

The Evolution of Opportunities in Latin America's Fastest Growing Country: 50 years of Evidence

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Outline

- ① Summary
- ② Constructing a Historical Dataset
- ③ Results

Summary 1/4

Why?:

- We all care about a fundamental question: how do countries develop?
- But we typically lack long series of microdata to document how development varies across groups, space and over time.

What?:

This paper contributes to fill a gap in our knowledge of the long-run evolution of opportunities in developing countries.

- We describe the evolution of 'education opportunities' over the last five decades.
- In Chile, perhaps the fastest-growing country in Latin America.

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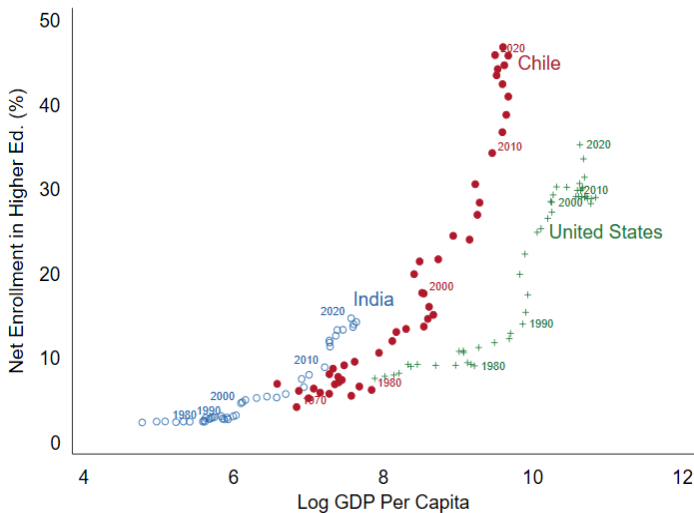
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Fast Economic Growth & Increase in Higher Education Enrollment



Summary 2/4

How?:

- We put together a unique dataset from Chile's centralized application and admissions system to higher education.

⇒ These are detailed administrative records of the population of test takers from 1967 onwards:

- + We digitized historical records in paper (exhaustive back-and-forth checking procedures) since 1967 - 2000,
- + We combined them with modern data sources 2000 onwards,
- + We are merging these data with available administrative records (enrollment, graduation, teacher censuses, and more),
- + What else? We welcome ideas!

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Summary 3/4

Findings? We document the following four novel results:

- Gender gap in scores: \Downarrow^- by a factor of ten (0.55σ to 0.06σ)
- Ethnic gap: \Downarrow^- by about a half in scores & participation
- Share of low SES taking the exam: \Uparrow^+ by a factor of 1.5 (from 0.36 to 0.55)
- Geography: Exam take-up \Uparrow^+ for under-represented areas (about 10%)

Summary 4/4

So?

- We uncover significant long-term progress on a host of metrics.
- This evidence adds to the medium and shorter term evidence available for Chile.
- Despite progress, there are important challenges ahead: shares of top-scorers, measures of quality, and many more.
- Long term view might help us see advances and challenges typically hidden with short term information
- ... which we believe provides some insights feeding the original fundamental question: how do countries develop?

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Research Paper

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Admissions System in Chile

SAT equivalent called *Prueba de Aptitude Academica* in 1967, *Prueba Seleccion Universitaria* starting in 2003.

Up to eight tests, depending on the year.

With the scores in hand, and a GPA equivalent score, students apply to 8-12 options of career and college combinations.

College/Major/Campus triples choose what weights to put on each test and GPA to determine a ranking.

Students are assigned to college/careers in the order of their target specific score until slots are filled up.

Design is thought to be such that it resembles Deferred Acceptance and there is no incentive for strategic behavior regarding the ordering of preferences.

Historical Data

- The higher education system in Chile has the unique feature of a centralized application and admissions system since 1967.
- The information on all test scores, applications and assignment outcomes were printed in books and newspapers and stored to this day.

Historical Data : Newspapers

EL MERCURIO

Santiago de Chile, Martes 18 de Enero de 1977.

TERCERA PARTE

RESULTADOS DE LA P.A.A.

UNIVERSIDADES CHILENAS

PROCESO DE ADMISION 1977

RESULTADOS DE LA PRUEBA DE APTITUD ACADEMICA

Y

PRUEBAS DE CONOCIMIENTOS ESPECIFICOS

1.- RESULTADOS DE LAS PRUEBAS DE APTITUD ACADEMICA Y CONOCIMIENTOS ESPECIFICOS.

Las Universidades Chilenas publican los resultados que obtuvieron los candidatos que tomaron la Prueba de Aptitud Académica y las Pruebas de Conocimientos Específicos de Biología, Ciencias Sociales, Física y Química y Matemáticas, entre los días 20 al 22 de diciembre de 1976.

Esta data de resultados está ordenada por el NÚMERO DE INSCRIPCIÓN de cada candidato, en las columnas que se indican, en el mismo orden, de izquierda a derecha:

- Número de inscripción.
- Apellido Paterno.
- Nombre.
- Inicial del Apellido Materno.
- Puntaje de la Parte Verbal de la Prueba de Aptitud Académica.
- Puntaje de la Parte Matemática de la Prueba de Aptitud Académica.
- Puntaje de la Prueba de Conocimientos Específicos de Biología.
- Puntaje de la Prueba de Conocimientos Específicos de Ciencias Sociales.
- Puntaje de la Prueba de Conocimientos Específicos de Física y Química.
- Puntaje de la Prueba de Conocimientos Específicos de Matemáticas.

LAS CONSULTAS SOBRE LOS RESULTADOS DE LAS PRUEBAS SE REALIZAN EN TODAS LAS SECRETARÍAS DE ADMISION, DEL 17 AL 30 DE ENERO EXCLUSIVAMENTE.

