

Do Conditional Cash Transfers Lead to Better Secondary Schools? Evidence from Jamaica's PATH

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Introduction

Motivation: A good secondary education has the potential to break the intergenerational poverty cycle.

Problem? → Poverty hampers the capacity to aspire to a better future creating a self-sustained trap (Ray, 2002; Mullainathan and Shafir, 2013) because choices they can make are more restrained.

CCTs through the provision of a **steady income flow (financial stability to have a longer-term perspective)** could solve aspirational trap (Gutman and Akerman, 2008), improving educational outcomes.

Research question: do CCTs improve the educational trajectory of their beneficiaries?

Grade Six Achievement Test (GSAT)

Students that are in their last year of Primary School (Grade 6, age 11-12) must sit for the Grade Six Achievement Test (GSAT) to advance to secondary school.

GSAT evaluates primary school academic performance in five subjects: mathematics, science, language arts (English), social studies and communication tasks.

GSAT is also main mechanism to determine secondary school placement: students write down 5 secondary school preferences, take the exam and are placed based on their score and preferences.

Approximately 70% are placed in one of their five schools of choice.

Girls have better educational outcomes than boys

Secondary school gross enrollment: 86% for boys vs. 91% for girls (WDI, 2011).

Girls outperform boys in GSAT.

Average GSAT Scores (2010-2014)

Subject areas	Total	Girls	Boys	Difference (G-B)
Mathematics	96.17	98.09	94.12	3.97 ***
Science	96.19	97.76	94.51	3.25 ***
Social studies	96.17	98.05	94.17	3.88 ***
Language arts	96.19	99.00	93.19	5.81 ***
Communication task	96.18	99.72	92.40	7.32 ***
Combined standard score	442.44	452.74	431.45	21.28 ***

Programme of Advancement through Health and Education (PATH)

Eligibility is determined by a Proxy Means Test scores (PMT). In certain cases, a home visit is necessary.

Beneficiaries households receives education transfers for each children (6-17 years). Condition = 85% attendance.

Value of transfer is larger for higher educational levels and for boys than girls. Size of the transfer is relatively small compared with other CCTs.

Evidence of education impacts: higher school attendance (Levy & Ohls, 2007). No reports of evidence on learning.

Data Sources and preparation

- **Ministry of Education:** GSAT examinations (2009-2014)
 - 271,423 exams
 - scores, secondary school preferences (up to 5) and placement
- **PATH (MLSS):** Applications to enter the program (2007-2008)
 - 140,131 individuals (42,417 households) in urban areas.
 - socio-demographic characteristics, proxy means score, application status (approval and date of entry)
 - **Sample: 15,509 urban children born between 1998-2001**

Datasets were merged using first and last name, date of birth

Merge was successful in 10,999 cases (70.9% of the sample)

Outcome variables (2010-2014)

1. Secondary school aspiration

School quality (indicator) average of the five preferred schools expressed by the student before taking the GSAT.

2. Primary school learning

Combined or total score of the student that sit the GSAT.

3. Secondary school placement

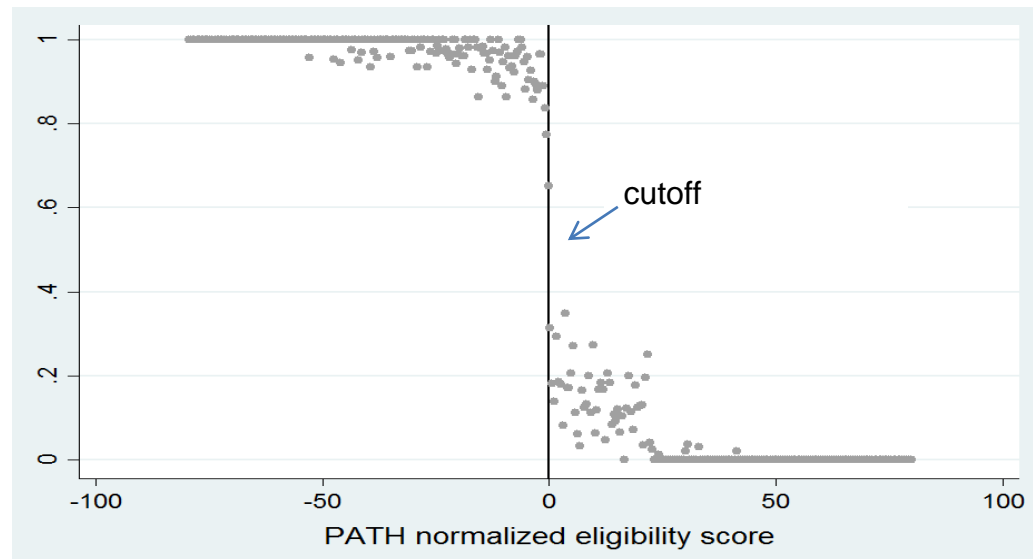
School quality (indicator) of the school in which the student was placed after taking the GSAT.

