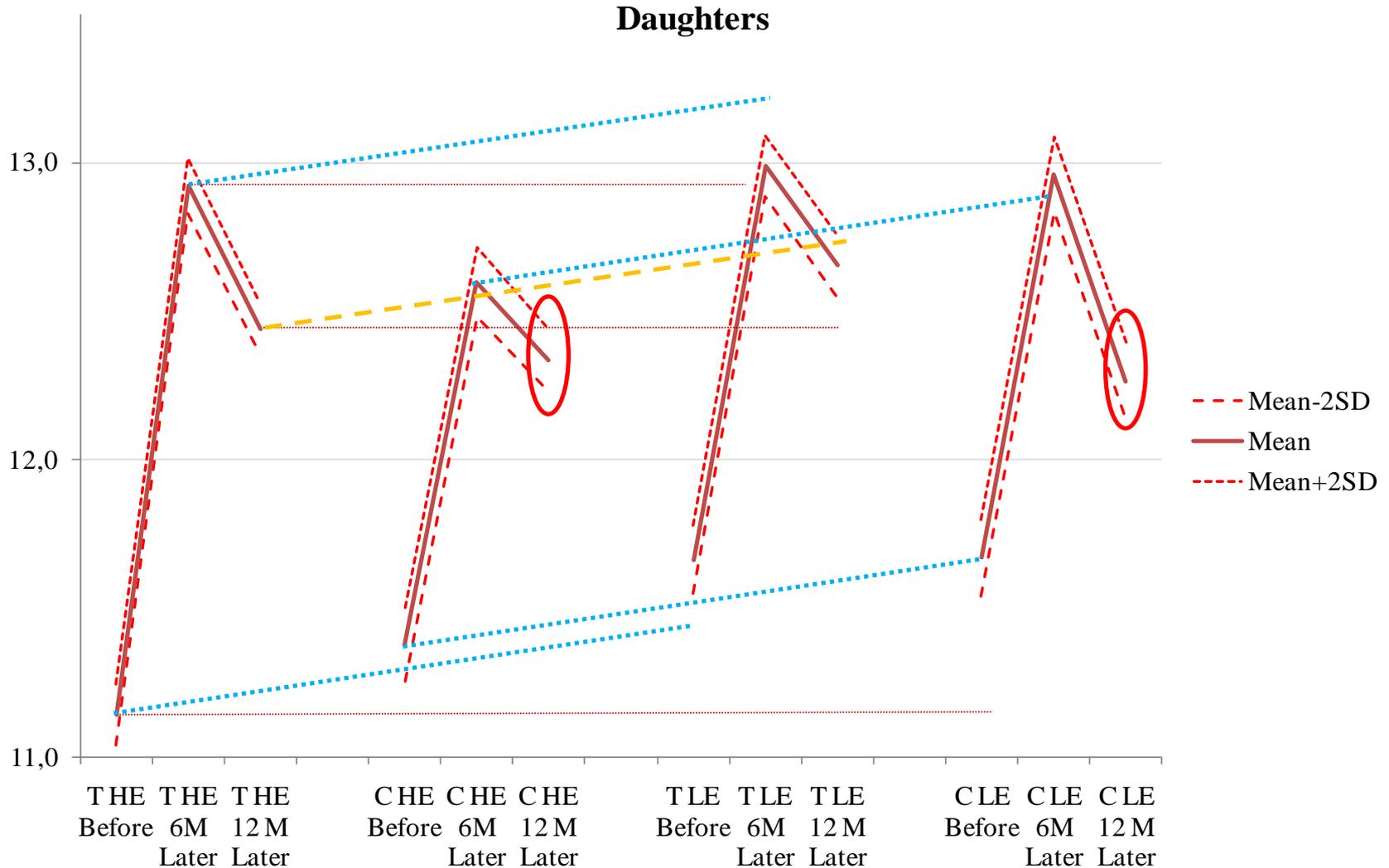
Results

- 6 moths vs. 1years: Does there actually ∃ threshold in No. visits required to increase aspirations?
⇒ If that was the case, one would expect aspirations to increase (rather than decrease) between 6 and 12 months (aspiration qtn comparable between 3rd and 4th follow-ups)