2.- LAS NOTAS DE EDUCACION MEDIA

Una vez el estado de permiso que cada candidato pudiese obtener lo más apropiadamente posible, cada uno de los puntajes de ingreso que corresponde por sus calificaciones de Educación Media, se publican en los resultados de ingreso.

Debeses dejar muy en claro que estas notas de calificación corresponden al Proceso de Admisión para el Año Académico 1976, ya pasado, y se entregan a los candidatos con el solo propósito de que puedan calcular aproximadamente su puntaje por estas, pues estos puntajes experimentan ligeras variaciones en un año a otro.

No puede obtenerse como resultado personal, ni tener un resultado estándar, ni tener un puntaje en la obtención de los candidatos de un año a otro, ni tipo de calificación que sea superior.

Los Documentos de Educación Media aprobada, por razones exclusivamente administrativas de funcionamiento de las oficinas, para determinar el puntaje correspondiente al proceso de ingreso de cada candidato, basados en los correspondientes puntajes de la nota de datos, tienen la más alta prioridad.

3.- POSTULACIONES

A.- INFORMACIONES GENERALES.

La postulación es un acto mediante el cual un candidato a cualquiera de las Universidades Chilenas indica definitivamente la o las Universidades, y la o las carreras en cuyos procesos de selección desean participar. Por lo tanto, se trata de un acto sumamente importante para los candidatos, ya que no es posible efectuar correcciones con posterioridad.

B.- FOMULARIO DE POSTULACIONES.

El Formulario de Postulaciones ha sido diseñado especialmente para que todos los candidatos indiquen la Universidad o Universidades y la carrera en cuyo proceso de selección desean participar.

El Formulario de Postulaciones deberá ser retirado de la Secretaría de Admisión más próxima al candidato, dentro de los plazos fijados para este efecto. Este formulario está impreso en el anverso y el reverso. En el anverso podemos distinguir 4 secciones:

- 1) Identificación del postulante. Se requiere que el candidato copie su NÚMERO DE INSCRIPCIÓN completo (8 cifras) sin omitir los ceros ubicados a la izquierda, que está descrito en su Tarjeta de Identificación, y escriba con letra clara su Apellido Paterno, Materno y Nombre.
- 2) Postulación completa. Se va llenando que contiene 12 espacios especiales para hacer constar en qué igual número de CLAVES DE CARRERAS e indicar las nóminas de las carreras a que desea postular.
- 3) Orden de preferencias. Se indica en qué orden de preferencias el postulante a la Universidad Católica de Valparaíso. Comité de la Universidad Católica de Valparaíso. Comité de la Universidad Católica de Valparaíso. Comité de la Universidad Católica de Valparaíso.

ESPERSA (A.V.) A.V.P. DOMMPP, S.E.M. Y UNIVERSIDAD DE LA CARRERA O CARRERAS QUE LE INTERESAN. COMPRESQUE QUE LAS CLAVES Y EL NOMBRE DE LA CARRERA SEAN COINCIDENTES Y CORRESPONDAN A LA QUE USTED DESEA POSTULAR.

d) Resumen de Postulaciones. Este es el último recibo del ingreso y será preparado para cada uno. En este recibo el candidato debe marcar y sellar el propósito para cada uno.

Universidad de Chile, la Universidad Católica de Chile, la Universidad Técnica Federico Santa María, la Universidad Técnica del Estado, la Universidad Austral de Chile y la Universidad del Norte.

Si un postulante indica carreras de la Universidad de Chile, que pertenecen a tres o más áreas de carreras diferentes, se le eliminarán las postulaciones correspondientes a las áreas indicadas en exceso, y que subservan a dos áreas. Por tanto esta Universidad limita las postulaciones a dos áreas diferentes, y un máximo de tres carreras por área, el candidato puede marcar:

- 3 carreras de un área y 3 carreras de otra área, o
- 3 carreras de un área y 1 o 2 carreras de otra área, o
- 3 o 2 o 1 carrera de una sola área, al así lo deseara.

El postulante puede marcar claves de carreras de las 7 Universidades, de 4 de ellas, de 3 de ellas o de una sola, pero sin exceder el límite fijado por cada una de las Universidades según adelante.

Por consiguiente, si un postulante así lo deseara, puede marcar solamente 3 carreras de la Universidad Católica de Chile, y ninguna de otra Universidad; o 3 de ellas en las áreas 1 y 2 de la Universidad Austral, no indicando carreras de las otras universidades, o efectuando cualquiera otra combinación de carreras o universidades sin exceder los límites máximos ya indicados.

DEL ORDEN DE LAS POSTULACIONES.

El postulante deberá marcar las carreras en el orden que realmente las prefiera, colocando en primer lugar aquella que más le interesa estudiar; en segundo lugar, la que preferiría de no quedar seleccionado en la primera, en tercer lugar, aquella que preferiría de no quedar seleccionado en las anteriores, y así sucesivamente.

Esto se traduce en que no es necesario ni conveniente para el postulante indicar varias carreras de la misma Universidad o de varias de ellas, por señal Católica de Chile, uno de la Universidad Técnica del Estado y una de la Universidad de Concepción, puntualmente por orden dentro de cada Universidad.

Por consiguiente, el postulante deberá indicar las carreras en el orden de sus preferencias, sin importar que carreras de distintas universidades queden mencionadas.

E.- POSTULACION A LA UNIVERSIDAD CATOLICA DE VALPARAISO.

