Information and Educational Decisions: Some Ideas and Results

Francisco A. Gallego

PUC-Chile and J-PAL

9th Annual Meeting of the Impact Evaluation Network, CEDLAS-UNLP

The Talk

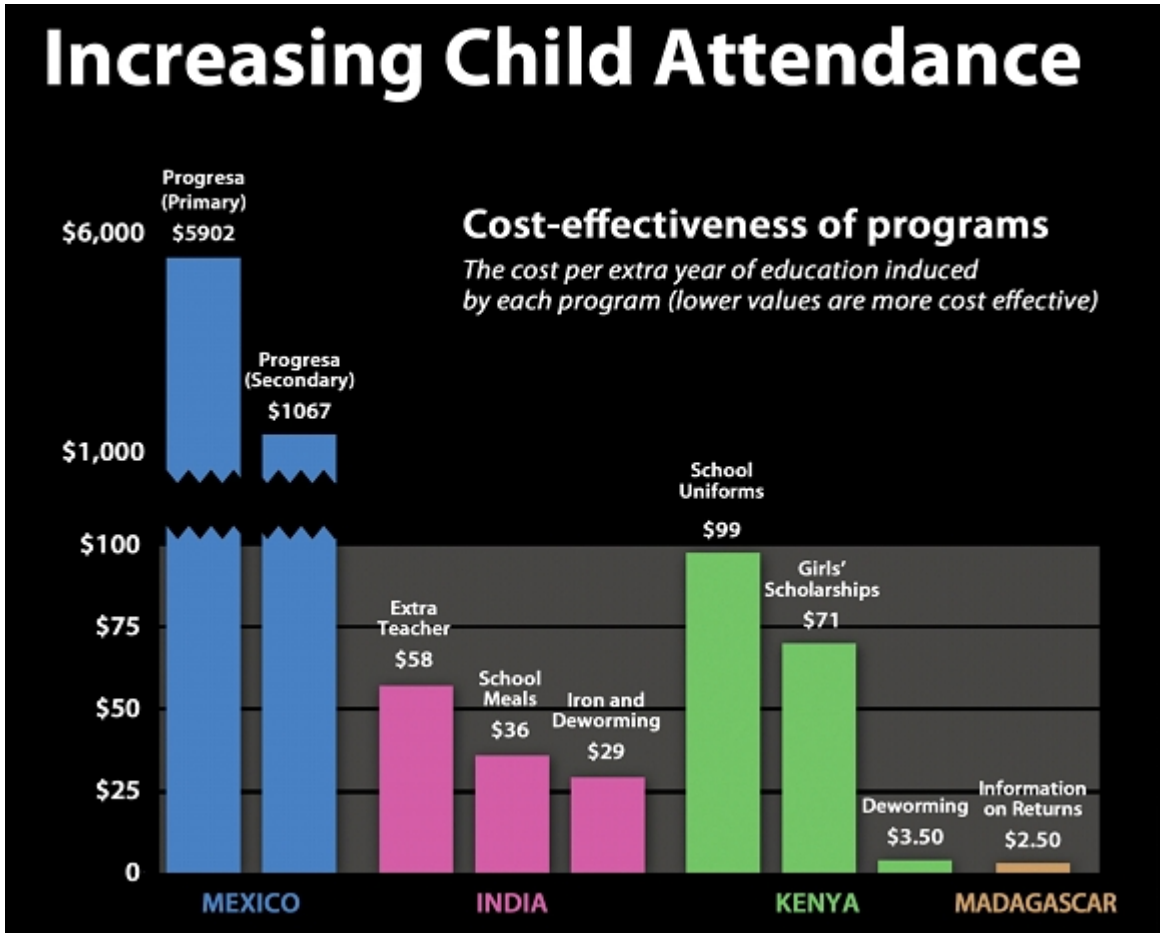
- Public Policies and Information
- Information and Education
- Some results from a research agenda/collection of impact evaluations
- Implications for public policies related to school choice

Public Policies and the Role of Information

- Information seems to matter (a lot!) in different areas (some examples from J-PAL projects):
  - Education
  - Health
  - Politics
  - Adoption of new technologies
  - Finance

- Take up of social policies

- Banerjee and Duflo (2011): One of the five lessons of Poor Economics: "The poor often lack critical pieces of information and believe things that are not true (e.g. on immunization, or benefits of education)".


Increasing Child Attendance
Cost-effectiveness of programs
The cost per extra year of education induced by each program (lower values are more cost effective)
$6,000
$1,000
$100
$75
$50
$25
0
Progresa (Primary)
$5902
Progresa (Secondary)
$1067
Extra Teacher
$58
School Meals
$36
Iron and Deworming
$29
School Uniforms
$99
Girls' Scholarships
$71
Deworming
$3.50
Information on Returns
$2.50
MEXICO
INDIA
KENYA
MADAGASCAR

Public Policies and the Role of Information

- The key underlying question is to understand why does it matter so much?
  - What is missing? Information on average characteristics, information on the distribution of option/characteristics, etc.
  - How does learning take place? Peers? Role of Public information? The role of the provider(s) of information?
- The details matter!:
  - How do we provide information?

  - Who provides it?

  - Do people receive it? Do people understand it?

- ...The research questions today are well beyond the research questions of papers like Jensen (2010, QJE).

Information and Education

- Information can be particularly relevant for education decisions:
  - Uncertain future and decisions
  - Dynamic complementarities: input choices in the future (supply and demand factors)
  - Complex good
  - "Experience" good
  - Complementarity with human capital of parents, friends, relatives: impacts on efficiency and equity outcomes

  - Household economics of the problem: who chooses? why?

- Different margins in which this may matter:
  - Information on the importance of education
    * Different educational stages
    * Different outcomes: monetary and non-monetary
  - Information on the available options:
    * Levels (primary, secondary, tertiary)
    * Tracks (vocational, university)
    * Fields (careers)

    * Schools

- Information on public policies:
    * Scholarships
    * Supporting services
    * etc.

An Example: Dinkelman and Martinez, 2014, Restat

- Motivation: limited access to higher education among poor kids despite the existence of scholarships.

- Intervention: video with information on how effort and good grades enable them to qualify for scholarships and government loans.
  - Details: 15-minute video entitled "Abre la Caja" ("Open the Box"), higher education stories of 13 adults who grew up in poor families in urban Chile.

- In 56 schools, the video was shown in class, while in another 56 schools the video was distributed to students to take home and watch with their parents. The remaining 114 schools served as a comparison group.

- Short-term results:

  - Video decreased the number of students with at least one absence during the month after the video was distributed by 8.8 percentage points on average (a 12 percent reduction).

  - Video increased enrollment in college preparatory high schools by 10 percent, among students whose current school terminated after eighth grade (requiring them to choose a new school for high school).

- No effects on test scores five months after the intervention.

- Effects by Baseline Academic Performance: Students with medium grades at baseline experienced the largest effects on enrollment and attendance: 13.6 percent more likely to enroll in college preparatory high schools and 17.6 percent less likely to be absent if exposed to "Abre la Caja," relative to the comparison group.

- Parents and students learned significantly more about financial aid requirements when the video was watched at home BUT no additional impact of exposure to the DVD at home.

- What is the morale of this? Effects of intervention on some margins, dynamic complementarities, effects on decision makers. Several relevant economic questions.

My research agenda(s)

- **Margin 1:** Effects of information on school choice in primary and secondary education, mainly in Chile and starting in Peru.

- **Margin 2:** Effects of information on higher education decisions (and child labor and educational effort) + dynamic complementarities + interactions with CCTs in Peru (joint work with Christopher Neilson and Oswaldo Molina).

