

# ΣΟΦΙΑ—SOPHIA

## Investigation Article

### School trajectory and university selection: ranking behavior as a factor of inclusion in higher education\*

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## Abstract

The process of university admission in Chile is currently undergoing profound changes in its structure in favor of social inclusion, when assessing the efforts deployed by students of different sectors in their school careers. In this scenario, the present article aims to analyze the behavior of selection factors based on the socioeconomic and educational characteristics of the applicants, with special emphasis on the impact of the incorporation of the Ranking of Grades in the diversification of students and its contribution to inclusion. To this end and using databases of the process of admission to higher education in Chile in 2013, there are constructed a series of descriptive statistical indices, of percentage difference and of association. Among the main findings, we can note that school trajectory components, especially the ranking, have less biased distributions and higher concentrations in the high scores, and it is evident that they are less influenced by socio-family or economic variables. The ranking, as an expression of good school performance, effort and dedication to study by the student, compensates for the undesirable biases of selection of the traditional mechanism, making the university option more inclusive, effect that will depend on the assessment assigned by the university institution.

Key words: Access to education, higher education, selective efficacy, social inclusion, equal selection.

## Introduction

In Chile, since the creation of the Council of Rectors of Universities of Chile (CRUCH, for its initials in Spanish) in 1954, the standardization of instruments used in the application and selection processes to the institutions included by it has evolved in search of meeting criteria of equality, equity and justice in the selection of students, independently of cultural, academic and socio-economic conditions of origin.

From the old Academic Aptitude Test (PAA, for its initials in Spanish) to the current University Selection Test (PSU, for its initials in Spanish) that students annually present, the questioning about the statistical and academic validity of the factors that compose them has motivated discussions in the area of social and educational research. Being still a controversial topic, we discuss the real capacity of prediction of success at university that these mechanisms have, statistical validity, selectivity biases, the lack of evaluation of the students' efforts in their school trajectories, as well as the fact of being too aligned to the social and cultural capital of the students ([Koljatic and Silva, 2010](#), [Contreras and Macías, 2002](#), [Redondo, Descouvières, and Rojas, 2004](#), [Valdivieso, Antivilo and Barrios, 2006](#), [García-Huidobro and Bellei, 2003](#), [Núñez and Millán, 2002](#)).

The University Selection Test (PSU) was first applied in 2004, replacing the Academic Aptitude Test (PAA), an old admission system that remained with little change for about 35 years. The PSU, like its predecessor, consists of a battery of compulsory tests (Mathematics and Language) and others of optional

nature that students take due to the demands of the program or career to which they wish to apply. These tests have a differentiated weighting, according to the educational institution and type of program, which are complemented with the school performance that students had in secondary education, a figure that is also translated to a standard score based on the educational branch (Humanistic Scientific Daytime, Professional Technician and Evening Humanist Scientific). Consequently, the processes of university admission in Chile would be structured based on two factors or dimensions: PSU score and school trajectory.

The University Selection Test, unlike the PAA, would be more aligned with the curriculum defined in the New Framework for Higher Education and (it would be more) focused on the minimum compulsory contents, thus measuring, instead of aptitude, the level of educational achievement that the student got from secondary education curriculum. Consequently, its application would lead to a greater equity in the admission system, given the assumption of homogeneity of contents through which, theoretically, all students travel, independently of the type of school, also providing a higher valuation of the secondary school curriculum. It would correct the wastage that the tests based on ability, like the PAA, made of learning during school trajectory, and the little recognition of the effort deployed by students.

Notwithstanding the above, the discussion with the installation of the PSU has not been without criticism. [Pérez, Ortiz and Parra \(2011\)](#) point out that this mechanism is going to increase the gap between municipal (state) and private establishments, since

the tests are based on a common national curriculum, of which, over 43% of municipal establishments do not completely cover it. Added to this is the relation of legitimacy that it grants to the socio-economic condition of the students. [Valdivieso \(2006\)](#) finds in the admission process 2006 a direct association between family income and obtained scores. On the other hand, [Contreras, Corbalán and Redondo \(2007\)](#) conclude in one of their investigations: “In practical terms ... the PSU is constituted as an instrument of educational recognition for those who come from privileged cultural, social and economic situations (environments), legitimizing social inequalities of origin.” (p.262) This contradicts the goals behind the creation of this selection mechanism.

