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Equity issues associated with the change of college admission tests in Chile

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Abstract

Purpose – The purpose of this paper is to document the process of change of the admission tests in a developing country, Chile focusing on equity issues, particularly on the outcomes for test takers from marginalized groups.

Design/methodology/approach – The paper deals with equity issues associated to the change in admission tests to higher education in Chile. It addresses the omission of a validity framework, the ensuing implementation problems, and the unfulfilled expectations that the new tests would increase access to higher education for marginalized groups. The paper is built as a case study, using media accounts and archival data to document the process of change.

Findings – Three years after the debut of the new tests, the expected outcomes of increased access to higher education were not met. The performance gap in the admission tests between the underprivileged group of applicants from public municipal high-schools and the applicants from private schools widened.

Research limitations/implications – Two limitations of the study were the restricted access to primary information and the peripheral involvement of the authors had in the controversy over the new tests. To control for the potential bias in the discussion of the issues, the authors consulted with local and foreign experts not involved in the controversy in order to validate judgments and the interpretation of data and events.

Originality/value – An understanding of the oversights and flaws in the process of change can serve to inform national policy debates in countries where educational reforms are under way.

Keywords Higher education, Admissions, Assessment, Educational policy, Developing countries, Chile

Paper type Case study

Developing nations that employ standardized national admission tests in the process of college admissions have to be particularly rigorous about validity issues because of the weighty consequences attached to test outcomes at the individual and societal level. Whereas, in developed countries a college graduate earns approximately 1.8 times more than a person with an elementary education, in a developing nation such as Chile the college-educated earns 5.5 times more (Beyer, 2000). Under these conditions, a well-planned and fair college admissions system represents the essence of public good by providing opportunities for self-improvement to all members of society (Heyneman, 2003).

In developed countries, prescriptive standards have been issued for test development that seek to guarantee that tests are well constructed and thus protect the rights of all stakeholders that can be affected by test-based decisions (American Educational Research Association, American Psychological Association and National Council on Measurement in Education, 1999). Issues related to the intended and



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unintended consequences of testing, including fairness and equity, are given serious consideration, whereas in developing countries there is less attention devoted to these issues and no explicit standards to regulate testing practice as in the USA (Chakwera *et al.*, 2004).

The purpose of this paper is to document the process of change of the admission tests in a developing country, Chile, focusing on equity issues, particularly on the outcomes for test takers from marginalized groups. It presents insights and lessons which may be useful for policy-makers in other parts of the world regarding the need to comply with rigorous standards of assessment practices for high stakes examination design and implementation in order to promote fair admission criteria and, thus, contribute to advance equity.

Research approach

The process of change in the Chilean national admission tests was explored through a qualitative case study, defined as an intensive, holistic description and analysis of a bounded phenomenon (Merriam, 1998, p. 27). It relied predominantly on media accounts, archival data, and interviews with some of the participants in the process. The time period ranged between December of 1999 and April of 2006; it covered the antecedents of the changes, the public controversy surrounding the process, and the consequences of the premature application of the new tests.

One of the characteristics of the study was the peripheral involvement that the authors had in the process which constituted both an asset and a liability. The asset was the particular insight into the processes and relationships among the actors and the events that might not have been easily captured from the perspective of a completely detached outsider. The liability was the potential emotional involvement that might bias the discussion of the issues. The latter risk was minimized through extensive consultation and communication with local and foreign experts not directly involved in the controversy in order to validate judgments and interpretations of the data and events.

The college admission context

The centralized college admission process

Since the mid-sixties Chile had a centralized system of admission to its publicly-funded universities that relied on high school grade point average and multiple-choice standardized tests in math and verbal skills (Prueba de Aptitud Académica, hereafter referred to as PAA); it was modeled after the American SAT tests. The PAA examined only basic contents covered in the first two years of high school. A few of the more prestigious academic programs required its applicants to take additional tests (Pruebas de Conocimientos Específicos, hereafter referred to as PCE subject tests), similar to the SAT-II or SAT subject tests. The PCE subject tests were standardized, multiple choice tests that examined advanced contents in math, science, and the social sciences.

PAA and PCE subject tests were administered once a year by Departamento de Medición y Registros Educativos (hereafter referred to as DEMRE) a non-autonomous agency that operated within the largest publicly funded university of the country, the Universidad de Chile. The examinations were developed, administered, and scored by DEMRE, and the scores were only valid for the annual admission process. The agency also processed the applications for all the academic programs offered by the public universities in the country. The testing fees charged to applicants were collected and retained by the Universidad de Chile.