  - Several "details": small scale RCT vs. a "real policy pilot (joint work with MINEDU); sequence of videos with a "story"; use of tablets and apps to improve the precision of the data coolection and learn about the process; build the experiments with a structural model in mind; etc.

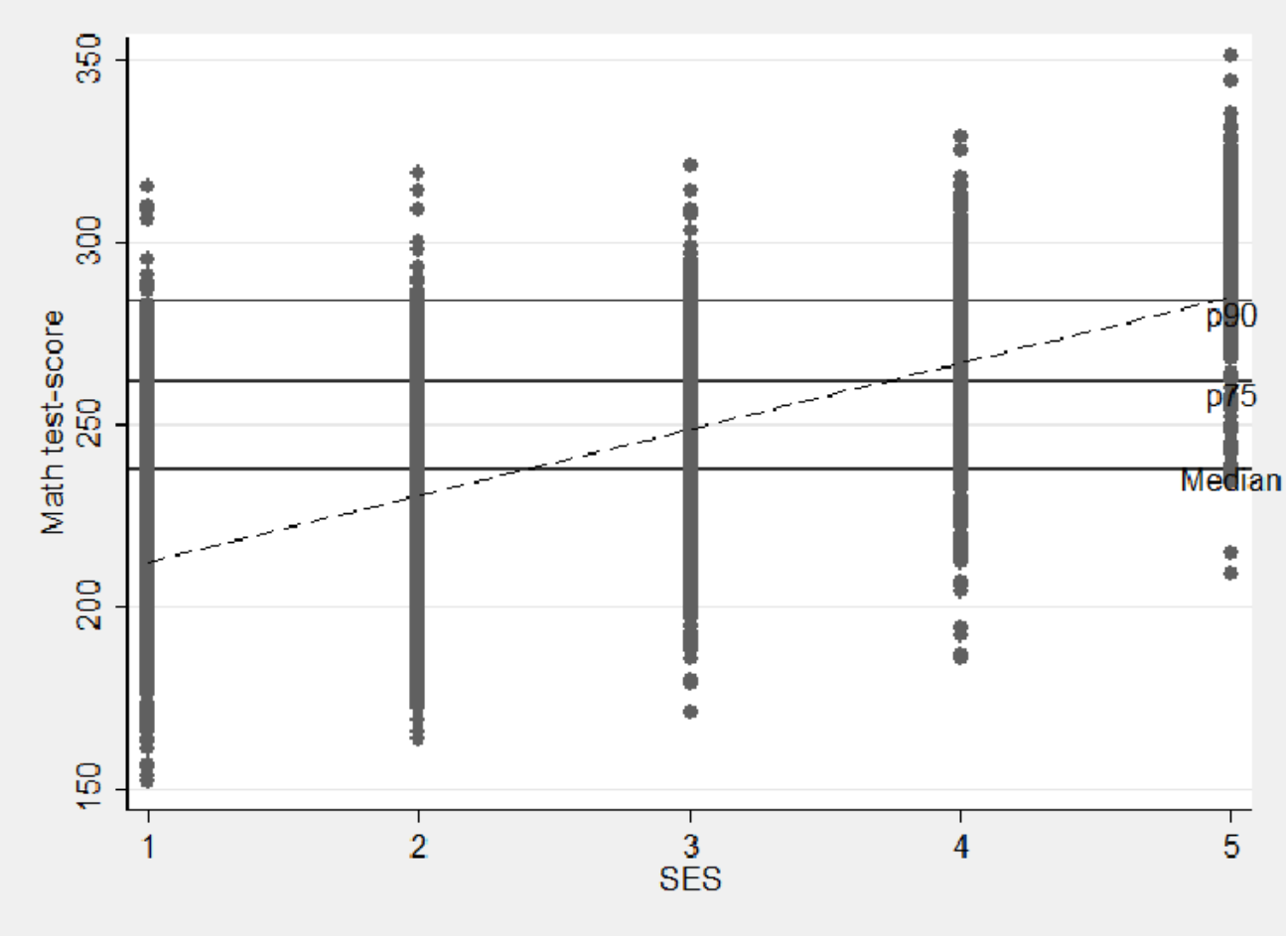
- I will focus the reminder of my talk on Margin 1.

The Chilean Voucher System: Outcomes

- Quasi-experimental evidence:
  - Increase in enrollment and educational attainment (Todd et al, 2010; Patrinos, 2012).
  - Effects on quality are either zero (Hsieh and Urquiola, 2005) or significant but small (Auguste and Valenzuela, 2005; Gallego, 2006; Gallego and Hernando, 2010), in line with international evidence on aggregate effects of "voucher" systems (Boettinger, 2012)
    - Literature on reasons: Soft budget constraints related to political economy of public schools (Gallego, Sauma, Rodríguez-Sickert, 2009; Gallego, 2012), selection from the supply-side (MacLeod

and Urquiola, 2011), low and flat value of the voucher (Gallego, 2007; Gallego and Sapelli, 2007), **experimental evidence** on lack of information (Cooper, Gallego, Lagos, 2012), etc.

– Within-country dispersion in the next slide: SES gradient but a high variance *within* low SES groups.



Test Scores and SES: 4th graders

Motivation

- Then, research focused on a particular set of questions related to school choice:
  - Do parents respond to school attributes (namely, school quality)?
  - Are determinants of choice heterogeneous?
  - What causes heterogeneity? Preferences? Policies? Information?
  - How do schools respond to demand for attributes? Heterogeneity?
- Implications of school choice on efficiency and equity depend upon answers to (at least some of these) questions.

Gallego and Hernando 2010: Main Results

- Structural model of school choice a la BLP: "Disciplined" correlations

- Effects on enrollment:
  - Positive: mean income, mean test scores, discipline, being close to a subway station.
  - Negative: distance, single gender schools, teaching of religious values, copayment.
  - No effect: extended hours (not shown: other public transfers).

- However, there is a lot of heterogeneity (main results):
  - More educated and richer parents tend to put more weight on average education and income
  - More religious people tend to put more (less) weight on the teaching of values (distance).
  - Test scores and discipline (teaching of values, full day) tend to be less (more) important for female students.
  - Parents with more expectations about their kids' achievement tend to put more (less) weight on test scores, peers (copayment, distance).
  - No evidence this is driven by selection from the supply side. Key for policy implications: self-selection.

Some Results on Information and School Choice

- Then, may information play a role here?

- If so, what?
  - School outcomes (Hastings and Weinstein, 2007 QJE; Andrabi et al, 2010)
  - School returns (Nguyen, 2008; Jensen, 2010 QJE; many many papers)
  - Both? (notice the results of Banerjee et al., 2009)

- ...and how? (Cortés, Gallego, Lagos, Stekel, 2008)
  - Some literature in Economics: Bertrand et al. (2004)

- ..and where? when?
  - School entry vs school exit (change) margins. Huge difference (many papers in Economics on this...)
  - General equilibrium consequences?

- Then let´s try to do some experimental studies to learn more and also try very cost effective interventions (Nguyen for Madagascar, and Jensen for the Dominican Republic)...

- Many details...really a lot of time in the pre-RCT work: stylized facts, focus groups, pilots, exploratory surveys, etc...

The Experimental Agenda

- Three RCTs (so far):
  - "Types of Information and School Choice: An Experimental Study in the Chilean Voucher System" (Gallego, Lagos, Stekel, 2012)
    - Sequel: Gallego and Neilson, in progress. Go back to a structural model to understand the details and mechanisms.
  - "Informing on Educational Voucher Eligibility for Poor Parents: An Experimental Study for Chile" (Gallego, Martínez, Larrañaga, in progress)

  - "Vocational Education in Chile: A Market Level Information Dissemination Experiment" (Autor, Bertrand, Duflo, Feigenberg, Gallego, in progress)

- Let´s briefly discuss the idea and motivation in each of them and some results.