The search for corrective elements to the system of admission via PSU in order to provide greater equity and social inclusion meant focusing on the trajectory school that the student had in secondary education. Thus, the alignment of the test with the contents of the curriculum of secondary education is complemented by the assessment made by the admission system to students’ trajectories, rewarding their effort and dedication with their teaching-learning processes, based on the assumption that academic talent is homogeneously distributed in the different social strata, and that the educational system simply has not been able to compensate for the socio-cultural differences existing in the immediate family environment of the students.

This is how the university admission system established a procedure for assessing school trajectory, allowing universities to increase the weighting for the grades of secondary education (NEM, for its initials in Spanish), and which incorporates since 2013 the Ranking as the second element within this dimension. Thus, this element, an expression of the relative position of students in their school establishments within the generation of egressed students and three previous generations based on their grades average, happened to be a factor of more weight of the accumulated score with which the students postulate to the different universities linked to CRUCH. At present, the assessment assigned to the Ranking of Grades by the universities cannot be below 10% or above 40%, so that the school career as a whole (NEM and Ranking) oscillates, depending on the institution and program, between 20% and 50%, weightings that are significantly different from those assigned by the system prior to 2013 ([Larroucau, Ríos and Mizala, 2013](#)).

The incorporation of secondary education grades, as well as the Ranking of performance that students have in their respective schools, has been, despite its detractors, widely defended in the literature, both nationally and internationally, for proving to be a valid predictor of future academic performance, and for recognizing the previous school trajectory, an aspect of imminent importance assigned in developed countries ([Bravo and Manzi, 2003](#)). In this regard, Cliffordson and Askling (2006) in a study of selection mechanisms for higher education in Sweden show that admission to higher education by means of standardized tests contradicts the objectives of social, educational and national inclusion, because of their tendency to favor students who fulfill certain socio-economic and cultural conditions; in addition to exposing that admission via better qualifications in secondary education meets both the inclusion criteria and academic excellence in the future.

Other authors such as [Betts and Morel \(1999\)](#), [Gil, Paredes and Sánchez \(2013\)](#) and [Medina, Aguirre and Luengo \(2014\)](#) present similar arguments about the high predictive capacity of secondary education qualifications, which are less conditioned by socio-economic or cultural components related with students’ origins, compared to the standardized tests used in the university selection process.

However, recognition of the educational trajectory via NEM is questionable because not all establishments have the same policy of assigning grades, neither in quantity nor evaluated contents ([Díaz, Himmel and Maltes, 1990](#); [Contreras, Gallegos and Meneses, 2009](#), [Prieto and Contreras, 2008](#), [Rodríguez and Jarpa, 2015](#)). Discussions and evidence of this nature led us to look for a new school trajectory factor that is more severed from the deficiencies attributed to high school grades. The International Ranking is considered as a valid selection criterion for achieving inclusion and excellence in higher education. In countries such as the United States, graduating from high school in the top 10 to 12 percent of graduates is vital for entering to state universities such as Texas or California ([Contreras, Gallegos, and Meneses, 2009](#)). In the national context, [Meneses and Blanco \(2006\)](#) showed that for the students from the Universidad Católica of Chile enrolled in the years 2003 and 2004, to be in the top 10% of the students of their schools is equivalent to at least 28 points in the admission score to PSU, when compared to the students’ academic performance during the first year. Neilson and Grau (2005) of the Faculty of Economics of the University of Chile conclude that the relative

position of students in their school is a better indicator than a difference of up to 10 points in the PSU. Finally, [Contreras, Gallegos and Meneses](#) (2009) show that the Ranking is a component that improves the equity aspects of the process without affecting other selection factors, favoring historically relegated social segments.

Consequently, this article is framed within the new discussion raised at national level by the recent adjustments for inclusion of the university admission system. It explores the distribution of the students' PSU scores in the different tests, and the scores assigned by school trajectory, whether because of their qualifications obtained in the secondary education (NEM), or the performance ranking within their school unit. Controlled analysis based on the different attributes of socioeconomic and educational segmentation to emphasize the eventual differential behavior that have the components of the School Path. It seeks to show how the greater weighting of factors other than PSU would make it possible to approach a policy of access to selective higher education (that be) less restrictive in terms of socio-cultural capital components, thus overcoming the biases of the old admission system.