School quality indicator (proxy): Average GSAT combined score of the students placed in that school the previous year

Identification strategy: fuzzy Regression Discontinuity Design (RDD)

The evaluation strategy relies on estimating a RDD around the PMT score cut-off revealed by the take up data

PATH PMT score	PATH participation rate
1036 – 1037	95.4%
1037 – 1038	92.6%
1038 – 1039	94.7%
1039 – 1040	100.0%
1040 – 1041	92.7%
1041 – 1042	93.3%
1042 – 1043	89.0%
1043 – 1044	90.4%
1044 – 1045	95.7%
1045 – 1046	70.6%
1046 – 1047	18.0%
1047 – 1048	22.8%
1048 – 1049	13.2%
1049 – 1050	19.7%
1050 – 1120	5.6%

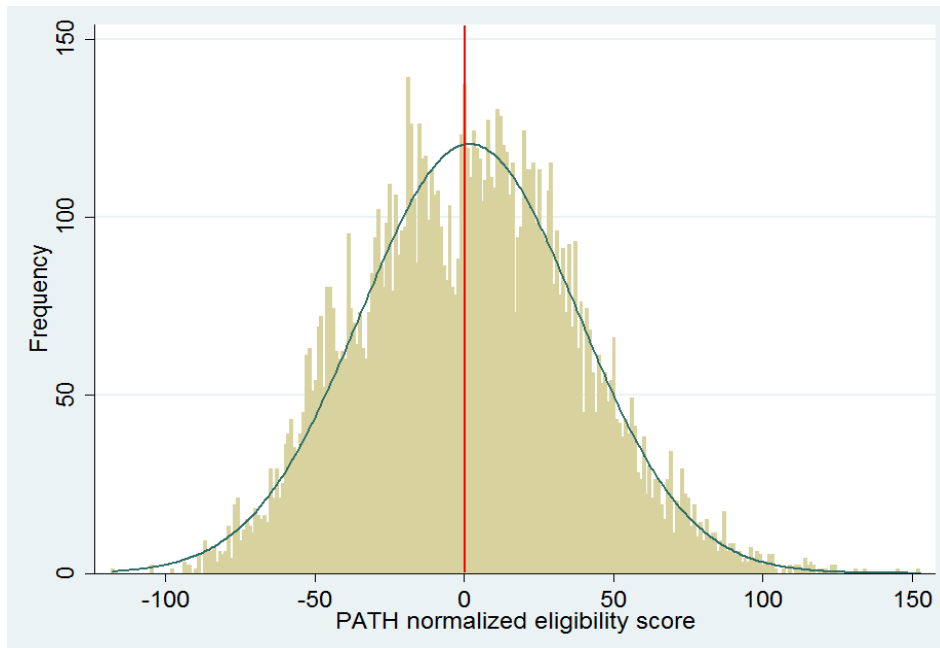


Estimates: Fuzzy local average treatment effect based on order-1 local polynomial regressions, MSE optimal bandwidth selector

Validity of the identification strategy

No discontinuity in the distribution around the cutoff

Distribution of the PATH Proxy Means Test Score



Manipulation test based on Density Discontinuity on assignment variable - (Cattaneo et al., 2016)

Discontinuity test	-1.15
p-value	(0.25)
Effective number of observations not eligible	1,471
Effective number of observations eligible	1,018
Bandwidth not eligible	12.37
Bandwidth eligible	10.63

STATA *rddensity* with triangular kernel and jackknife standard errors. Testing procedure based on robust bias-corrected method using MSE-optimal bandwidth choice.

Validity of the identification strategy

No discontinuity of baseline covariates around the eligibility threshold

Covariates	Probability of attrition (non-attriters = 1)	Gender (female = 1)	Age at GSAT	Household head gender (female = 1)	Household head completed high school (yes =1)
Estimate	0.04	0.05	0.02	-0.01	0.03
(p-values)	(0.22)	(0.29)	(0.46)	(0.61)	(0.41)
Mean covariates	0.71	0.51	11.49	0.93	0.46
Std. Deviation	0.45	0.50	0.55	0.25	0.50
Obs. not eligible	4,834	3,114	2,611	2,939	3,002
Obs. eligible	4,345	2,856	2,395	2,688	2,741
Bandwidth	31.15	28.18	23.02	26.19	26.78
Obs. bandwidth	9,179	5,970	5,006	5,627	5,743
Obs. total sample	15,509	10,999	10,999	10,999	10,999

STATA *rdrobust* command with linear polynomial function and triangular kernel using one common MSE-optimal bandwidth selector for the fuzzy RDD treatment effect estimator. Standard errors clustered at the household level.

Results

Fuzzy RDD, Point Estimators

Sample	Aspirations			Learning			Placement		
	Total	Girls	Boys	Total	Girls	Boys	Total	Girls	Boys
Estimate	-0.23	-3.01	1.06	7.32	-2.34	16.03**	6.62	0.15	11.81**
(p-values)	(0.98)	(0.40)	(0.71)	(0.11)	(0.93)	(0.03)	(0.12)	(0.84)	(0.03)
Mean Dep. Var.	506.86	512.42	501.08	449.61	459.89	438.95	454.21	458.88	449.35
SD Dep. Var.	29.54	27.53	30.44	60.9	56.93	63.01	53.84	53.43	53.84
Obs. not eligible	2,884	1,286	1,523	2,501	1,291	1,323	2,530	1,255	1,469
Obs. eligible	2,643	1,230	1,358	2,259	1,221	1,154	2,311	1,193	1,286
Bandwidth	25.96	22.81	27.91	22.50	23.25	24.16	23.16	22.88	27.30

1. No impact on educational aspirations
2. Urban boys performed better on GSAT (3.6% higher than non-beneficiaries). Consequently, they were placed in better secondary schools (secondary schools that are 1.5 percentiles higher in the ranking).
3. No impact for urban girls

Conclusions

Additional research is needed to better interpret results (length exposure, results by subjects, program mechanisms that propitiate these results).

Gender dimension of the results may be explained by the fact that girls have higher pre-treatment school performance (then, more difficult to perceive a sizable effect) -- but, we can't test this hypothesis.

Observed results are relevant because literature on the effects on CCTs on learning and school progression is still limited.

Thank you

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