La Universidad Católica de Valparaíso tiene un sistema de admisión que crea 3 áreas de admisión está constituida por el agrupamiento de carreras afines a las cuales se aplican los mismos criterios de selección y coeficientes de postulación. Las áreas de admisión de la Universidad Católica de Valparaíso son:

Historical Data : Newspapers

DERECHO LISTA DE SELECCIONADOS VACANTES=0110			SANTIAGO		* 1220 *
N. ORD	N. INSCRIP	NOMBRE DEL	POSTULANTE	PTJE.	
00001	299338-39	SAAVEDRA	SANCHEZ	LUIS EMILIO	78590
00002	309972-39	TOLEDO	TAPIA	FERNANDO ENRI	77880
00003	288554-35	PRIETO	TRONCOSO	ENRIQUE FRANC	77680
00004	256100-32	JARAQUEMADA	ROBLERO	JORGE ANDRES	77310
00005	282731-34	PARDQ	GONZALEZ	CHRISTIAN ROD	76780
00006	229983-31	LOUSO	SALAS	JAVIER ANDRES	76700
00007	268119-37	MENDOZA	VEGA	CLAUDIO ANDRE	76680
00008	313624-31	VALDES	STEEVES	MARIA LUISA	76670
00009	225485-30	CHARME	AGUIRRE	EDUARDO BENJA	76420
00010	267451-39	GONZALEZ	ITURRIA	MARCO ANTONIO	76340
00011	289717-37	QUIROGA	SURIA	CESAR ANTONIO	75980
00012	258704-33	LARRAIN	VILLANUEVA	FLORENCIA	75770
00013	266694-30	MAYO	DE GOYENECHE	MARIE CLAUDE	75740
00014	319078-37	VIAL	SOLAR	TUMAS	75640
00015	258656-34	LARRAIN	ASPILLAGA	MARIA TERESA	75360
00016	242280-37	GAJARDO	URIBE	MARIA EUGENIA	75230
00017	267148-34	HEEDER	THILRS	ALEX RICHARD	75120
00018	272414-33	MORANTE	RODRIGUEZ	MARIA CLAUDIA	74590
00019	240266-39	FONTECILLA	RIVEROS	LUCIAN DANIE	74380
00020	256069-33	ESPINUZA	ABARZUA	MARIA CONSUEL	74370
00021	311830-30	UGARTE	ACEVEDO	JOSE MANUEL	74290
00022	302767-36	SANHUEZA	RAHMER	JORGE ALBERTO	74220
00023	228991-39	CORREA	HENRIQUEZ	JULIA PAULINA	74200
				RUDRIGO	74180

Historical Data : Application and Assignment

- We secured an agreement with the local authorities to use this information and have been able to locate and take digital copies of these books.



Historical Data

- We have
 - Collected digital copies of old books and newspapers ;
 - Sent the images to India to be processed;
 - Exhaustive back-and-forth auditing the processed data;
 - Supplemented with aggregated info from official reports

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Historical Data

- **Significant efforts** were made to find, compile, audit and digitize records from archival sources.
- As a result:
 - 24 Million Test Scores
 - 6.5 Million Observations
 - 135k Pictures [Pre-digital era]
 - 400 Books [Pre-digital era]
 - 50 years of Data



Historical Data

Each year of data consisted of 10-12 books with 300-400 pages each. Three types of books, by subperiod:

Books	1967-1974	1975-76-80	1977-88-{80}
(A) Scores (Antecedentes)			
(B) Registration IDs (Indices)	X		
(C) Applications (Conglomerado)	X	X	

Information printed in the books:

- (A) Reference number, test scores and high school GPA.
- (B) Reference number, ID number (RUT), name, sex, year of graduation, region, school code.
- (C) Reference number, application majors and scores and admission results.

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Figure: Example: Old Book (A) with PAA Scores

The image shows a page from a university admission record book. The page is titled 'UNIVERSIDADES CHILENAS PROCESO ADMISION 1986'. The table contains columns for 'N° INSCRIP', 'NOMBRE DEL CANDIDATO' (split into 'PATERNO' and 'MATERNO'), 'POLICIA CODIGO 123 PR', 'GRADUACION', 'PAA SELECCION' (with sub-columns for 'PRIM PAA', 'PROFES PAA', 'ESPECIFICAS PAA'), and 'TEC PAA' (with sub-columns for 'PRM' and 'STD'). Red boxes with arrows point to the following columns: 'Test ID' (N° INSCRIP), 'Names' (NOMBRE DEL CANDIDATO), 'Grad. Year' (GRADUACION), 'Scores' (PAA SELECCION), and 'GPA' (TEC PAA). The table contains 20 rows of data, with the first row being a header and the rest being individual student records.

N° INSCRIP	NOMBRE DEL CANDIDATO		POLICIA CODIGO 123 PR	GRADUACION	PAA SELECCION			TEC PAA							
	PATERNO	MATERNO			PRIM PAA	PROFES PAA	ESPECIFICAS PAA	PRM	STD						
310111-67			562302	999 27 023940	85	533 498 465,5	468	522	456	9	5,1	460	80		
310112-64			562213	999 35 507960	83	557 498 527,5	513 514			9	5,2	480	82		
310113-61			5932018	999 17 022990	84	586 666 626,0	577 514			9	5,2	600	82		
310114-69			4644506	999 25 587950	83	504 516 545,0	496		438	496	9	4,9	420	81	
310115-66			461662	999 25 782950	85	586 346 366,0	487			5	5,0	672	80		
310116-63			477168	994 21 500660	85	509 450 479,5	537			4	5,0	456	80		
310117-60			539317	999 26 011990	85	553 410 460,5	468 514 482			45	9	6,4	720	81	
310118-68			858870	999 35 513950	85	580 618 599,0	580			9	5,1	460	82		
310119-65			855223	999 25 301930	82	557 602 579,5	496 638			507 68	9	5,3	540	80	
310120-66			429781	999 25 537960	85	563 770 665,5	658			650 788	9	6,3	700	81	
310121-63			515019	999 10 001980	80	627 506 566,5	640 636				9	5,2	480	81	
310122-60			461428	999 25 582950	84	622 690 656,0	588 685				9	6,2	650	81	
310123-68			563050	999 35 038990	84	551 386 468,5	586 558 522			301	4	5,0	440	81	
310124-65			534574	999 17 541960	84	551 618 584,5	752 725			555 538	9	6,4	720	81	
310125-62			474327	999 25 573960	84						9	6,5	740	80	
310126-60			433316	999 25 593960	85	604 530 567,0	408 544			484 520	9	5,7	580	81	
310127-67			432739	999 25 587960	85	533 482 507,5	468 388			541	9	5,6	520	80	
310128-64			420317	999 25 045970	85	580 506 543,0	562 529				9	5,8	460	81	
310129-61			561893	999 35 027990	83	462 394 428,0	459				9	6,8	400	80	
310130-62			462997	999 25 638960	84	374 490 432,0	361			471	9	5,3	500	80	
310131-60			353896	999 35 027990	85	504 642 573,0	649 572 636				484	9	6,2	680	81
310132-67			438925	999 25 752960	85	403 538 470,5	466 507			507	9	5,5	560	80	
310133-64			504553	999 03 505960	85	545 466 505,5	485			456	9	5,8	360	81	
310134-61			471231	999 25 774960	84	391 362 376,5	416 371			378	9	5,5	540	80	
310135-69			421395	999 25 051980	85	332 402 367,0	442 438			779	9	6,0	640	80	
310136-66			569774	999 35 521950	85	498 514 506,0	416 514			440	9	5,5	540	81	
310137-63			471009	999 25 01091	84	763 730 746,5	709 699 706			598	8	6,3	704	81	