## Materials and methods

### Design

The research uses the database of the Process of Admission to Higher Education of the year 2013 provided by the Department of Evaluation, Measurement and Educational Registry (DEMRE, for its initials in Spanish) whose function is to administer the unique System of Admission to the university via PSU. This database is official, from secondary source and of public access. By doing statistical analysis, it is possible to investigate the behavior of the different weighting factors used in the university admission process, specifically the PSU performance components (scores in standardized tests of Mathematics and Language) and those of school trajectory (NEM and Ranking). That analysis aims to determine the differential behaviors that evidence the weighting factors, their correlations and the characteristics of socioeconomic and educational segmentation that outline these differential behaviors. This is based on two assumptions: first, having good indicators of school trajectory (NEM and Ranking) is not a guarantee of equal performance in the selection tests; and second, that the evaluation of school trajectory as a weighting factor, especially the best relative performance or Ranking of the applicant, would immediately lead to

an increase in the postulation scores of the historically more postponed (segregated) sectors, emerging as a mechanism of greater social inclusion.

### Sample

The sample of studies consisted of the 272,663 students who took the PSU in 2013, as detailed in table 1. As to their characterization, it presents a relative homogeneity in its distribution by gender, with a greater presence of women (52.5%). Given the very nature of the admission process, the population is mainly young, of which 62% do not exceed 19 years of age. About 30% of young people are aged between 20 and 23 years, who may be academically lagging students, young people who return to participate in the selection process that year with a pre-university preparation, or those who postulate with PSU scores of the previous year.

The vast majority of them are students who have recently graduated from secondary school and belong to the Humanist daytime branch (57.4%), which by definition is oriented to continuation in higher education. The other branches related to the regulation of studies and/or preparation for labor field, although they are not forbidden of participation in the processes of admission to higher education, they have less statistical relevance. In terms of administrative dependence, only one third (33.3%) belong to the public system, with a clear hegemony of the Subsidized Particular in the other segment.

**Table 1.** Characterization of the sample

Sex	
Men	47.5%
Women	52.5%
Age	
Until 19 years	61.9%
Between 20 and 23 years	30.2%
24 years or older	7.8%
Administrative Unit	
Municipal	33.3%
Subsidized Particular	57%
Private Paid	9.7%
Educational Branch	
Humanist daytime	57.4%
Humanist evening time	12.8%
Technician professional	29.8%
Total	272.663

Source: DEMRE – 2013. Self-made

## Instruments and procedure

The database of the Admission Process 2013 contains information about the applicant students, characteristics of their family group, educational institution in which they attended secondary school, as well as the scores obtained in the university selection tests in Mathematics and Language, and the assigned scores in a scale equivalent to the school trajectory (NEM and Ranking).

The PSU factor considers the scores in Language and Mathematics tests, which once corrected for chance, are normalized to a common scale of average of 500 points and standard deviation of 100 points, moving on a scale ranging from 150 to 850 points.

The school trajectory factor refers to the average figure for the grades obtained by the students (NEM), and the relative position of them within their (school) establishments (Ranking).

The NEMs, in terms of qualification, are the expression of school performance and use of the curriculum developed by the students in the last four years, which correspond to secondary education in Chile. These grades are converted, depending on the teaching branch, to standard PSU score, to make them comparable as a weighting factor.

The Ranking is a measure of the relative position that every student occupies in his/her school career during middle school, and it seeks to measure their performance more precisely based on the educational context in which they develop their teaching-learning experience, taking as reference the performance of students of the last three generations of the same school, in order to avoid generating competitive logics and inflation grades. The Ranking is a measure of inclusion that seeks to value the educational trajectory and reward the effort deployed by the student in secondary education, and it is based on the assumption that academic talent is homogeneously distributed in the different social strata and types of schools.