In three decades few system-wide studies had been conducted to assess the psychometric properties of the tests. The last published system-wide technical report in 1990 indicated that the battery showed reliabilities in the 1990s for the PAA math and verbal tests with somewhat lower reliabilities for PCE subject tests. The predictive capacity of the scores was considered to be within the ranges of other international admission tests (Diaz *et al.*, 1990).

The educational reform of the 1990s and the decision to change the admission tests
In the late nineties an educational reform conducted by the Ministry of Education and financed through a loan from The World Bank was being implemented in Chile. The 1990s' educational reform focused on quality and equity. It complemented two previous reforms, one in the 1960s that focused on expansion of access to public education, and the 1980s' reform that focused on efficiency, decentralization, and the introduction of competition and private incentive mechanisms on a national scale (Cox and Lemaitre, 1999).

In the nineties the leaders of the reform movement were elite researchers who had been trained at prestigious European and American universities. This elite group designed and implemented the ambitious educational reform (Brunner, 2005). The style of implementation was top-down. Among the key policy measures in the reform were mandatory changes in the curriculum and the lengthening of the school day (Cox and Lemaitre, 1999). The extension of the new national school curriculum required more in-class time. Accordingly, public municipal schools and the private subsidized-system were expected to be functioning on a full-day schedule by 2003, as described in a report from The World Bank of 2001[1].

The government was slow at first in getting political support for the reform because of secrecy, the lack of a communication strategy, and limited participation of key stakeholders in the process. "The initiative . . . took most people by surprise, triggering many vocal reactions" (Delannoy, 2000, p. 25). So after somewhat shaky beginnings, the reform's new curricular framework for secondary education was approved, and the Ministry of Education was faced with the task of evaluating its outcomes.

Towards this purpose, in the early months of 2000 the Minister of Education convened a Commission composed of ministry officials, university faculty members, and educators to evaluate the admission tests. The report of the Commission recommended the substitution of the admission battery in use by a new set of tests to serve the dual purpose of selecting students for higher education and to evaluate the learning outcomes of the reformed high school curriculum (Comisión Nuevo Currículum de la Enseñanza Media y Pruebas del Sistema de Admisión a la Educación Superior, 2000). In November of 2000, the Minister of Education informed the Council of Rectors of public universities (hereafter referred to as CR) – a body composed by the heads of the publicly-funded universities and presided over by the Minister of Education himself – about the recommended changes in the admission tests (La Segunda, 2000). The new tests, Sistema de Ingreso a la Educación Superior (hereafter referred to as SIES), would be financed with public funds and headed by two faculty members from two leading Chilean universities: an economist and a social psychologist who had also been a member of the Ministry's Commission.

The CR acquiesced to the change in the admission battery, and in October of 2001, The World Bank officials who oversaw the loan for the secondary education reform reported that the tests for entry to the university system were being revised by the Ministry of Education with the collaboration of the CR. The new tests were intended to

serve as a mechanism to guarantee the sustainability of the reform and become part of the evaluative system of secondary education. Furthermore, the report stated that the new admission tests could eventually become an exit exam from the secondary education system.

The new tests: project SIES

The new admission battery SIES – to be developed in the course of two years – would consist of four multiple choice tests: math, language, science, (covering biology, physics, and chemistry) and social sciences. Applicants to any CR university would be required to take all four SIES tests. These would examine 100 per cent of the extensive and newly reformed mandatory national curriculum covered in the ninth through the 12th grades. For example, the social sciences SIES test would cover contents in geography, economics, and five centuries of national history ranging from pre-Hispanic civilizations to contemporary history including the political, social, economic, and cultural changes in Chile from the 1970s to the present, in addition to three thousand years of World History, encompassing the first cultural expressions of humankind and the early classical civilizations up to contemporary history including the Great Depression of the 1930s (Vial, 2001).

In line with the spirit of the 1990s' reform of quality improvement and equity enhancement, the new tests were presented as a change for the better. Because of their link to the curriculum, test proponents claimed among other benefits that the new SIES battery held a greater potential to fairly assess socio-economically deprived students; that by aligning the new tests with the ninth through 12th grade curriculum learning in secondary education would be enhanced; and that the use of methods based on item response theory would allow to equate tests through the years thus increasing the efficiency of the admission system (Bravo *et al.*, 2000; Bravo and Manzi, 2002).

The public controversy about the SIES

Public reaction to the news of the change in the tests was slow. The endorsement of the project by the CR, the professed benefits the change could bring to the secondary school system, and the credentials of the SIES team leaders coupled with their claims that the process was being conducted according to the highest international standards and using the latest technology contributed to justify the project in the eyes of the public.