Figure: Example: Old Book (B) with ID number (RUT)

LISTADO ALFABETICO DEFINITIVO - INSCRIPCION NACIONAL - PROCESO DE ADMISION 1986														PAG = 351	
NUMERO 18554 P	NUMERO FOLIO	SEX IDM	APPELLIDO PATERNO	APPELLIDO MATRNO	NOMBRES	SEXO IDENTIDAD	CORRELA IDENTIDAD	GABINETE	CIUDAD	SEDE REND	COLEGIO COLEGIO	TAJ P	CI C	ARAN DE LANE	
21772	66 412473	29	CARVALO	XAC XAY	PAOLA GEORGINA	FEM	99999999-9		SANTIAGO	99999999-9	29	22500990	14	2500	
21772	63 503965	01	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		LAJCA	99999999-9	01	01005990	11	1900	
21772	60 412730	29	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		SANTIAGO	99999999-9	25	23005660	05	1900	
21772	68 423437	29	CARVALO	FRANCIS	PAOLA GEORGINA	MASC	99999999-9		QUIN	99999999-9	39	23002960	05	1900	
21772	68 423433	29	CARVALO	FRANCIS	PAOLA GEORGINA	MASC	99999999-9		SANTIAGO	99999999-9	33	25004960	05	1900	
21772	66 406820	29	CARVALO	SABRANUS	PAOLA GEORGINA	FEM	99999999-9		MAIPU	99999999-9	38	25007960	05	1900	
21772	63 431213	29	CARVALO	CAROL	PAOLA GEORGINA	MASC	99999999-9		LA CISTERNA	99999999-9	29	25009960	05	1900	
21772	60 519077	19	CARVALO	CAROL	PAOLA GEORGINA	FEM	99999999-9		LOS ANGELES	99999999-9	20	14011390	05	1900	
21772	68 419501	29	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		SANTIAGO	99999999-9	32	25004980	05	1900	
21772	65 537452	43	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		PICHINGUA	99999999-9	07	28105990	15	1900	
21772	62 453258	29	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		SANTIAGO	99999999-9	32	25004970	05	1900	
21772	60 524513	24	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		VINA DEL MA	99999999-9	26	17002990	05	1900	
21772	67 533182	24	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		VALPARAISO	99999999-9	24	17002980	05	1900	
21772	64 535074	24	CARVALO	FRANCIS	PAOLA GEORGINA	MASC	99999999-9		VALPARAISO	99999999-9	25	17003990	05	1900	
21772	65 524514	24	CARVALO	FRANCIS	PAOLA GEORGINA	FEM	99999999-9		VINA DEL MA	99999999-9	26	17004980	05	1900	
21772	62 533660	24	CARVALO	FRANCIS	PAOLA GEORGINA	MASC	99999999-9		VINA DEL MA	99999999-9	26	17005990	05	1900	
29990	66 534343	24	CARVALO	FRANCIS	PAOLA GEORGINA	MASC	99999999-9		VINA DEL MA	99999999-9	26	17006990	05	1900	
21772	60 530939	24	CARVALO	FRANCIS	PAOLA GEORGINA	MASC	99999999-9		VINA DEL MA	99999999-9	26	17007990	05	1900	
21772	60 530939	24	CARVALO	FRANCIS	PAOLA GEORGINA	MASC	99999999-9		SANTIAGO	99999999-9	37	25008990	05	1900	

Note: Personal information intentionally blurred.