## Results

When comparing the scores obtained and/or reached in each of the main components that determine university selection, the PSU figures register a similar distribution in their course between levels or ranges of scores, regardless of the type of test (table 2). One-third of the population accumulates under the 450-point barrier (32.6% in Language and 33.5% in Mathematics); one out of two applicants does not manage to overcome

the 500-point barrier (49% in Language and 51% in Mathematics); and less than 4% are at the top of the 700 points, regardless of the type of test. Obtaining over 450 or 500 PSU points are relevant milestones because they allow the right to apply to certain higher education institutions and programs, according to the levels of selectivity of these.

**Table 2**

Ranks	Language		Mathematics		NEM		Ranking	
	%	X	%	X	%	X	%	X
Less than 450	32.6	379.5 (54.6)	33.5	381.0 (56.5)	20.2	407.3 (31.2)	20.2	407.2 (31.2)
450 – 499	16.4	474.0 (13.2)	17.6	478.7 (13.7)	22.6	476.6 (16.4)	21.0	475.8 (16.2)
500 – 550	18.5	523.1 (14.9)	16.5	526.3 (13.5)	15.2	526.6 (11.7)	13.6	526.8 (12.4)
551 – 600	14.9	574.7 (15.0)	14.5	574.4 (14.6)	16.0	575.4 (15.6)	13.0	575.2 (14.9)
601 – 650	9.1	624.5 (13.7)	9.2	623.4 (13.9)	11.2	625.5 (14.2)	9.8	625.5 (14.1)
651 – 700	5.0	672.3 (13.2)	5.2	671.6 (14.0)	6.9	671.0 (10.4)	8.2	674.0 (14.2)
Over 700	3.5	738.4 (30.0)	3.5	742.6 (37.5)	7.9	732.0 (28.7)	14.2	766.7 (46.8)

Source: DEMRE – 2013. Self-made

When analyzing the behavior of the scores assigned to the components of school trajectory (NEM and Ranking), there are observed differences with respect to PSU factors. In ranking-based scores, only one fifth of the population (20.2%) fell below 450 points, and about 15% got over 700 points. There are observed less marked but equally relevant differences in the behavior of the extreme groups, based on school performance (NEM). It is especially significant the difference in the segment of better performance (over 700 points), where it is grouped 7.9% of the distribution.

The concentration of the group of worse performance, that is to say, those who obtain less than 450 points in language and mathematics tests, is reduced in a 38% and 40% respect of equal group when considering the Ranking. Similarly, in the group over 700 points, the frequency accumulation of this factor is 300% higher compared to the same performance segment in the other tests. On the other hand, NEM-Ranking differences based on the accumulation of density of each group are quite small, a pattern of behavior that tends to diversify as the best performing groups are accessed, with a constant discrepancy in favor of Ranking, for which the delta reaches 19% in the group of 651 - 700 points, while in the group immediately above this difference is 80%.



**Table 3.** Behavior of the Ranking with the PSU Tests for Language and Mathematics, according to attribute of segmentation

	Dif. Rank/Mathematics	
Dif. Rank/Language		
	Dif. Pje Dif. Prom r Pearson	
Dif. Pje Dif. Prom r Pearson		
Administrative Dep.		
- Municipal	80.7**	.21 .412** 78.9** .21 .382**
- Subsidized Particular	48.0**	.12 .484** 48.3** .12 .460**
- Private paid	-10.5**	-.01 .628** 2.0** .01 .624**
Educational Branch		
- HC Daytime	30.5**	.08 .559** 32.6** .08 .533**
- Tech. Professional	94.6**	.24 .339** 92.7** .24 .329**
- HC Evening	101.5**	.30 .126** 87.6** .26 .164**
Socio-economic level		
- Low	123.1**	.33 .347** 22.4** .33 .345**
- Medium low	80.5**	.20 .425** 76.8** .19 .399**
- Medium	35.8**	.09 .520** 36.3** .09 .491**
- Medium high	3.9**	.02 .574** 7.5** .02 .546**
- High	-9.9**	-.01 .629** 2.4** .01 .617**
Parents' education level		
- Primary	114.5**	.30 .295** 108.4** .30 .286**
- Incomplete secondary	86.6**	.22 .320** 80.3** .22 .327**
- Complete secondary	65.0**	.16 .381** 59.8** .15 .369**
- Incomplete higher education	28.2**	.07 .408** 24.1** .07 .391**
- Complete higher education	22.0**	.05 .463** 21.9** .05 .445**
Total	117.9	.146 .477 119.4 .145 .460

Note: Dif = differences that the Ranking presents with PSU tests of Language and Mathematics. Dif. Pje = differences in absolute terms between Ranking and PSU. Avg. Dif. = Relative average differences in Ranking and PSU. R Pearson = correlation that the Ranking presents in its relation with PSU test.