"Types of Information and School Choice: An Experimental Study in the Chilean Voucher System"

(Gallego, Lagos, Stekel, 2012)

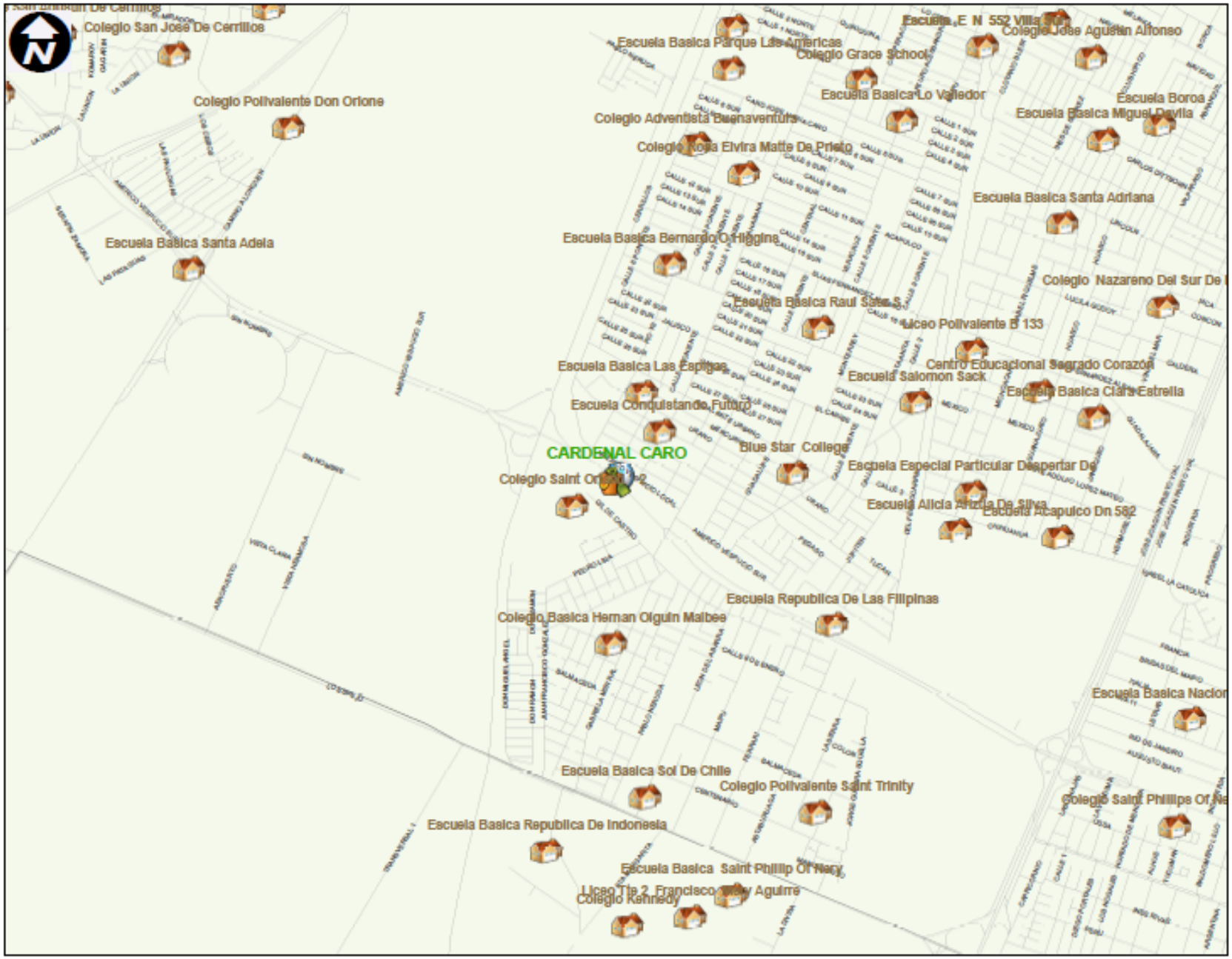
Motivation

- The Intervention: *Provision of Information to Low-Income Parents*
  - Implemented by us to "graduating" students from Fundación Integra, which is the second larger supplier of preschools in Chile focused in low-income neighborhoods (98% of our sample comes from the three first income quintiles)
- Our sample are final grades in preschools from
  - The three larger regions in the country: Santiago, Valparaíso and Biobío, located in urban areas (Integra's criteria)
  - With "sufficient" school competition:
    1. at least 10 schools within 2Km.
    2. in municipalities where (primary schools/preschools) ≥ 2
  - 143 preschools, 118 in Santiago, 15 in Biobío and 10 in Valparaíso
- Two treatments:

Motivation

- Treatment 1: In regular meeting, we hand out a school report (developed and pre-tested in Cortés et al. 2009). Report Card with information regarding school performance and other characteristics valued by parents, such as price, size and type (ie. public or private).
  - Only for schools close to the preschool and limited to 30 schools due to space constraints
  - Accompanied with a map to locate schools
  - Meeting: each parent received a copy of the RC and the map and it was publicly explained and there was time to ask questions about the information

Jardín Cardenal Caro



Treatment

- Treatment 2: RC+Video based on three testimonies of people from similar backgrounds, ie. role models (Nguyen, 2008)
  - Mother that decided to change a son of school between 1st and 2nd grade to enroll him in a high-performance school (standardized scores)
  - Man who attended a high-performance school which enabled him to go to college and who was currently ending his engineering degree
  - Woman whose high-performance school allowed her to study a vocational career and now holds a job in a bank
  - Also provided some information about rates of return of tertiary education in Chile (on average those with college degree earn three times of those with secondary degree)
- Control group: meeting to discuss the end of the school year.
- Notice all groups received the *probably badly-implemented* educational traffic-lights...

Results

- The main results are related with the school chosen (administrative data from the Ministry of Education), but we also asked parents (May-July 2011) about the underlying mechanisms behind their choice
- Groups are balanced in terms of (follow-up) household characteristics (not affected by treatment)

Table : Effect of the Information in the Enrollment Process

	(1) Number of Schools in the "Sector"	(2) Wanted to Apply but Did Not	(3) Applied	(4) Number of Schools Applied	(5) Did any School Rejected	(6) Number of Rejections	(7) Enrolled
Report Card	0.034	-0.086***	0.018	0.031	-0.006	-0.016	0.013
	(0.120)	(0.029)	(0.020)	(0.056)	(0.019)	(0.056)	(0.021)
Video	0.082	0.033	-0.015	-0.103*	-0.045**	-0.133**	-0.004
	(0.120)	(0.025)	(0.021)	(0.058)	(0.019)	(0.056)	(0.022)
Mean of Control Group	3.025	0.319	0.948	0.707	0.089	0.263	0.938

Table : Effect of information in school choice

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Private	Test-scores	Reading score	Math score	Distance to school	Free school	School size
Panel A: All parents							
Report Card	0.113**	0.182**	0.221***	0.143*	0.566**	-0.135**	0.068
	(0.052)	(0.081)	(0.084)	(0.080)	(0.273)	(0.054)	(0.049)
Video	0.001	-0.021	-0.035	-0.009	-0.234	-0.008	0.083
	(0.049)	(0.080)	(0.081)	(0.081)	(0.259)	(0.057)	(0.052)
Panel B: Parents already enrolled							
Report Card	0.067	0.120	0.186	0.060	0.007	-0.063	0.059
	(0.052)	(0.136)	(0.138)	(0.136)	(0.395)	(0.062)	(0.092)
Video	0.003	0.067	0.040	0.089	0.311	-0.007	0.136*
	(0.052)	(0.105)	(0.106)	(0.105)	(0.419)	(0.061)	(0.072)
Panel C: Parents not enrolled							
Report Card	0.165**	0.282***	0.313***	0.250**	0.940**	-0.213***	0.048
	(0.074)	(0.100)	(0.099)	(0.101)	(0.402)	(0.073)	(0.051)
Video	-0.020	-0.100	-0.104	-0.094	-0.787**	0.004	0.021
	(0.065)	(0.112)	(0.109)	(0.115)	(0.366)	(0.074)	(0.061)
Mean of Control Group (full sample)	0.628	0	0	0	1.399	0.460	4.082

