Does paying for education affect attendance?

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Education subsidies

Almost everywhere, education is heavily subsidized.

▶ Arguments: externalities, capital market imperfections, equity

Subsidies can have a negative impact on student outcomes

▶ through attracting students who value education less (Oster 1995)

▶ through a sunk-cost effect, whereby paying a lower price reduces commitment (Thaler 1980; Arkes & Blumer 1985; Ashraf et al 2010; Cohen & Dupas 2010)

Diana Hidalgo, Mercedes Onofa, Hessel Oosterbeek & Juan Ponce (2013). "Can provision of free school uniforms harm attendance? Evidence from Ecuador". Journal of Development Economics 103, 43-51.

The program

In 2008 the government started to provide free uniforms to public schools in rural areas

Expansion to public schools in poor urban areas was scheduled for 2010

Over 80% of parents spend on average $24 on uniforms during past 12 months (Survey of Life Conditions)

Wearing a uniform is compulsory in Ecuador

What to expect?

Free uniforms can increase attendance by lifting a budget constraint

- ▶ Evans, Kremer & Ngatia (2008) find a 7 percentage point increase in attendance in Kenya

Free uniforms can decrease attendance through a sunk-cost effect

Design

For the purpose of this evaluation some schools were provided free uniforms one year ahead of schedule (2009 instead of 2010)

145 schools were randomly assigned to treatment (free uniform) and control

Actual and assigned treatment are highly but not perfectly correlated.

- ▶ We report intention-to-treat effects, but can rescale these to get local average treatment effects

Data

Baseline survey at beginning of school year (in May 2009)

- ▶ enrollment, school infrastructure, nr of teachers, teacher experience, teacher gender

Three unannounced visits in July, September and November

- ▶ registers attendance of all pupils in 5th and 6th grade (last two years)

Balancing of treatment and control schools

Variable	Controls Mean	Treated Mean	p-value
Infrastructure index (0-7)	2.52	2.76	0.38
Pedagogical index (0-4)	1.15	1.16	0.94
At least one class per grade	0.44	0.47	0.64
School owns building	0.90	0.92	0.64
Share of female teachers	0.82	0.79	0.59
Number of teachers	4.69	5.13	0.47
Mean education teachers	4.26	4.25	0.96
Mean exp teachers (yrs)	19.2	18.4	0.57
Schoolsize (# pupils)	138	147	0.67

Numbers of schools by assigned and actual treatment

		Assigned		
		$Z = 0$	$Z = 1$	Total
Actual	$T = 0$	59 (40.7%)	14 (9.7%)	73 (50.3%)
	$T = 1$	10 (6.9%)	62 (42.8%)	72 (49.7%)
	Total	69 (47.6%)	76 (52.4%)	145 (100%)

This translates into a first stage estimate of 0.665 (s.e. 0.063)

No selection effect

	Levels			Relative	
	(1)	(2)	(3)	(4)	(5)
Assigned to treatment	1.55	0.95	0.06	-0.07	-0.09
	(5.47)	(1.62)	(1.59)	(0.07)	(0.07)
Mean dep var	41.1	41.1	41.1	0.08	0.08
N schools	145	145	145	145	145
Lagged enrollment	No	Yes	Yes	No	No
Other controls	No	No	Yes	No	Yes

Sunk-cost effect

	July	Sept	Nov	Average
Free uniforms	-0.027**	-0.006	-0.037**	-0.023**
	(0.011)	(0.015)	(0.015)	(0.011)
Mean dep var	0.93	0.90	0.93	0.92

Effects not different for boys and girls and for 5th and 6th graders

Multiply by 1.5 to get LATE's.

Nadine Ketel, Jona Linde, Hessel Oosterbeek & Bas van der Klaauw (2016). Tuition fees and sunk-cost effects. Economic Journal 126, 2342-2362.

Setting

Tutoring courses taken by undergraduate students in addition to normal classes

Classes: 4 weeks x 3 hours or 5 weeks x 2 hours

Costs: €60 - €75

340 students in 4 universities and 3 different study programs (psychology, economics, social sciences)

Experimental design

Enrolled students (willing to pay the full price) randomly receive an unexpected discount

Four treatments:

- ▶ Free (full discount)
- ▶ Large discount (discount of the full price minus €10)
- ▶ Small discount (discount of €10)
- ▶ No discount (no discount)

Students in different treatments are on average the same on observed characteristics.

Sunk cost prone students

Following Ashraf et al (2010), we asked participants:

"suppose you bought a bottle of juice for €2. When you start to drink it, you realize you don't really like the taste. Would you finish drinking it?" (yes/no)

Also for €5 and €1

A participant is "sunk-cost prone" if s/he always finishes the bottle, or finishes the bottle when a high price has been paid and doesn't finish the bottle when a lower price has been paid

Sunk-cost proneness is negatively correlated with studying Economics/Business and maximum willingness to pay, but not with gender, age, income, studytime, etc.

Effects on attendance

		Always present	Fraction present
(1)	Free	-0.11 (0.07)	-0.05 (0.03)
	Large	0.07 (0.07)	0.03 (0.03)
	Small	-0.04 (0.08)	-0.01 (0.04)
(2)	Free	-0.12 (0.05)**	-0.06 (0.03)**
(3)	Free or Large	-0.00 (0.04)	-0.01 (0.02)
(4)	Free, Large or Small	-0.03 (0.06)	-0.01 (0.03)
(5)	Discount	-0.03 (0.05)	-0.02 (0.03)
	Mean dependent variable	0.69	0.86

Effects on attendance sunk-cost prone students

		Always present	Fraction present
(1)	Free	-0.28 (0.09)***	-0.11 (0.04)**
	Large	-0.09 (0.09)	-0.05 (0.04)
	Small	-0.15 (0.11)	-0.07 (0.05)
(2)	Free	-0.19 (0.09)**	-0.07 (0.04)*
(3)	Free or Large	-0.12 (0.07)*	-0.04 (0.03)
(4)	Free, Large or Small	-0.18 (0.08)**	-0.08 (0.03)**
(5)	Discount	-0.16 (0.08)**	-0.06 (0.03)*
Mean dependent variable		0.89	0.97

Conclusion

Studies on free uniforms in Ecuador and on reduced tuition fees in the Netherlands suggest that some students are more likely to attend class when they have paid

This contrasts with results from studies on chlorin in Zambia and bednets in Kenya

Possible explanation for difference in findings is that health products have no/few alternative uses, whereas time spend on attending school does.