\*\* : statistical significance at .001

Source: DEMRE – 2013. Self-made

As it is shown in Table 3, when comparing the existing correlations between the different PSU tests with the Ranking, there are obtained moderate and conservative indexes of .46 and .48, depending on the language or mathematics test. The correlation indexes of the Ranking and PSU are higher for students of Private Paid Schools (mathematics  $r = .63$ ; language  $r = .62$   $p < .001$ ),

of the Humanist daytime branch (mathematics  $r = .56$ ; language  $r = .53$   $p < .001$ ), with high socioeconomic level (mathematics  $r = .63$ ; language  $r = .62$   $p < .001$ ), and with parents with complete higher education (mathematics  $r = .46$ ; language  $r = .45$   $P < .001$ ), although in the latter case, the differences in the indices are lower.

Municipal schools registered a loss of explained variability with respect to private paid schools of 57% and 63% for mathematics ( $r^2_{\text{MatM}} = .17$ ;  $r^2_{\text{MatPP}} = .39$ ) and language ( $r^2_{\text{LangM}} = .15$ ;  $r^2_{\text{LangPP}} = .39$ ) respectively. Likewise, in the low socio-economic level of students, the explained variability Ranking-PSU shows a loss with respect to the students with a high socioeconomic level of up to 70% in mathematics ( $r^2_{\text{MatNscA}} = .12$ ;  $r^2_{\text{matNscE}} = .40$ ) and 69% in language ( $r^2_{\text{LengNscA}} = .12$ ;  $r^2_{\text{LengNscE}} = .38$ ). The losses of explained variability of the educational branch HC Evening are much more accentuated and dramatic ( $r^2_{\text{Lang}} = .03$ ;  $r^2_{\text{Mat}} = .01$ ) in comparison to the HC Daytime ( $r^2_{\text{Lang}} = .28$ ;  $r^2_{\text{Mat}} = .31$ ). The lack of synchrony between the PSU and Ranking tests in the HC Diurnal branch finds an explanation in (the fact) that both the curriculum and the evaluative scales are oriented to the leveling of studies and obtaining certification and credentials for the incorporation into the job market, being consequently less defined to the preparation for the continuity of studies.

To the students who participated in the 2013 selection process, the Ranking gives them a comparative increase of around 80 points with respect to the PSU score (80.7 points in Mathematics and 78.9 points in Language), a difference that is translated in relative terms to a 21 % plus. This Ranking-PSU percentage difference is only 12% for Subsidized Private schools, and practically inexistent for Private paid schools (1%); differential behavior that becomes more evident when controlling for socioeconomic level of students and educational level of parents.

The low socioeconomic group obtains for Ranking 123 points more than in its PSU score, which is equivalent to a 33% more, and without ostensible differences among the tests; a proportion that decreases as the income scale rises. It is around 20% in the middle-low segment, 9% in the middle level, and 3% in the medium-high level. In the high level, the eventual improvements made by the Ranking are irrelevant, and stand at +/- 1%, in comparison with language or math tests. Likewise, when comparing by parental educational level for students whose parents have a maximum of eight years of schooling, their Ranking scores are on average 30% higher than those obtained in the PSU tests, differences

above 100 points that make them the second most favored group in an eventual weighting of the Ranking alongside the PSU tests.

The university selection system, regardless of the weights assigned by each university to the educational background and PSU performance, requires applicants to have at least 450 points average in PSU Mathematics and Language; however some universities may raise this requirement based on the program nature and its demand level. In 2014, 40% of undergraduate educational offer required the applicant to have no less than 500 average PSU points. This is compounded by the fact that, based on the higher levels of demand to enter a given program, the minimum scores sometimes rise above the admission barriers reported by the university, making them somewhat scarcely referential at the moment to postulate.