Table : The effect of considering information in school choice, IV approach

	(1) Private	(2) Combined score	(3) Reading	(4) Math	(5) Distance	(6) Free school	(7) School size	(8) First stage
Considered RC	0.272***	0.413**	0.492***	0.335**	1.100*	-0.344***	0.256**	
	(0.104)	(0.168)	(0.170)	(0.167)	(0.565)	(0.111)	(0.113)	
Report Card								0.412***
								(0.030)
Video								0.009
								(0.040)
F-test excluded instr.								140.58

RCT: Giving Information to Poor Families in Chile

- **Gallego, Larrañaga, Martínez**

- *Subvención Escolar Preferencial* (Preferential Voucher for the Poor) implemented in 2007. Increase in the voucher targeted at the poor: (i) increase education expenditures for the poor (with regulations to insure money spent in schools) and (ii) expand the choice set for them (to decrease segregation). Details:

  - Increase in the value of the voucher by almost 100%

  - Exemption from top-ups

  - Immediate acceptance in schools and if there is excess of demand $\longrightarrow$ *lottery*.

  - **Important: about 90% of schools accepted to participate in this scheme.**

- As of 2009, almost no change in enrollment of poor students (in spite of a significant increase in their test scores–probably related to the increase of resources). An information problem? (One alternative hypothesis: eligibility for the voucher is too short–just for one year, then changing school is too risky).

- Then, we implemented an experimental study targeted at the eligible families with kids about to enter the school system ($3-4$ years old)

that will receive the voucher for more than one year (members of a program called *Chile Solidario*).

  - Funding and implementation: Ministry of Education.

  - Design: Compass Commission set up by J-PAL LAC and Ministry of Social Development of Chile (Quipu Commission in Peru too): international group of academics identified and pre-designed four programs to be evaluated using RCTs in Chile.

- Details of the Experiment:

  1. "Placebo" group: a flyer with a reminder that they will have to choose a school and with a list and map with schools close to the pre-school centers attended by their kids.

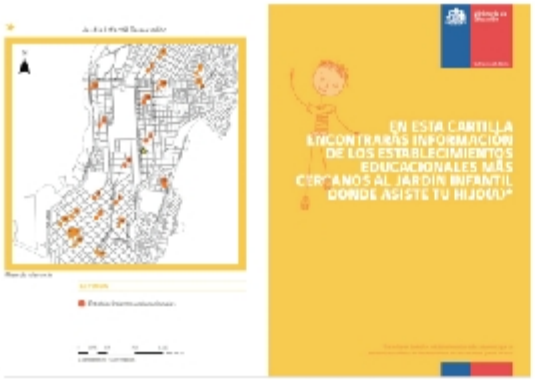
2. 1. + a flyer informing that their kids are eligible for the SEP scheme (and what it means) and informing on the schools that are part of the program in their neighborhood.

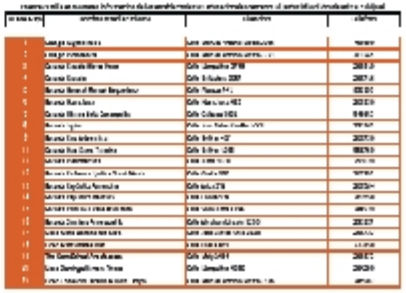
3. 2. + detailed information (test scores, copayment, voucher/public school, school size, etc.) on all the schools in their neighborhood.

Planilla C

ABDUL LATIF JAMEEL
Poverty Action Lab

TRANSLATING RESEARCH INTO ACTION

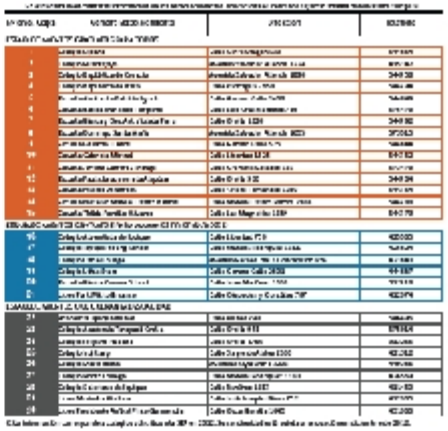




Planilla T1

ABDUL LATIF JAMEEL
Poverty Action Lab

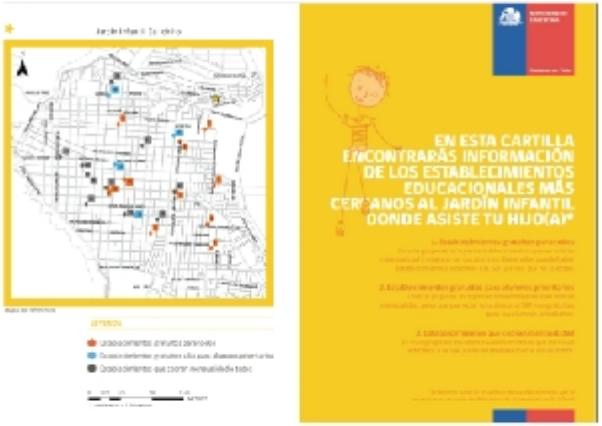
TRANSLATING RESEARCH INTO ACTION



Planilla T2

ABDUL LATIF JAMEEL
Poverty Action Lab

TRANSLATING RESEARCH INTO ACTION



- Expected outcomes?
  - Number *and type* (distance, school outcomes, price) of school enrolled in.
  - School outcomes in test scores in 2th grade (not available yet...)
- Process information:
  - Program successfully implemented (using post mail through the pre-school centers) to 2,800 families in the whole country.
    * Process information using mail information plus phone calls: at least 88% of parents received the information.

- A webpage to collect information on whether parents received the information and about parents reaction to the information (did they find it useful?) and to parents´ understanding of the information (a short test).
  - Good news: parents received and valued the information; they also seemed to understand what was in the flyers. Relevant for scale-up: letters sent through the official channels (regular mail, pre-school centers, etc.)
  - Bad news: just a few parents (8%) entered the web-page (same thing happened in other RCTs) even tough they had incentives: this is relevant for scale up.

- Impacts? (preliminary)

- Year 1: No effects for the 65% of students who were enrolled in school.

- Year 2: T1: Increase in the probability of attending a SEP school with top-ups, of attending schools with better SIMCE. T2 no difference with respect to placebo. No effects on distance traveled.

Taking Stock

- In all, two experimental studies that try to see whether the dissemination of information to poor families in a context in which school choice is key for education outcomes.

- Key difference: one small-scale RCT vs. bigger scale experiment implemented through a "normal" situation.
  - Maybe this squares these results with the paper by Mizala and Urquiola (2013): quasi-experimental study finding no effect of information on school enrollment.
    - BUT: Interpretation point: There are impacts for new schools Allende, Gallego, and Neilson (in progress)

Information on Vocational Education Outcomes

- **Autor, Bertrand, Duflo, Feigenberg, Gallego**

- A big share (53%) of students have to choose school again in 8^{th} grade (65% of schools do not have secondary education). Most of them from low SES. Roughly speaking two types of secondary education: academic (ie., directed towards university education) or vocational education (ie., towards the labor market or vocational higher education). Vocational secondary education in Chile is very important: around 40% of secondary school kids follow vocational tracks. Most of them come from poor backgrounds.