Figure: Example: Old Book (B) with Applications

UNIVERSIDADES CHILENAS / PROCESO DE ADMISION 1979										X * LISTADO CONGLOMERADO										PÁG. 000001	
N.º INSCRIP FOLIO	23 DE NOTAS-STD	TRE 16 TED 11	16 VER	PUNTAJES DE PRUEBAS P. A. A. PROM SIG C.S.	F. Q. MAT	DIC MAY UCH	P. #01 PTJE LUGAR	P. #02 PTJE LUGAR	P. #03 PTJE LUGAR	P. #04 PTJE LUGAR	P. #05 PTJE LUGAR	P. #06 PTJE LUGAR	P. #07 PTJE LUGAR	P. #08 PTJE LUGAR	P. #09 PTJE LUGAR	P. #10 PTJE LUGAR					
01622-92 718032	999 12112 930 78	608 499 5555 602 592 450 430	9	LUPEZ OLGA ANGELA			1775 57130 E00311	4213 55730 E00716	1929 56745 E00660	4418 59190 E00114	1890 57620 E00238	1735 58745 E00114	1790 56745 E00090	4475 57570 E00149	1895 58950 E00020	1935 53200 E00020					
016223-90 709444	998 01646 930 78	433 557 4950 549 457 594 561	9	CALIXTO CESAR EUGENIO			8901 47620 MIN.	1415 51125 E00107	8081 47298 INV.	1078 51880 E00434	1870 51880 E00116	1781 53020 E00020	1895 54850 E00020	1935 53200 E00020	1935 53200 E00020						
016224-92 701313	999 02053 910 77	534 556 5660 656 549 594 588	9	CALLE REGARARRIN GONZALO NGISE			1932 62030 E00240	1995 61050 E00205	1950 62550 E00069	1981 62050 E00030	1980 62050 E00028	1992 62030 E00028	1992 62030 E00028	1992 62030 E00028	1992 62030 E00028	1992 62030 E00028					
016227-90 500461	999 19360 940 78	724 615 6695 585 702 474 450	9	CALLEJA MESTRE EDUARDO ENILI			1356 64580 E00800	2354 61750 E00797	1373 64580 E00425	2373 57550 E01004	1851 64880 E00082	1490 62840 E00223	1369 59820 E00116	1500 64023 E00123	1500 64023 E00123	1500 64023 E00123					
016228-97 608249	644 01024 430 70	521 499 5100 335 335 335 335	9	CALLEJAS ANTEZANA LUZ EMILIO			9631 32300 P00014	6611 32300 P00020	32300 32300 P00020	1532 63575 E00313	1204 54160 E00511	2204 60890 E00306	6351 64180 E00306	6099 65780 E00157	6099 65780 E00157	6099 65780 E00157					
016230-95 845098	992 19038 131 77	648 686 6670 482 592 584 587	1	CALLEJAS BRAVO ANDRES ERNEST			1290 61680 E00263	2290 68720 E00466	6750 66280 E00313	1532 63575 E00123	1204 54160 E00511	2204 60890 E00306	6351 64180 E00306	6099 65780 E00157	6099 65780 E00157	6099 65780 E00157					
016231-90 802170	999 19469 960 78	633 634 6335 385 651 614 587	9	CALLEJAS GALVEZ MARIA ELENA			1373 63780 E00517	2863 62680 E00148	1863 44070 P00065	1745 63110 E00194	2351 63970 E00790	1821 65780 E01138	2769 61880 E00485	2769 61880 E00485	2769 61880 E00485	2769 61880 E00485					
016238-92 718119	999 09078 930 78	504 644 6140 335 335 335 335	9	CALLEJAS MARTINEZ HUGO ROBERTO			6203 60630 E00046	2520 60640 E00046	1682 61220 E00046	4979 61220 E00046	6313 60630 E00046	6303 60630 E00046	1301 59800 E00046	1301 59800 E00046	1301 59800 E00046	1301 59800 E00046					
016239-90 718358	444 10023 430 78	562 578 5700 368 474 505 496	9	CALLEJAS MUNOZ SEGUNDO MIGUE			6367 34780 INV.	6301 34780 MIN.	6960 35040 E00936	6945 35040 E00589	1982 25245 E00223	4664 54870 E00423	1810 53220 E01170	1810 53220 E01170	1810 53220 E01170	1810 53220 E01170					

Historical Data

- We distinguish three components within the 1967-1988 period:
 - ① The first is to finish the process of digitalizing and processing the scores, applications, and results from 1981-1988.
 - ② The second piece is to add test score data for all participants from 1967 onward.
 - ③ The final part is adding the scores, applications, and results from 1976-1980.

Research Paper

① Summary

② Constructing a Historical Dataset

How Did we Do?: Aggregate vs Recovered Microdata

③ Results

How Did we Do?: Test-Takers by Year

Old Aggregated Data Sources:
Diaz, Himmel, Maltes (1985).

TABLA 3
CARACTERISTICAS DE LA PARTE MATEMATICA DE LA PRUEBA DE APTITUD ACADEMICA

AÑOS	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
N°Preg.	50	50	50	50	50	50	50	50	50	50	50	50
N	29.678	31.011	36.042	49.244	50.079	76.858	107.818	103.219	119.504	91.445	84.806	102.494
Puntajes Brutos	16,1	16,9	18,1	17,9	17,7	16,7	16,1	17,5	19,7	20,7	23,1	23,1
s	11,38	11,46	11,24	12,34	13,20	12,62	12,51	13,21	13,43	13,69	14,03	13,30

How Did we Do?: Test-Takers by Year [1967-1988]

Aggregated Data (External)

Year	
1967	29,678
1968	31,011
1969	36,042
1970	49,244
1971	50,079
1972	76,858
1973	107,818
1974	103,219
1975	119,504
1976	91,445
1977	84,806
1978	102,494
1979	107,274
1980	110,508
1981	117,371
1982	109,351
1983	119,245
1984	122,201
1985	121,169
1986	125,522
1987	114,775
1988	110,652

How Did we Do?: Test-Takers by Year [1967-1988]

Year	Aggregated Data (External)	Our Data
1967	29,678	29,655
1968	31,011	31,014
1969	36,042	35,935
1970	49,244	42,759
1971	50,079	50,072
1972	76,858	76,076
1973	107,818	107,795
1974	103,219	103,219
1975	119,504	119,521
1976	91,445	91,424
1977	84,806	84,820
1978	102,494	102,541
1979	107,274	107,275
1980	110,508	110,354
1981	117,371	117,344
1982	109,351	109,196
1983	119,245	119,238
1984	122,201	122,120
1985	121,169	121,164
1986	125,522	125,519
1987	114,775	114,462
1988	110,652	110,650

How Did we Do?: Test-Takers by Year [1967-1988]