**Table 4.** Students by scoring cohort Ranking and PSU, according with segmentation category (%)

700	Over 500			Over					
	Rank	PSU	RR	Rank	PSU	RR	Rank		
Segmentation Categories									
Administrative Dep.									
- Municipal	56.2	38.8	1.4	30.3	10.8	2.8	12.3	1.4	8.8
- Subsidized Particular	55.8	52.9	1.1	30.2	15.1	2.0	13.2	1.5	8.8
- Private paid	80.6	93.2	0.9	51.6	64.8	0.8	27.1	16.7	1.6
Educational branch									
- HC Daytime	63.2	66.0	1.0	35.4	26.9	1.3	16.0	4.4	3.6
- HC evening	50.2	15.9	3.2	26.9	1.4	19.2	11.0	0.1	110.
- Tech Professional	44.6	16.0	2.8	20.7	2.6	8.0	9.1	0.1	91.0
Parents' education level									
- Primary	58.5	24.9	2.3	32.8	3.8	8.6	14.4	0.2	72.0
- Incomplete secondary									
- Complete secondary	52.9	30.0	1.8	27.7	4.8	5.8	10.9	0.2	54.5
- Incomplete higher education									
- Complete higher education	57.7	61.7	0.9	30.1	20.4	1.5	12.3	2.3	5.3
	68.3	74.8	0.9	40.3	37.1	1.1	19.4	7.2	2.7
Socio-economic level									
- Low	51.4	28.3	1.8	27.6	3.7	7.5	11.7	0.2	58.5
- Medium	58.7	61.0	1.0	31.5	16.8	1.9	13.2	1.4	9.4
- High	72.1	85.9	0.8	42.6	47.5	0.9	20.5	9.6	2.1

Note: the values express percentages of students who belong to a certain score cohort within each segment; Rank = Ranking, relative position of the student in

the establishment of which graduated, homologated to PSU score; PSU = university selection tests score RR: Relative Risk, it points out how much more likely is that a subject belonging to a particular segment integrate a given cohort of Ranking score, compared to belonging to the same PSU cohort.

Source: DEMRE – 2013. Self-made

Table 4 analyzes the distribution of students by cohort score in both Ranking and Average PSU (Language and Mathematics) according to characterization variables. In the first instance, it is observed that when considering the losses of density in the distribution of students by score cohort, achieving a high performance at school is not synonymous with a similar behavior when facing university selection tests, at least not for the postulants graduated from State establishments (Municipal or Subsidized Particular) and of low cultural and economic capital.

In the same table, we observe the differential behavior of the weighting factors in the different cohorts, based on students' socio-educational profile. The PSU factor favors mainly those students of high socioeconomic level, of Private Paid Schools, whose parents have higher education and belong to the branch HC Daytime. In fact, 9.2 out of 10 (93.2%) of the students who graduated from a Particular Paid establishment assure their participation in the application process to selective universities by obtaining over 500 PSU points, while only 4 out of 10 (38.8%) graduates from Municipal establishments obtain the same achievement.

When comparing by socioeconomic level within the same cohort and factor, these proportions are 85.9% in the NSE High and 28.3% in the NSE Low. As cohort scores increase, as it is logical given the higher demand levels, the accumulation of density tends to decrease in all segments; differences (that become) more evident in lower socioeconomic level groups, low educational level of parents, and municipal schools. For example, while in private paid schools, 16.7% exceeded the barrier of 700 PSU points, in municipal schools this proportion barely reached 1.4%, a figure 11 times lower.

These differences, although transversal when analyzing the behavior of the Ranking, become significantly attenuated. On the 500-point barrier, the concentration of students from municipal schools is 45% more than when exclusively considering PSU performance, even in the cohort over 700 points; while in the PSU factor, only 1.4% exceeded this barrier; considering the

Ranking, the concentration of students of municipal schools is 12.3%, *i.e.*, 8 times higher. Similar behavior is verified when analyzing the frequency accumulation by cohort score of the Ranking in the different segmentation variables.

Having parents with higher education is a factor that reinforces the performance of students both when faced with instances such as the university selection and throughout the educational process, as they are the ones who get the highest Ranking and PSU scores (6% In PSU and 17% in Ranking).