- Incentives problem imply that many vocational schools offer low employment tracks and have bad academic outcomes. Students/families mostly uninformed about employment outcomes either by track or by school.

- If demand side is informed about employment and other outcomes, may this equilibrium change?

- Then, an experimental study including all 8th graders with treatments allocated at the primary school level. We sent flyers to students including employment outcomes (employment rates and average wages in 2010 for cohort that finished school in 2005, ie., 5 years after finishing secondary school) and educational outcomes (higher education enrollment and graduation rates) at the track and school level using data from the Chilean IRS.

- Funding and implementation: Ministry of Education.

- Market definition: we defined markets as geographic areas in which schools competed among each other for graduating secondary students (ie., sometimes market is a city/county; some times is a sub-set of a city; sometimes mergers two or more counties).

- Details of the Experiment:

  1. Control group: 8th graders in some schools (and markets) did not receive information.

  2. Demand-side treatment groups: some schools treated and in some markets a bigger share of 8^{th} graders were treated. Then a series of experiments in which the intensity of the treatment *at the market level* changed.

3. Supply-side intervention: cross-cut design to inform schools that the students will be informed

Ministerio de Educación

Gobierno de Chile

Educación media

SAN IGNACIO

Cartilla de apoyo a la elección de alternativas educacionales

Resultados académicos

Si le interesa conocer los resultados académicos de cada establecimiento, revise **SIMCE 2º medio** al interior de la cartilla.

Continuación de estudios

Si le interesa conocer el porcentaje de alumnos matriculados en establecimientos de educación superior, revise **% Estudios superiores** al interior de la cartilla.

Mercado laboral

Si le interesa conocer la situación laboral de los egresados, revise **Ingresos** y **% Empleado** al interior de la cartilla.

Ingrese a www.eligeinformado.cl y participe en el sorteo de un celular smartphone para usted y otro para su hijo/a*.

* Cada celular incluye una tarjeta SIM y $35.000 en llamadas. Podrán participar en el sorteo los apoderados de estudiantes de octavo básico que retiren esta cartilla e ingresen a la página web. La campaña tendrá vigencia a partir de las 12 horas del día 06/08/2012 hasta las 12 horas del día 1/12/2012. El sorteo se realizará el día 5/12/2012 a las 12 horas en la Escuela Moderna 4860, Macul, a través de la aplicación www.somos2.com. Se seleccionarán dos ganadores, una titular y otro suplente. El ganador titular será notificado por vía telefónica. Se efectuarán 5 intentos para contactar al ganador dentro de los 5 días hábiles siguientes al sorteo. Si no es posible el contacto con el ganador titular, se reemplazará por el ganador suplente. El premio será entregado a través de Chile Compras. El ganador deberá firmar un documento que certifique la recepción del premio.

Especialidad	Ingresos[1]	%Empleado[2]	%Estudios superiores[2]	Establecimientos de la comuna que ofrecen cada especialidad[3]
Promedio regional	**$237.200**	**77%**	**28%**	
Acuicultura	s/i	s/i	s/i	Especialidad no ofrecida por establecimientos de la comuna
Administración	$211.378	70%	36%	Especialidad no ofrecida por establecimientos de la comuna
Agropecuaria	$248.239	80%	29%	Especialidad no ofrecida por establecimientos de la comuna
Atención Social y Recreativa	$248.926	70%	33%	Especialidad no ofrecida por establecimientos de la comuna
Atención de Adultos Mayores	$242.574	42%	21%	Especialidad no ofrecida por establecimientos de la comuna
Atención de Enfermos	s/i	s/i	s/i	Especialidad no ofrecida por establecimientos de la comuna
Atención de Párvulos	$278.724	73%	30%	Especialidad no ofrecida por establecimientos de la comuna
Construcciones Metálicas	$300.024	80%	19%	Especialidad no ofrecida por establecimientos de la comuna
Contabilidad	$247.419	76%	44%	Especialidad no ofrecida por establecimientos de la comuna
Edificación	$260.510	83%	26%	Especialidad no ofrecida por establecimientos de la comuna
Elaboración Industrial de Alimentos	$288.900	71%	20%	Liceo Politécnico Martín Ward
Electricidad	$308.603	90%	28%	Especialidad no ofrecida por establecimientos de la comuna
Electrónica	$277.832	80%	37%	Especialidad no ofrecida por establecimientos de la comuna
Forestal	$244.420	77%	13%	Especialidad no ofrecida por establecimientos de la comuna
Gráfica	$201.384	86%	28%	Especialidad no ofrecida por establecimientos de la comuna
Instalaciones Sanitarias	$280.030	81%	34%	Especialidad no ofrecida por establecimientos de la comuna
Laboratorio Químico	$284.737	77%	45%	Especialidad no ofrecida por establecimientos de la comuna
Mecánica Automotriz	$277.052	88%	23%	Especialidad no ofrecida por establecimientos de la comuna
Mecánica Industrial	$276.054	84%	26%	Especialidad no ofrecida por establecimientos de la comuna
Operación Portuaria	s/i	s/i	s/i	Especialidad no ofrecida por establecimientos de la comuna
Operación de Planta Química	s/i	s/i	s/i	Especialidad no ofrecida por establecimientos de la comuna
Pesquera	$216.913	82%	20%	Especialidad no ofrecida por establecimientos de la comuna
Procesamiento de la Madera	$228.023	76%	15%	Especialidad no ofrecida por establecimientos de la comuna
Productos de la Madera	$216.517	76%	23%	Especialidad no ofrecida por establecimientos de la comuna
Refrigeración y Climatización	$241.329	82%	38%	Especialidad no ofrecida por establecimientos de la comuna
Secretariado	$265.606	71%	25%	Especialidad no ofrecida por establecimientos de la comuna
Servicio de Alimentación Colectiva	$266.639	80%	18%	Colegio Politécnico Víctor Jara
Servicio de Metalurgia	$242.028	80%	10%	Especialidad no ofrecida por establecimientos de la comuna
Servicio de Turismo	$275.160	65%	9%	Especialidad no ofrecida por establecimientos de la comuna
Telecomunicaciones	$272.673	80%	35%	Especialidad no ofrecida por establecimientos de la comuna
Terminaciones de Construcción	s/i	s/i	s/i	Especialidad no ofrecida por establecimientos de la comuna
Ventas	$225.738	76%	26%	Especialidad no ofrecida por establecimientos de la comuna
Vestuario y Confección Textil	$218.885	48%	15%	Especialidad no ofrecida por establecimientos de la comuna

*Las especialidades técnicas corresponden a todas aquellas ofrecidas en la región. La información corresponde al promedio anual regional.

Notas números 4, 5 y 6 se encuentran al interior de la cartilla

[3] Señala los establecimientos de la comuna con una o más alumnos matriculados en cada especialidad según el decreto n. 2516 del Ministerio de Educación

Cartilla de apoyo a la elección de establecimientos educacionales*

Dependencia¹	Establecimiento²	Mensualidad³	Ingresos⁴	% Empleabilidad⁵	%Estudios superiores⁶	SIMCE (2ºMedio)⁷	Dirección
	Promedio regional		**$225.541**	**74%**	**44%**	**252**	
Establecimientos científico humanistas profundizan áreas de formación general.							
Munic.	Liceo Manuel Jesús Ortiz	Gratuito	$207.656	65%	8%	225	Calle Manuel Jesús Ortiz 555
Munic.	Liceo Pueblo Seco	Gratuito	$266.552	84%	20%	218	Camino A Yungay 18
Establecimientos técnico profesionales combinan el aprendizaje teórico y práctico, enfocado a un campo ocupacional específico.							
Munic.	Colegio Politécnico Víctor Jara	Gratuito	$220.183	69%	4%	214	Camino A Yungay 14
P. Subv.	Liceo Politécnico María Ward	Gratuito	$264.308	78%	15%	233	Calle Los Carrera 467
Establecimientos polivalentes ofrecen educación científico humanista (CH) y técnico profesional (TP).							
No existen establecimientos polivalentes en esta comuna							

- Process information
  - Actual distribution to the schools: 97% but using information from a follow-up survey just 49% handed out the reports to the parents and about 33% have actual proofs of that.