Year	Aggregated Data (External)	Our Data	Percentage
1967	29,678	29,655	99.92
1968	31,011	31,014	100.01
1969	36,042	35,935	99.70
1970	49,244	42,759	86.83
1971	50,079	50,072	99.99
1972	76,858	76,076	98.98
1973	107,818	107,795	99.98
1974	103,219	103,219	100.00
1975	119,504	119,521	100.01
1976	91,445	91,424	99.98
1977	84,806	84,820	100.02
1978	102,494	102,541	100.05
1979	107,274	107,275	100.00
1980	110,508	110,354	99.86
1981	117,371	117,344	99.98
1982	109,351	109,196	99.86
1983	119,245	119,238	99.99
1984	122,201	122,120	99.93
1985	121,169	121,164	100.00
1986	125,522	125,519	100.00
1987	114,775	114,462	99.73
1988	110,652	110,650	100.00

How Did we Do?: Test-Takers by Year, Special Subjects

Year	Advanced Math		Biology		Chemistry/Physics		Soc. Sciences	
	External	Ours	External	Ours	External	Ours	External	Ours
1975	88,976		72,769		72,769		71,610	
1976	73,788		63,998		63,998		63,513	
1977	67,762		56,036		51,913		53,252	
1978	83,446		65,505		65,076		65,776	
1979	85,503		72,165		68,157		72,601	
1980	84,698		73,836		68,629		73,954	
1981	85,255		66,428		58,498		59,306	
1982	73,431		53,743		61,713		45,359	
1983	72,916		57,943		45,852		49,503	
1984	71,939		64,447		36,510		52,097	

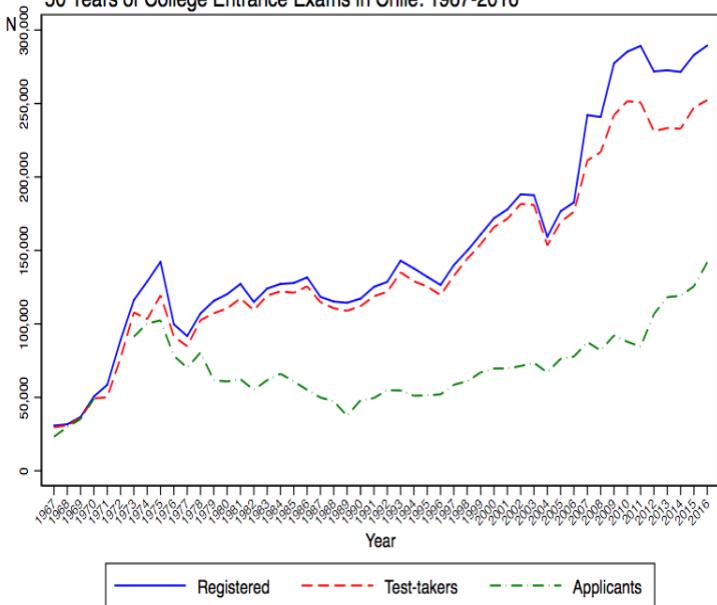
How Did we Do?: Test-Takers by Year Special Subjects

Year	Advanced Math		Biology		Chem./Physics		Soc. Sciences	
	External	Ours	External	Ours	External	Ours	External	Ours
1975	88,976	88,672	72,769	72,780	72,769	72,780	71,610	71,498
1976	73,788	73,692	63,998	64,032	63,998	64,032	63,513	63,529
1977	67,762	67,587	56,036	56,027	51,913	51,965	53,252	53,143
1978	83,446	83,383	65,505	65,502	65,076	65,142	65,776	65,798
1979	85,503	85,213	72,165	71,946	68,157	68,243	72,601	72,507
1980	84,698	84,453	73,836	73,727	68,629	68,297	73,954	73,813
1981	85,255	85,170	66,428	66,262	58,498	58,324	59,306	59,116
1982	73,431	73,215	53,743	53,502	61,713	61,426	45,359	45,244
1983	72,916	72,865	57,943	57,836	45,852	45,684	49,503	49,462
1984	71,939	71,808	64,447	64,296	36,510	36,385	52,097	51,998

How Did we Do?: Test-Takers by Year [1989-2003]

Year	Aggregated Data (External)	Our Data	Percentage
1989	108,871	108,855	99.99
1990	112,091	112,090	100.00
1991	118,778	118,778	100.00
1992	121,824	121,364	99.62
1993	135,081	135,221	100.10
1994	129,048	129,050	100.00
1995	125,444	125,432	99.99
1996	119,643	119,588	99.95
1997	132,664	132,610	99.96
1998	144,381	142,382	98.62
1999	154,244	154,244	100.00
2000	165,904	165,908	100.00
2001	171,491	171,879	100.23
2002	181,640	182,019	100.21
2003	181,063	181,486	100.23

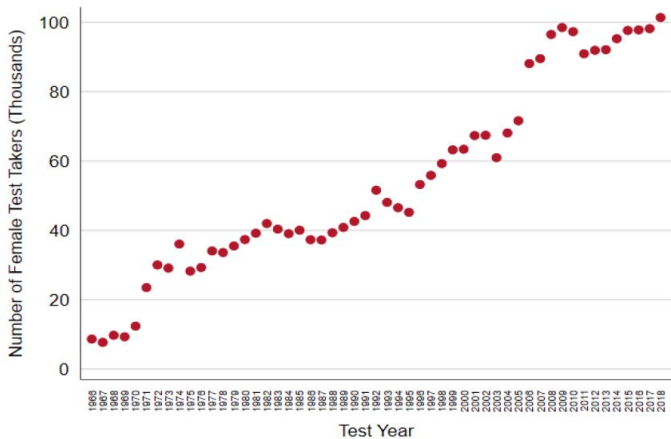
50 Years of College Entrance Exams in Chile: 1967-2016