In comparison, students with parents whose schooling does not exceed full secondary education, 63% do not cross the barrier of the 500 average PSU points and less than 1% is positioned over 700 points in the same factor. The effect of cultural capital tends to be corrected by the Ranking, which shows greater stability among the educational categories as the score cohorts increase. Of the students whose parents have 12 or less years of schooling, 56% are positioned in the cohort over 500 Ranking points, and 13% over the 700 points in the same factor.

The possibility that a student of a state-funded establishment (Municipal or Private Subsidized) belongs to the “over 700” Ranking cohort is 8.8 times higher than that of belonging to the same PSU cohort (over 700 points); when they belong to low socioeconomic level, this possibility is 58 times, and 72 when their parents have not completed basic (primary) education. As a counterpart and in the same high performance cohort (over 700), the Ranking/PSU probability is 1.6 for Private Paid School students, 2.1 for NSE High, and 2.7 for families with parents with complete higher education.

## Discussion of results

In general, the average scores obtained by the students, based on the ranking, tend to be higher than those of the other components or factors contemplated in the admission score. Although in strict methodological rigor, these differences do not account for levels of educational achievement or differentiated performance, since the PSU language and mathematics tests are standardized and the ranking is not, the highest ranking score does manifest its effects as a weighting factor in the final score with which students postulate to different universities.

In a complementary way, when comparing the groups and segments based on the performance in the different

components or factors that are recorded in the admission processes (PSU performance and school trajectory), large differences can be found in the accumulation of density of each segment or rank category, particularly in the groups of greater performance, being the less accentuated those established between the components of the School Path.

Based on the behavior analysis of admission factors, two assumptions emerge. First, obtaining a good Ranking does not necessarily guarantee a good performance in the university selection tests, nor does it obtaining a good NEM or academic performance, an argument that is in line with [Contreras, Gallegos and Meneses](#) (2009), [Larrocau, Rios and Mizala](#) (2013), and [Medina, Aguirre and Luengo](#) (2014). Second, the better relative performance obtained in the Ranking would immediately cause an increase in the nomination scores and a differentiation of the universities with respect to the valuation that they give as a weighting factor included for such purposes.

Despite the restrictions of the correlation indices in the bivariate space, their indices give account of the low predictive capacity of the Ranking when estimating the performance in the PSU tests, so obtaining a high average and good positioning in a certain school is not enough guarantee to predict good results in the university selection processes, a situation that is accentuated as the socioeconomic level of the students decreases, (as well as) belonging to municipal establishments or graduating of the nocturnal education branch.

The misaligned behavior of the School Path components with the PSU tests reflects the socio-educational segmentation, the differential levels of demand, and the lack of homogeneity in the evaluative policy of the different establishments. Both Ranking and NEM are an expression of the achievement level that students make of the curriculum in their school careers. Consequently, it is expected that the scores obtained by these concepts correlate more strongly with those achieved in the PSU tests, standardized tests that are formulated in observance of the same curriculum.

Although obtaining a good Ranking is not a guarantee of similar performance in the PSU tests, its inclusion as a weighting mechanism would bring a greater equity to the system insofar as its behavior favors more delayed (segregated) groups, which historically have shown difficulties to access to selective higher education institutions when the selection system only contemplated the PSU performance, assigning an irrelevant



evaluation to school trajectory, with a weighting that in the vast majority of cases did not exceed 10%. In consistency with the above, the average differences of the PSU language and mathematics scores based on the Ranking show a behavior according to what motivated their inclusion as a weighting factor, since it increases the scores of the great majority of students, benefits that are accentuated in strategic sectors.

The differential performance of the Ranking in relation to the level of PSU achievement translates into the immediate distortion in the weighting of the selection factors adopted by universities, in consideration of different criteria. There are those that, based on judgments of greater social inclusion, assign high weight to school trajectory (NEM and Ranking), seeking to improve student scores, especially when they belong to groups for which obtaining a good PSU score has been historically complicated. We refer here to first generation students, low income levels, low cultural capital and reduced family human accumulated capital.

On the other hand, there is a relevant group of universities that transit in the minimum established legal scores of evaluation for school trajectory, including the Ranking. In 2014, in one third of the undergraduate educational offer, this dimension reached, divided into its two factors, a maximum weight of 30%. In these institutions, it is appealed to justice reasons, based on the fact that the efforts that students perform to achieve good PSU scores must be rewarded, together with the distrust of the evaluative policies developed by establishments, which are often distant from metric and objective rigor, by artificially raising the grades of their own high school students for spurious purposes.