- Impacts (preliminary):
  - Secondary schools chosen by treated students have better employment outcomes and are located significantly closer, also increases in probability of enrolling in schools with good "packages" of attributes.
  - No impact for students who were enrolled in primary schools with continuity. Results tend to be stronger for students that had relatively low GPA. Then, secondary schools with better outcomes tend

to increase their enrolment in counties with intensity levels higher than zero. No change in the composition of the first year enrolled students in these schools in terms of GPA and vulnerability.

- The increases in enrolment in these schools are similar across treated counties, regardless of treatment intensity.

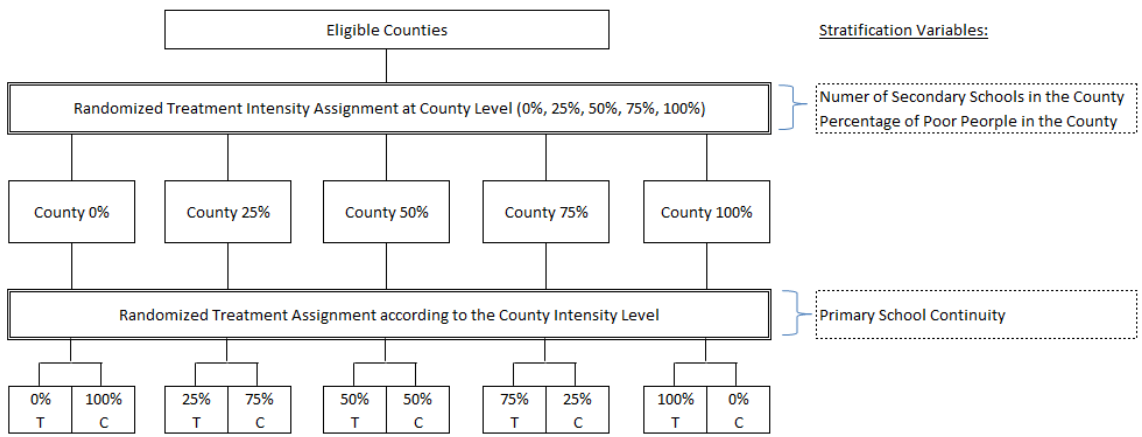
- Survey results suggest that schools with better outcomes received more applicants.

- Some supply side reactions: results on variables related to attracting new applicants (such as advertising and admissions criteria).

Treatment Assignment

- Our sample represented 249 counties, including a total of 5,608 primary schools and 235,650 8th grade students.
- The random assignment was conducted in two levels;
  - First, eligible counties were assigned randomly one of the following intensity levels: 0%, 25%, 50%, 75%, 100%.
  - Then, according to the level of intensity assigned, we randomly allocated the treatment among primary schools in each county.
- As a result of this random design, 2,911 primary schools belonging to 188 counties were assigned to receive report cards.

Figure 1: Random Assignment of Report Cards to Primary Schools



Back

Results on School Choice: Administrative Data

- **School Choice Process:** The following table describes the school choice process. Since our intervention was aimed at supporting the school choice process, we will split the results depending on whether the student was enrolled in a primary school with or without continuity.

Table 1: School Choice

	Primary without Continuity	Primary with Continuity
Student changed School	1.00	0.18
Secondary in the Same County	0.72	0.93
Secondary without Continuity	0.62	0.08
Type of School		
Vocational	0.38	0.10
Polivalent	0.33	0.16
Academic	0.29	0.74
N	98531	104467

- Additionally, we detect some imbalances on results (according to falsifications) so in our estimations we are including a previous cohort using an "Dif-Dif" approach (all the regression use year 2009 as baseline year because it allows us to perform falsifications exercisers).

▶ Balance

Choice Set Construction

Figure 2: Predicted likelihood to the actual choice

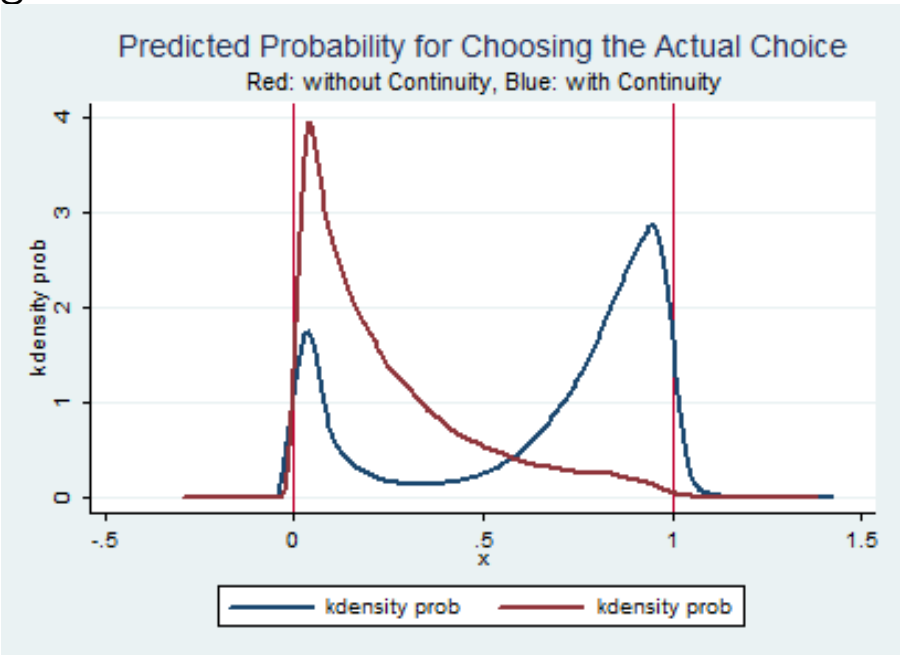


Table 17: Choice set description

	All	Big City	No-Cont	No-Cont/Big City
Choose within the Choice Set	0.90	0.89	0.88	0.86
Number of Secondary within the Choice Set	11	14	14	21
Average of the Mean Distance to alternatives	3.82	2.62	4.69	3.01
Average of the Maximum Distance to alternatives	9.41	7.72	11.42	9.45

Back

Correlation Matrix

Table 18: Variables Correlation

	Simce	Distance	Vocational	Academic	Rate Higher Ed	Income	Employment	Price
Simce	1							
Distance	-0.314***	1						
Vocational	-0.317***	0.446***	1					
Academic	0.528***	-0.449***	-0.596***	1				
Rate Higher Ed	0.805***	-0.461***	-0.497***	0.736***	1			
Income	0.693***	-0.244***	-0.227***	0.395***	0.568***	1		
Employment	0.227***	-0.0503	0.0628**	0.0132	0.198***	0.216***	1	
Price	0.676***	-0.303***	-0.264***	0.451***	0.615***	0.685***	0.00259	1
Obs.	2586	2139	2595	2595	1979	1721	1713	2526
Variable Mean	261.00	1.75	0.15	0.67	0.65	434685	0.79	38173

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Back

Results on School Choice: Administrative Data

$$\begin{aligned} Y_{itk} =& \alpha + \beta T_k + \gamma_1 Post_{2013} + \delta_1 T_k \cdot Post_{2013} + \gamma_2 Post_{2010} \\ &+ \delta_2 T_k \cdot Post_{2010} + \eta X_i k + \phi D_k + \epsilon_i \end{aligned} \tag{1}$$

Where Y_{itk} represents the outcome in 2013 of the secondary school chosen by student i in year t that was enrolled in 8th grade in school k (2013 is the only year where we have info on all outcomes), T_k takes the value 1 if the school k was assigned to the treatment and $Post_t$ takes the value 1 for choices of students in year t (baseline is 2009). $X_i k$ are student and school level controls and D_k represent strata fixed effects. Standard errors are clustered at schools level.