However, the rationale of the SIES project particularly the appropriateness of using the same instrument to evaluate the reform and serve as admission tests for higher education and its potential social consequences became a matter of concern. At the time, neither those who had participated in the committee of the Ministry of Education nor those who had access to The World Bank Report spoke out publicly to clarify the true motives behind the change, namely to guarantee the sustainability of the educational reform and assess its outcomes. Nevertheless, one dean of a CR university correctly surmised the actual intent and criticized the decision as wasteful and pointless, arguing that assessment tests were already in place to monitor educational outcomes in language and mathematics for the fourth, eighth, and tenth grades nationwide (Labarca, 2002)[2]. Confronted with mounting criticism, SIES leaders flatly denied the true motives behind the change stating that such an interpretation was a "misunderstanding on the part of the public" (Manzi and Bravo, 2002, p. E6).

The early apprehensions regarding the new tests intensified after the publication of sample items for the new tests on the website of project SIES. Educators and scientists

detected serious flaws in the items of the new math, science, and language tests and forwarded letters to the press (Rodríguez, 2002; Valenzuela and Cousiño, 2002; Bustos *et al.*, 2002; Navarro, 2002). Others questioned the validity of some items that appeared unreasonable to the eye of the general public (García-Huidobro, 2002; Bortolaso, 2002). Others worried that the extensive contents covered by the new tests posed a threat to what they considered an already restricted freedom of education in the country, and they feared this would result in an impoverished curriculum with no leeway for optional subjects not examined in the tests, such as philosophy, languages, and the arts (Fontaine, 2002; Ibáñez, 2002; Seminario Prueba de Admisión a las Universidades Chilenas, 2002).

Initially, save for a few exceptions, faculty members at public universities represented in the CR did not openly criticize the initiative endorsed actively by their superiors. The channel for the expression of misgivings and objections to the SIES project was provided by a public policy research center, Centro de Estudios Públicos (CEP) – a private, non-partisan, non-profit organization inspired by the principles and values of a free society that aimed to provide a forum to foster national discussion on public issues. CEP researchers organized roundtables and discussion groups to analyze the new tests and the implications of the changes for the Chilean educational system and test-takers serving as a catalyst for an academic debate over the new tests.

The qualms towards the SIES project pointed to three main areas: the rationale for such a radical change in the tests and the alleged benefits for the educational system, the technical quality of the new tests that were being developed, and the omission of a validation framework for the new tests.

The alleged benefits of the SIES tests

The purported benefits of the SIES tests were the improvement of the secondary school system and the increased equity of educational opportunities for low socio-economic status students particularly those from public municipal schools.

Test developers offered the arguments that Atkinson (2001) used against the SAT in the USA to support the changes in Chile. They claimed that the new tests would benefit the school system by strengthening the linkage between the high school curriculum and the university selection process. They also implied that the change would result in an increased equity of access to higher education for socio-economically deprived students citing studies conducted at the University of California comparing SAT-I and SAT-2 as admission instruments (Geisser and Studley, 2001). However, the only evidence provided by them was based on the comparison of low stakes Sistema de Evaluación de la Calidad de la Educación (SIMCE) achievement tests and the admission tests in use focusing on the performance of the very small and self-selected group of applicants that took both the PAA and the PCE achievement tests required for slots in the more prestigious universities (Bravo and Manzi, 2002). Such evidence as forwarded by SIES leaders was considered to be fallacious and misleading (Beyer, 2002).

Given the substantial socio-economic inequality in the country and the persistent failure of public schools to provide students with the necessary opportunities to learn, the assumption that the new tests would increase equity of access was challenged. Unlike private schools, not all public municipal schools were functioning on a full-day schedule and thus did not cover all the contents prescribed by the extensive newly reformed curriculum. Under those conditions, the decision to change the tests in such a short-time span was considered to be imprudently premature since it might increase

the already substantial performance gap between affluent and poor students (Eyzaguirre and Le Foulon, 2002).

However, the Minister of Education, some politicians, and teacher labor union leaders echoed the claims of test developers that achievement tests such as the SIES would be more equitable than the tests in use (Las Ultimas Noticias, 2002b; Brunner, 2002; EL Mercurio, 2002). In addition to the above, the leaders of project SIES also hinted that an extra equity benefit of the new tests would be that coaching would be less necessary, and that merely concentrating on school work should suffice as a strategy to perform well (Diario Electrónico El Mostrador.Cl, 2002; SIES: Un desafío para la Enseñanza Media, 2002).

The technical quality of the new tests

Potential inequity was not the only source of uneasiness for detractors. The quality of the new tests was also a matter of serious concern, and the controversy about the SIES tests reached its climax after a report undersigned by a group of highly qualified mathematicians and educators commissioned by CEP to analyze the new mathematics test confirmed that it was gravely deficient and questioned the competence of the SIES team to produce a good math test for the year 2003 (Friedman *et al.*, 2002).