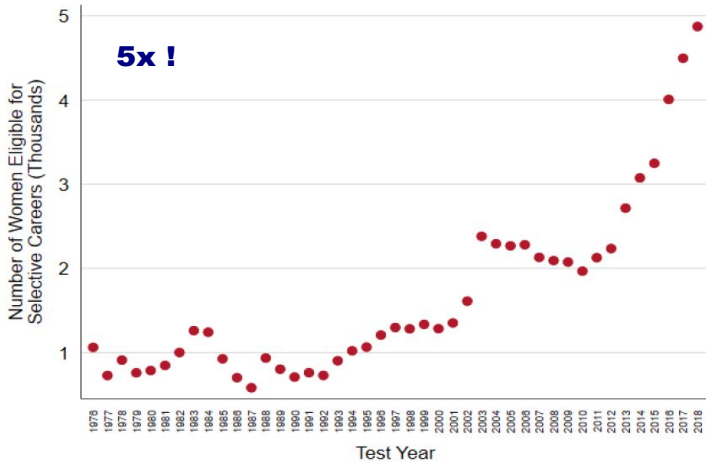
Research Paper

- ① Summary
- ② Constructing a Historical Dataset
- ③ Results**

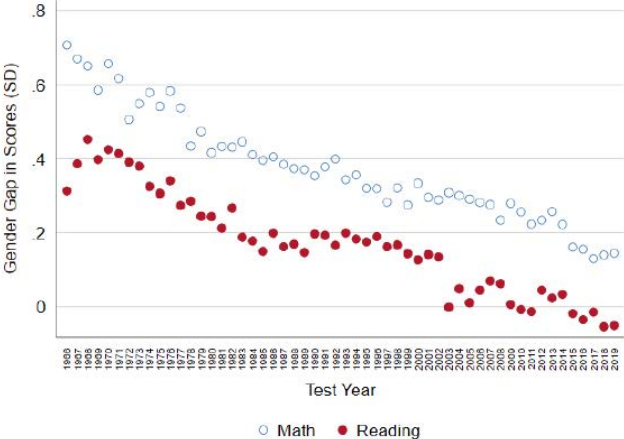
Women taking College Entrance Exam



Women eligible for Elite College/Majors

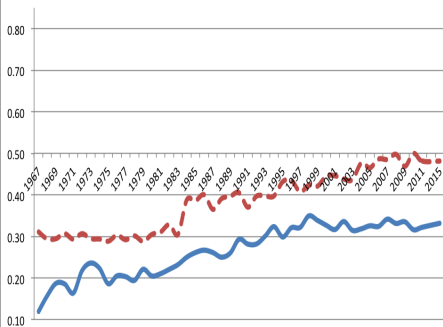


Gender Gap in Average Math/Lang Score



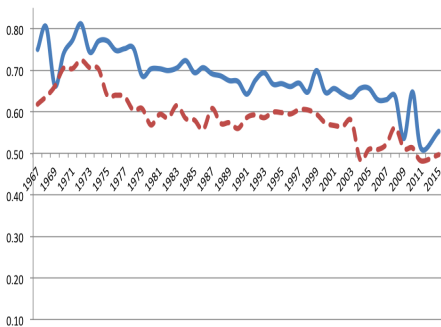
Fraction of Girls in the Top 5%

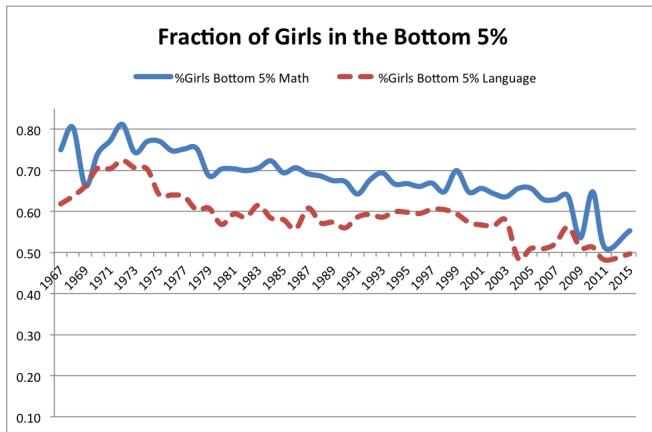
— %Girls Top 5% Math - - - %Girls Top 5% Language