Table 2: Characteristics of chosen Secondary School

OLS, with covariates, fe(strata) cl(School)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	Simce (sd)	Rate Higher Ed (sd)	Income (sd)	Employment(sd)	Distance (sd)	Price (sd)	Vocational	Polivalent	Academic	Same County
T*$Post_{2013}$*Cont	-0.003	-0.010	0.009	0.003	0.005	0.005	0.010**	0.008	-0.018***	-0.000
	(0.012)	(0.013)	(0.014)	(0.017)	(0.011)	(0.009)	(0.005)	(0.006)	(0.007)	(0.004)
T*$Post_{2013}$*No-Cont	0.008	-0.001	0.008	0.031**	-0.014	0.002	0.012*	-0.011*	-0.001	0.007
	(0.009)	(0.011)	(0.008)	(0.012)	(0.013)	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)
T*$Post_{2010}$*Cont	0.001	0.002	0.003	0.008	0.010	0.001	-0.001	0.006	-0.005	-0.006*
	(0.009)	(0.009)	(0.010)	(0.012)	(0.009)	(0.006)	(0.004)	(0.006)	(0.005)	(0.003)
T*$Post_{2010}$*No-Cont	0.008	0.009	0.005	0.006	0.002	-0.000	-0.001	-0.002	0.003	-0.003
	(0.008)	(0.009)	(0.006)	(0.010)	(0.011)	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)
Observations	639,480	554,702	516,181	515,335	583,840	636,295	640,048	640,048	640,048	640,048

- Controlling by average outcomes of the schools chosen by students in previous cohorts maintains this impacts, but adds several others (this alternative specification doesn't use diff-in-diff approach).

▶ Alternative Specification

Results on School Choice

- **Selection of "Good" Schools**
  - We identify secondary schools that are above or below certain percentiles according to different outcomes.
  - We then analyse if treated students are more prone to choose one of these schools.

Results on School Choice

$$I_{itk} = \alpha + \beta T_k + \gamma Post_t + \delta T_k \cdot Post_t + \eta X_i + \phi D_i + \epsilon_i \quad (2)$$

Where I_{itk} is a dummy variable that takes the value 1 if the school selected by student i (that was enrolled in 8th grade in school k) in period t was above (below) the corresponding percentile when comparing to other schools in the same county, according to its outcomes in 2013 (% Higher Education, SIMCE, Income and % Employed). T_k indicates that the school k was assigned to the treatment and $Post_t$ takes the value 1 for year 2014 in the main estimation and 2011 in the falsification (baseline is year 2010 in both cases). X_{ik} are student and school level controls and D_k represent strata fixed effects. Standard errors are clustered at primary school level.

Table 4: Selection of Good Schools

OLS, with covariates, fe(Strata) cl(School)

	$\leq$			$\geq$		
Cutoff	20	30	40	60	70	80
T*Post*Cont	0.001	0.004	-0.000	0.006	0.004	0.011*
	(0.004)	(0.005)	(0.006)	(0.007)	(0.007)	(0.007)
T*Post*No-Cont	-0.009	-0.001	-0.005	0.015***	0.010**	0.004
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.004)
Observations	425,331	425,331	425,331	425,331	425,331	425,331

- Educational outcomes seem to impact positively on good schools although only labour outcomes seem to be important for students who avoid bad schools.

▶ Educational outcomes

▶ Labour outcomes

Results on Secondary Schools: Administrative Data

- Number of students rose in good schools but there is no clear pattern depending on treatment intensity.
- Average vulnerability diminished in bad schools but only in counties with low treatment intensity.
- Results are lead by educational outcomes, while labour outcomes don't have any impact.

Table 5: Impact on Schools

	$\leq$			$\geq$		
Cutoff	20	30	40	60	70	80
			N Students			
T	-1.792	-0.238	-1.190	4.354***	6.041***	5.029***
	(2.240)	(2.335)	(1.793)	(1.240)	(1.445)	(1.674)
N	2,576	2,576	2,576	2,576	2,576	2,576
			Distance Mean			
T	-0.103	-0.147	-0.122	0.078	0.136	0.054
	(0.134)	(0.102)	(0.089)	(0.072)	(0.093)	(0.093)
N	2,186	2,186	2,186	2,186	2,186	2,186
			Average Vulnerability			
T	-0.003*	-0.003	-0.002	0.002	0.004	0.002
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
N	2,576	2,576	2,576	2,576	2,576	2,576
			Mean GPA			
T	0.014	0.014	0.013	0.022*	0.021	0.021
	(0.018)	(0.017)	(0.015)	(0.012)	(0.014)	(0.016)
N	2,576	2,576	2,576	2,576	2,576	2,576

Robust standard errors clustered at county level in parenthesis.
*p<0.1, **p<0.05, ***p<0.01

▶ Educational Outcomes ▶ Labour Outcomes
▶ No-Continuity ▶ By Treatment Intensity

Survey Results: Demand Treatment

Table 6: Main Survey Variables

Variable	N	Control Mean	T > 0
Application Process:			
Number of applicants	483	177	20.260
			(13.905)
Number of accepted applicants	483	139	17.193*
			(9.004)
More applicants than last year	484	0.262	0.031
			(0.053)
Less applicants than last year	484	0.383	0.000
			(0.060)
Acceptance Rate	471	0.852	0.008
			(0.021)
Deadline shortening	440	0.468	-0.026
			(0.059)
Deadline extension	395	0.459	0.042
			(0.064)
Idle capacity	480	0.745	-0.077*
			(0.042)
Changed admission criteria	477	0.142	0.052
			(0.038)
Min GPA or exam required	487	0.125	0.061
			(0.045)
Advertising:			
Advertising	484	0.804	-0.115***
			(0.043)
Changes advertising	463	0.490	-0.058
			(0.053)
Information:			
Parents information demand	479	0.529	-0.124**
			(0.055)
Academic information	487	0.411	-0.059
			(0.057)
Employment information	487	0.262	-0.101**
			(0.051)
Higher ed. information	487	0.252	-0.110**
			(0.050)
Parents pressure	477	0.139	-0.022
			(0.038)

- Demand treatment possibly raised the number accepted students, although this is limited by schools' capacity.
- Report cards information probably acted as a substitute to schools information.
- We don't find any robust impact of supply treatment when looking at average results.