Daughters
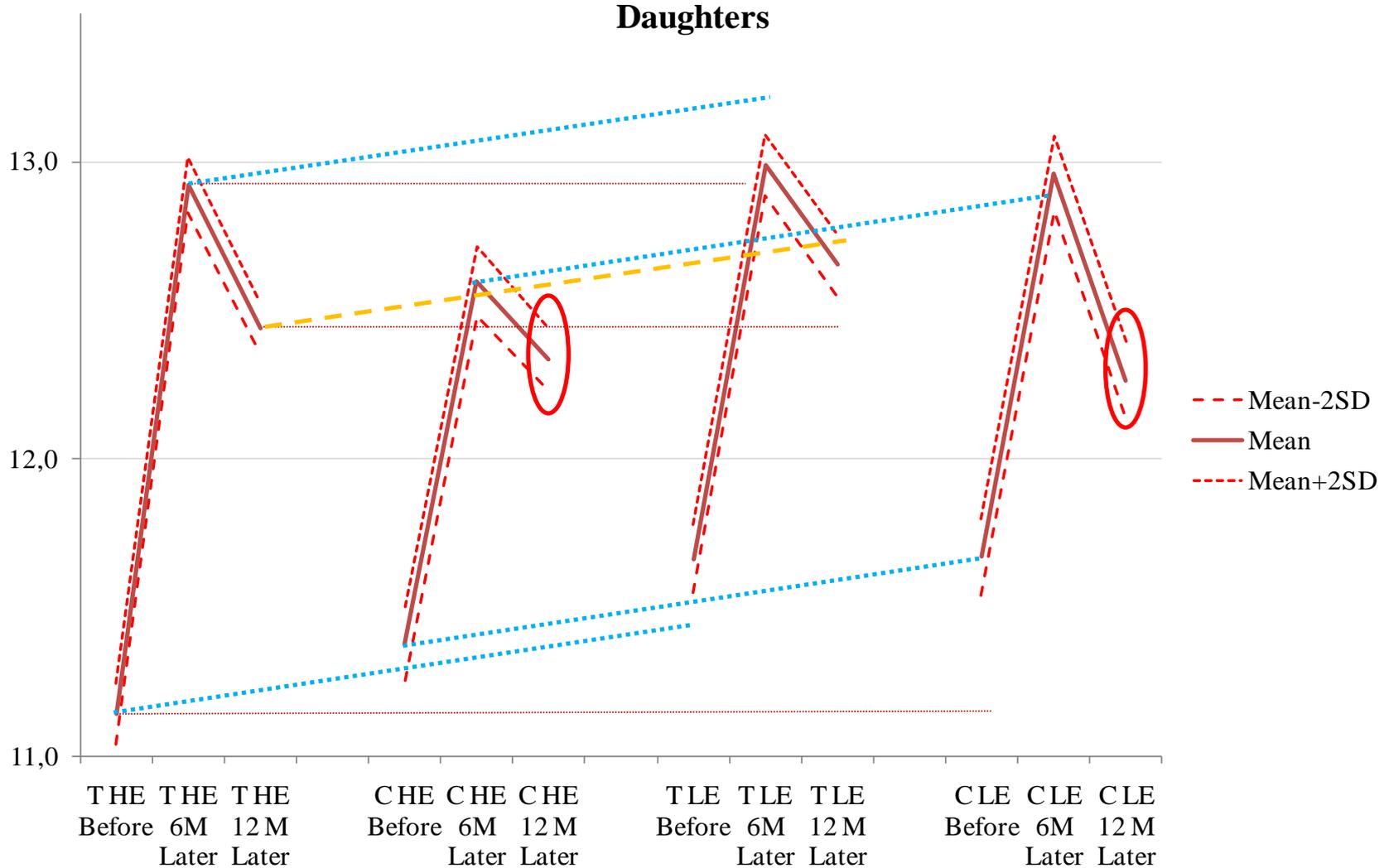
Results

- 6 moths vs. 1years:
  - Baseline data suggest a clear life cycle pattern (see blue dotted lines within treatment and within control groups)
  - Decrease in aspirations between 6 and 12 months goes against that baseline pattern (although both have very different horizons)
  - Evidence consistent with an over-shutting of aspirations due to the availability of the program: This hypothesis would require presence of spillovers or anticipation effects among the control group too.

Daughters

Results

- Potential anticipation effects (Skoufias, 2001):

  "IFPRI researchers were unable to determine whether households in control villages were given any specific reasons as to why PROGRESA did not cover their locality. **It is not unlikely, however, that promises were made by local PROGRESA officials about possible inclusion of the control localities into the program in the future**."

  "Although neither of these two facts necessarily invalidates the evaluation of PROGRESA, one should be aware of the possibility that PROGRESA has had **indirect or spillover or anticipation effects** on households in control localities."

$\Rightarrow$ Again, we have a catch-up in aspirations for daughters

$\Rightarrow$ The larger gain in the change in expectations revealed by the availability of the treatment of treated versus control could be due to the larger uncertainty faced by the later (would we actually be covered by the Program?)