The cultural capital of students, expressed in their parents' schooling, is a difficult factor to counterbalance in the PSU performance. Although this accumulated family capital is correlated with the level of income and the type of educational experience received, data report that as the parents' schooling increases, so do PSU scores. Observing the differences between the socioeconomic levels of students based on the Ranking, they become less obvious. Specifically, the score cohorts by this factor accumulate higher density in the most vulnerable groups, contrary to what happens in the PSU cohorts. Likewise, the gaps between groups become attenuated.

The Ranking, as an affirmative action measure, favors the most vulnerable groups, which have had a segmented educational experience in terms of quality

and relevance. The above is ratified by comparing the Relative Risk indices of the different socio-educational segments (that were) analyzed. As a result, it can be established that evaluating the Ranking would allow an improvement in the students' postulation scores, for those who come from the most precarious socioeconomic levels, whose parents have low levels of education and come from public schools, also reducing the gaps between the groups of students, also reducing the existing gaps between the groups of differentiated socio-educational attributes, giving the possibility of correcting the selective bias that the standardized tests have, which correlate with unwanted frequency with the cultural and economic capital of the student.

## Conclusions

The approach to the discussion about the university selection process and the double dimensionality of the factors that compose it (PSU performance and school trajectory), has led us through the analysis of the university selection process (in year) 2013 to look for the changes produced by the inclusion of the Ranking of Grades as a weighting factor that year, the behavior of the scores obtained by students in this factor, the characteristics of those who would be more or less favored by this measure, its distribution in students according to scores and cohorts, and the possible differences that they have with the PSU dimension and its simile, the NEM.

As a result of the above, the most relevant findings were:

The scores obtained by the applicants in their school trajectory (NEM and Ranking) are a weighting factor that shows a lower relation with certain attributes that can be considered of social segmentation (High NSE, High Family Cumulative Human Capital, Private Paid School), compared to PSU factors. This would immediately lead to an increase in students' postulation scores, which has a greater impact on strategic sectors of high social vulnerability and low cultural and economic capital, which improves the process selection criteria by allowing to enter to selective higher education those students coming from historically postponed (segregated) sectors.

In the School Trajectory dimension, the relative performance weighting or the applicant's Ranking shows greater benefits than the NEM. As this score is based on the student's grades, it cannot be lower, which causes a rise in the proportion of students with a better

Ranking than NEM, logically reinforcing what was stated in the previous point.

The potential benefits brought by the Ranking are based on its low relation to the students' attributes of origin, contrary to the intensity that the PSU dimension with this characteristic maintains. When analyzing the behavior and distribution of the scores obtained in the tests, we realize that obtaining a good NEM or Ranking is not a guarantee or preamble of a good PSU performance, since the relations between both dimensions are not regular. Their differences in students' accumulation are magnified as the achievement level increases, also showing irregular behaviors according to certain control criteria.

The increase in the scores of the School Path and consequently of the weighted ones with which the students postulate to the different universities presents for these institutions the challenge of the evaluation to the changes implemented in the selection mechanism that express, and the weight that they grant to different factors. The validation that they give to the dimension of school trajectory, giving it a high weighting, will lead to attracting students with skills different than those (other students) selected after achieving high scores in the PSU dimension. A greater institutional valuation of the educational trajectory as a weighting factor will make university education more inclusive, without negatively altering the predictive capacity of the PSU, since the evidence shows that the top students of the schools where they graduated have a better university performance than their non-top peers; however, the chances of these students of entering universities and highly selective careers that assign high weight to the PSU dimension are low, especially when these good students have vulnerable status and families of low cultural capital, and come from state-funded schools.

Undoubtedly, the configuration of undergraduate offers and the curricula of the different universities that are fed by the selection process will be decisive for future discussions about the university selection mechanisms, as well as to reflect the decision taken by the universities regarding the dilemma of which are the best predictors of good university performance, and therefore of academic excellence. The relevance of these modifications will divide the universities and open new dialogues about why, and the intentionality that motivates them.

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