Survey Results: Demand Treatment

Table 7: Application Process

		≤			≥	
Cutoff	20	30	40	60	70	80
			Number of applicants			
T	5.775	20.442	23.273	90.430**	121***	130***
	(18.129)	(16.933)	(15.259)	(35.431)	(36.663)	(50.015)
N	467	467	467	467	467	467
			Number of accepted applicants			
T	12.543	19.060	21.207*	38.683*	44.665*	58.417*
	(13.096)	(12.120)	(11.008)	(20.996)	(23.344)	(32.279)
N	467	467	467	467	467	467
			More applicants than last year			
T	0.071	0.016	0.010	-0.037	0.017	0.023
	(0.067)	(0.067)	(0.065)	(0.138)	(0.165)	(0.146)
N	468	468	468	468	468	468
			Less applicants than last year			
T	0.008	0.013	0.045	-0.077	-0.160	-0.243
	(0.081)	(0.073)	(0.072)	(0.141)	(0.184)	(0.218)
N	468	468	468	468	468	468
			Acceptance Rate			
T	0.041	0.024	0.016	-0.059	-0.129	-0.111
	(0.029)	(0.026)	(0.024)	(0.068)	(0.100)	(0.136)
N	455	455	455	455	455	455
			Deadline shortening			
T	-0.061	-0.044	-0.044	0.092	0.440**	0.437**
	(0.082)	(0.074)	(0.072)	(0.160)	(0.191)	(0.217)
N	427	427	427	427	427	427
			Deadline extension			
T	-0.000	0.026	0.040	-0.162	-0.325*	-0.509**
	(0.097)	(0.091)	(0.094)	(0.146)	(0.166)	(0.199)
N	383	383	383	383	383	383
			Idle capacity			
T	0.000	-0.046	-0.041	-0.289**	-0.494***	-0.499**
	(0.060)	(0.054)	(0.053)	(0.142)	(0.171)	(0.198)
N	464	464	464	464	464	464
			Changed admission criteria			
T	0.050	0.062	0.051	-0.001	0.276***	0.178*
	(0.045)	(0.047)	(0.046)	(0.131)	(0.080)	(0.094)
N	462	462	462	462	462	462
			Min GPA or exam required			
T	0.017	0.046	0.033	-0.032	0.047	0.188**
	(0.059)	(0.055)	(0.056)	(0.118)	(0.154)	(0.095)
N	471	471	471	471	471	471

- Good schools actually received more students, but results confirm that idle capacity was a limitation to accept more students.
- They also filled their vacancies earlier and were more restrictive to accept students.

Survey Results: Demand Treatment

Table 8: Price and Scholapships

	≤			≥		
Cutoff	20	30	40	60	70	80
			Advertising			
T	-0.133**	-0.129**	-0.130**	-0.270**	-0.177	-0.202
	(0.059)	(0.059)	(0.059)	(0.104)	(0.131)	(0.141)
N	468	468	468	468	468	468
			Changes advertising			
T	-0.107	-0.116	-0.083	-0.105	-0.062	0.018
	(0.075)	(0.071)	(0.073)	(0.139)	(0.167)	(0.206)
N	450	450	450	450	450	450
			Charge copayment			
T	0.043	0.039	0.071	0.099	0.027	0.195
	(0.070)	(0.064)	(0.063)	(0.111)	(0.148)	(0.143)
N	449	449	449	449	449	449
			Changed copayment			
T	0.057	0.074	0.070	0.031	0.029	0.134*
	(0.053)	(0.049)	(0.051)	(0.104)	(0.132)	(0.075)
N	297	297	297	297	297	297
			Copayment			
T	526	814	1,360	4,610	4,592	10,352***
	(1,304)	(1,246)	(1,224)	(3,983)	(5,526)	(3,314)
N	450	450	450	450	450	450
			Extracurricular fees			
T	-524*	-555**	-632**	-351	-9.764	121
	(305)	(257)	(307)	(290)	(332)	(325)
N	450	450	450	450	450	450
			Changed Extracurricular fees			
T	-0.034	-0.055	-0.054	-0.105*	-0.088	-0.177*
	(0.058)	(0.051)	(0.050)	(0.055)	(0.068)	(0.091)
N	343	343	343	343	343	343
			Scholarships			
T	-0.036	-0.067	-0.060	-0.221**	-0.201	-0.170
	(0.084)	(0.072)	(0.069)	(0.109)	(0.126)	(0.156)
N	432	432	432	432	432	432

- The amount of bad schools doing advertising decreased and they also diminished the extracurricular fees that they charge.
- On the other side, good schools rose their prices and possibly diminished their scholarships.

Survey Results: Demand Treatment

Table 9: Students Caption Methods
Started in 2014

	≤			≥		
Cutoff	20	30	40	60	70	80
			Reduce copayment			
T	0.014	0.011	0.004	-0.001	-0.033	-0.029
	(0.033)	(0.027)	(0.028)	(0.025)	(0.020)	(0.020)
N	471	471	471	471	471	471
			Enrol students from higher socioeconomic status			
T	0.002	-0.023	-0.028	0.021	0.012	0.004
	(0.022)	(0.027)	(0.031)	(0.019)	(0.023)	(0.019)
N	471	471	471	471	471	471
			Enrol students with better academic background			
T	-0.072	-0.060	-0.056	0.081*	0.080	0.036
	(0.055)	(0.050)	(0.050)	(0.047)	(0.058)	(0.052)
N	471	471	471	471	471	471
			Reduce class size			
T	0.020	-0.003	0.015	0.094*	0.079	0.031
	(0.057)	(0.050)	(0.051)	(0.048)	(0.060)	(0.060)
N	471	471	471	471	471	471
			Hire better teachers			
T	-0.018	0.008	0.005	-0.122	-0.199	-0.090
	(0.067)	(0.058)	(0.055)	(0.117)	(0.136)	(0.177)
N	471	471	471	471	471	471
			Offer more hours of foreign languages			
T	-0.011	-0.015	-0.020	0.000	0.085	0.130*
	(0.056)	(0.049)	(0.046)	(0.084)	(0.053)	(0.068)
N	471	471	471	471	471	471
			Improve the quality of sports infraestructure			
T	-0.037	-0.052	-0.056	0.012	-0.059	0.006
	(0.069)	(0.071)	(0.067)	(0.131)	(0.154)	(0.195)
N	471	471	471	471	471	471
			Offer more extracurricular activities			
T	-0.082	-0.061	-0.065	0.066	0.044	0.068
	(0.075)	(0.072)	(0.069)	(0.125)	(0.156)	(0.191)
N	471	471	471	471	471	471
			Improve SIMCE scores			
T	-0.068	-0.037	-0.035	0.046	-0.134	-0.209
	(0.069)	(0.062)	(0.058)	(0.147)	(0.211)	(0.251)
N	471	471	471	471	471	471
			Offer training to teachers			
T	-0.143*	-0.120*	-0.117*	0.046	0.119	0.225**
	(0.076)	(0.071)	(0.066)	(0.121)	(0.093)	(0.101)
N	471	471	471	471	471	471
			Invest more in advertising			
T	-0.030	-0.026	-0.016	-0.159	-0.276**	-0.368**
	(0.078)	(0.069)	(0.070)	(0.128)	(0.133)	(0.170)
N	471	471	471	471	471	471

- Responses in terms of students caption methods were mainly not impacted, but bad schools curiously diminished the training opportunities offered to their teachers.
- Good schools in treated counties were less prone to invest more in advertising.

Implications forPublic Policy

- This evidence (and other evidence) suggests that the provision of information is important, especially in the education sector and for vulnerable students.

- BUT...unclear how to do this as an actual big scale policy.

- Some specific challenges:
  - Information about the actual existence of schools.
  - Information about what students can do and the actual working of the policies.

- Information about the relevance of the actions parents do.

- Information about the characteristics of the schools. **Much more general that just test scores and other outcomes**:

  * Big project now in Peru with Neilson and Molina: provide information about school characteristics and inputs. Information on both the average and distribution of outcomes.

- Transitions and school switching: for Chile +90% of parents claim their kids are in the top place...but, at the same time, about 10% of the students each year switch school and about 35% of the students have switched school between 1^{st} and 6^{th} grade (before transition to high schools).

  * **Probably a consequence of the inefficiencies and bad incentives provided by the current admission scheme but maybe it is also a consequence of the lack of information (experience goods).**

- – What is the default application? If somebody does not apply: the closest school with spots? Some nudging?

  – General equilibirum implications? Spacial segregation in Chile vs. effects on rental and home prices? Busing?

- Then, take the opportunity of the gradual implementation of reforms as exercises to learn about these details. Plenty of academic opportunities to do interesting stuff.