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Hypothesis

- Change in aspirations due to the revelation of information at t_0 regarding the availability of the program

- That change could immediately increase the aspirations in an amount larger than what they were supposed to increase within the following five years under the absence of treatment, so that expectations of HE households surpass those of LE households jut after 6 months (or actually, just after the announcement of existence of the program!)

- The relative change in the jump between treatment and control groups could be due to their different conditions regarding the availability of the program in the future. It is reasonable that the uncertainty persists after one year since controls still do not know whether they will receive the program.

- Relative change between HE and LE after six months might be due to a larger correction in the aspirations for households with younger children (why? They have different information sets, among others…)

$\Rightarrow$ Yes, there is a test for the relevance of the age of the youngest child, but it is clear that the HE and LE groups are different in many other dimensions! Not necessarily because of the age effect…

- Consistent with larger effect (change in expectations) for girls (20% vs. 10% effect above), and no need for feedback on improvements in health (nonexistent in relevant population)

Hypothesis

- Is it being difficult to identify the effect of exposure from that of Progresa?

Table 9: Age effect

	Daughters					Sons				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Impact after 6 months										
Exposure effect	0.525**	0.504**	0.562**	0.477*	0.582**	0.283	0.261	0.272	0.245	0.253
(Time x Treatment x Exposure)	(0.219)	(0.233)	(0.247)	(0.248)	(0.256)	(0.211)	(0.232)	(0.250)	(0.246)	(0.256)
Age effect		-0.005	0.005	-0.004	0.005		-0.005	0.004	-0.017	-0.008
(Time x Treatment x Age youngest child)		(0.021)	(0.022)	(0.022)	(0.023)		(0.019)	(0.020)	(0.020)	(0.021)
PROGRESA effect	0.036	0.067	0.002	0.055	-0.027	0.082	0.113	0.091	0.109	0.121
	(0.211)	(0.243)	(0.260)	(0.260)	(0.272)	(0.211)	(0.254)	(0.267)	(0.262)	(0.274)
Controls for parental characteristics[1]	No	No	Yes	No	Yes	No	No	Yes	No	Yes
Controls for household characteristics[2]	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Probability value for controls[3]	---	---	0.000	0.028	0.000	---	---	0.000	0.010	0.000
Obs.	13,415	13,382	12,090	12,275	11,348	13,801	13,768	12,430	12,623	11,667
R^2 (overall)	0.060	0.060	0.090	0.060	0.100	0.050	0.050	0.090	0.060	0.090
Panel B: Impact after 1 year										
Exposure effect	-0.052	-0.067	-0.012	-0.082	0.005	-0.029	-0.041	-0.006	-0.127	-0.044
(Time x Treatment x Exposure)	(0.209)	(0.217)	(0.224)	(0.228)	(0.235)	(0.210)	(0.221)	(0.228)	(0.230)	(0.239)
Age effect		-0.005	-0.004	-0.015	-0.010		-0.004	-0.007	-0.019	-0.013
(Time x Treatment x Age youngest child)		(0.016)	(0.017)	(0.018)	(0.019)		(0.015)	(0.015)	(0.017)	(0.017)
PROGRESA effect	0.396*	0.421*	0.365	0.461*	0.386	0.229	0.249	0.209	0.289	0.215
	(0.215)	(0.234)	(0.244)	(0.250)	(0.260)	(0.213)	(0.238)	(0.243)	(0.244)	(0.253)
Controls for parental characteristics[1]	No	No	Yes	No	Yes	No	No	Yes	No	Yes
Controls for household characteristics[2]	No	No	No	Yes	Yes	No	No	No	Yes	Yes
Probability value for controls[3]	---	---	0.000	0.007	0.000	---	---	0.000	0.001	0.000
Obs.	13,324	13,291	12,052	12,158	11,275	13,641	13,608	12,316	12,421	11,512
R^2 (overall)	0.030	0.030	0.070	0.040	0.070	0.020	0.020	0.060	0.030	0.060

Note: Robust standard errors clustered at the village level in parenthesis. Each individual coefficient is statistically significant at the *10%, **5%, or ***1% level.

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Identification Strategy

- Why not to try RDD to estimate/test HE effect? If HE/LE channel was true:

  (i)   Selection into treatment (HE) based on continuous variable (age of youngest child)

  (ii)   Treatment (number of visits) changes discontinuously around cut off (youngest child 5 years old). Preliminary approach: define cut off number of visits beyond which household defined as treated and check its discontinuous change around cut off. Then try different of those cut offs to assess robustness. Fuzzy design: there will be treated on both sides of the cut off!

  (iii) All other covariates change smoothly around the cut off

  (iv)   Control group not required to be considered anymore

  (v)   RDD on change in aspirations 0-6 and 0-12 months.

  (vi)   Apply two step (VDK) or wald (HTV) estimators…

Thanks！！