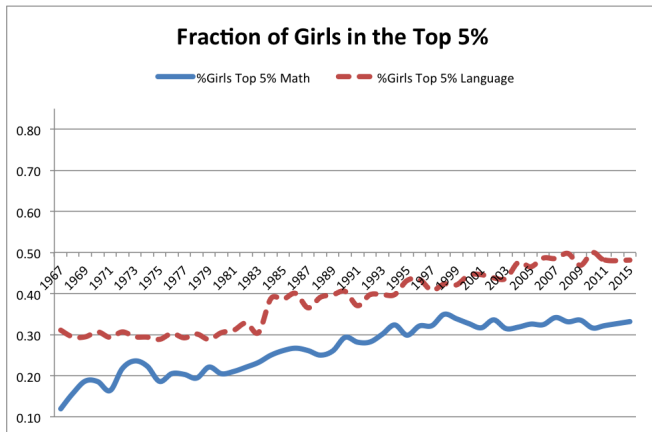


Fraction of Girls in the Bottom 5%

— %Girls Bottom 5% Math - - - %Girls Bottom 5% Language

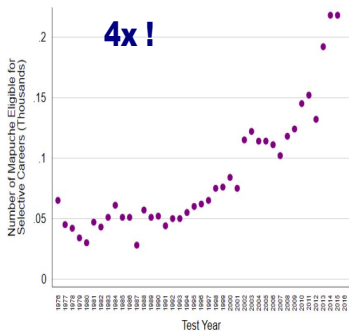




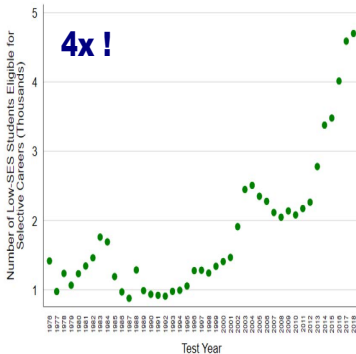


Disadvantaged Groups @ Elite College/Majors

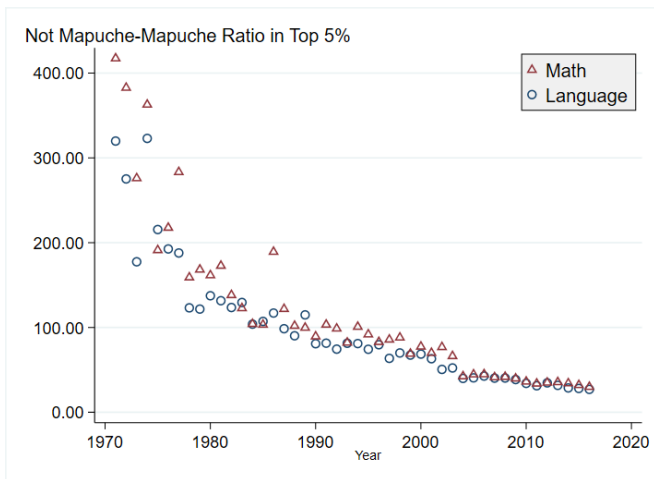
Mapuche Descendants



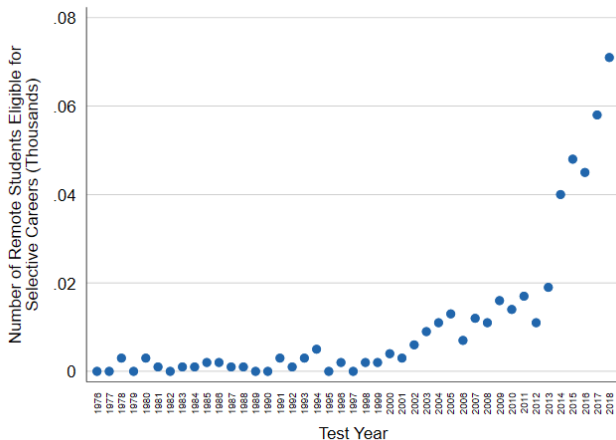
Low SES



Share in Top 5% by Ethnicity

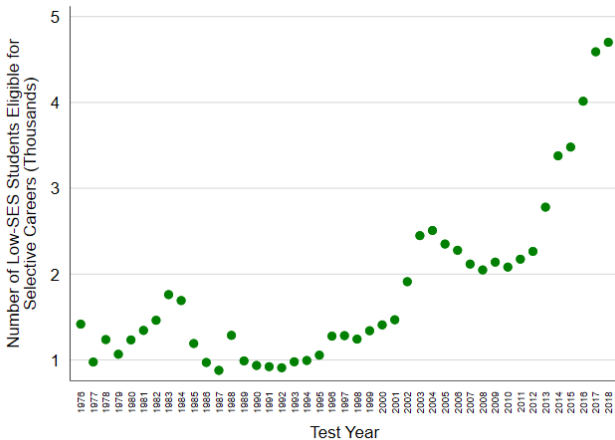


Geography



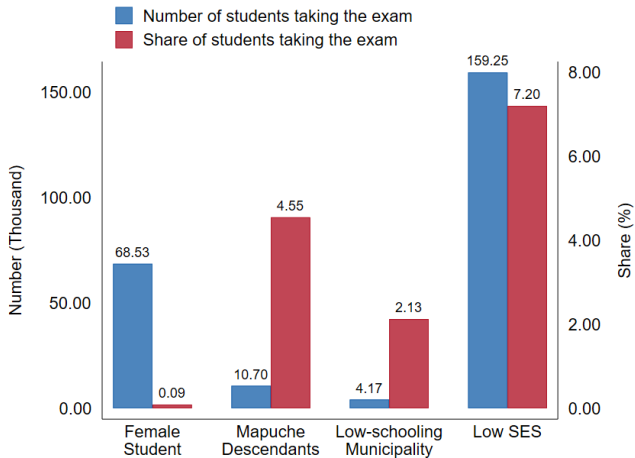
(c) Municipalities with low levels of schooling in the 1980s

Low SES

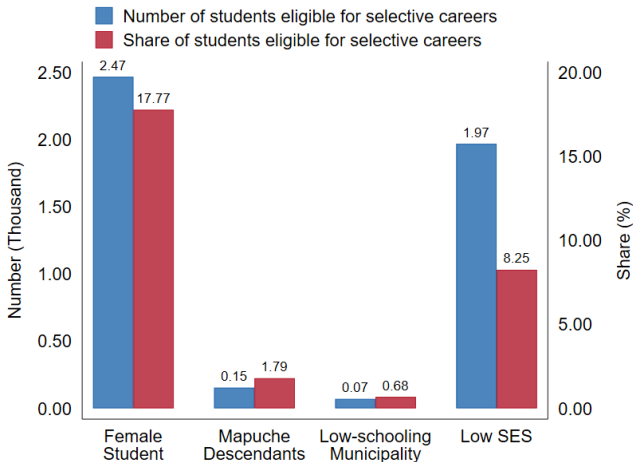


(d) Low-SES students

All Test-Takers Progress



Test-Takers Progress for Elite Degrees



Conclusion

- We uncover significant long-term progress on a host of metrics.
- This evidence adds to the medium and shorter term evidence available for Chile.
- Despite progress, there are important challenges ahead: shares of top-scorers, measures of quality, and many more.
- Long term view might help us see advances and challenges typically hidden with short term information
- ... which we believe provides some insights feeding the original fundamental question: how do countries develop?

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