The report stated that a large proportion of the sample items in the SIES website were defective, particularly, an innovative section of multiple-choice, graded response items (that allowed for partial credit to partly correct items), where roughly 40 per cent of the items could be answered without even reading the problem statement[3]. The recommendation was to maintain the existing tests and gradually add items that tapped into the new content areas specified in the curricular reform allowing sufficient time for the school system to adapt to these changes.

The leaders of the SIES project denied the shortcomings of their tests. In the case of the flawed, multiple choice, graded-response items they downplayed the consequences in several communications to the press (Dusaillant, 2002). The controversy in the newspapers ended when a high ranking official of the Ministry of Education finally acknowledged that the flaw existed, and that without any knowledge of the subject but through the use of a simple heuristic, it was possible to answer some of the items correctly (Las Ultimas Noticias, 2002a). Still, both ministry officials and test developers insisted that the criticisms of the new tests were exaggerated and irresponsible claiming that it was part of a politically-motivated conspiracy to discredit the SIES project (Jalilie, 2002; Urzúa, 2002b; Las Ultimas Noticias, 2002b). CEP also convened commissions to study the language, social sciences and science tests, and their reports were not favorable (Elmes *et al.*, 2002; Hojman *et al.*, 2002; Fermandois *et al.*, 2002).

The omission of a validation framework

The omission of a validation framework for the new tests and the inadequate timetable specified for the elimination of the tests in use was questioned (Sepulveda, 2002; Parada, 2002). Faculty members at some CR universities warned the rectors that it was unethical to experiment with the first wave of applicants turning them into guinea pigs and recommended that the elimination of the existing battery of tests should be postponed for at least two years until evidence had been garnered regarding the benefits of the new tests (La Segunda, 2002a, i). Their suggestion was that during that period all applicants should be required to take both batteries of tests in order to assess the functioning of the new tests and to conduct the validation studies omitted by the SIES project (Astorga, 2002; La Segunda, 2002f; Urzúa, 2002a).

In view of the many unanswered questions channeled through the media and the concerns expressed in academic circles regarding the haste in substituting the tests, rumors circulated during late June and early July of 2002 that the debut of the new tests would have to be postponed (La Segunda, 2002b, g). However, amid a climate of uncertainty and rumors, the CR decided to maintain the timetable and wait for the results of a scheduled field test to calibrate SIES items to be conducted in September of 2002 before making a final pronouncement (La Segunda, 2002e). Public statements from rectors echoed the fallacious notion forwarded by the SIES leaders that validity considerations regarding the use of test scores for admission purposes would be amply satisfied after the item try-out field test (El Diario Austral, 2002; Rosso, 2002a, b).

By August of 2002, the tension escalated as two influential rectors (U. de Chile and U. de Santiago) decided that they would not adopt the new SIES battery for admission purposes in 2003 until evidence could be provided regarding the pending validity issues. Instead they would require their applicants to take the existing tests along with the new tests (La Segunda, 2002a, b).

The Minister of Education replied publicly with harsh words accusing the Rector of the U. de Chile of pecuniary motives for his decision. A lucrative business the administration of the admissions tests reported yearly revenues of approximately three million dollars for the Universidad de Chile which the rector was reluctant to forego according to the expressions of the high state official (La Segunda, 2002c).

The incident of the dissident rectors represented a major crisis and threatened the survival of a centralized admission system to the public university system[4]. An emergency meeting of rectors with the Minister of Education took place to work out a solution to the SIES problem. The impasse was resolved with the unanimous decision of the CR to develop a "Transitional Exam" ("Prueba de Admisión de Transición", dubbed PAT by the press) that later was re-labeled as Pruebas de Selección Universitaria (hereafter referred to as PSU).

The PSU represented a conciliatory move that attempted to accommodate some of the criticisms about the project (La Segunda, 2002h), but it did not allow for a time extension to conduct the necessary studies to guarantee a smooth transition between the two admission systems (Koljatic and Silva, 2002). The decision of the CR to maintain the time frame represented a tacit endorsement of the view espoused by the team of test developers that additional reliability and validity studies for the final forms were a luxury that could be safely overlooked (Seminario Prueba de Admisión a las Universidades Chilenas, 2002). Thus, the new PSU Tests would be jointly developed by DEMRE at the U. de Chile and the SIES team in the course of one year.

Compromises

Among the concessions made to the 2003 applicants was a reduction of both the number of tests and the contents to be examined. Applicants would be required to take only three of the four tests. The math and language tests would be mandatory and the choice for the third test would depend on the requirements of the academic programs. A reduction of approximately 30 per cent of curricular content was suggested for each of the tests and the decision as to which content would be dropped was left to an advisory committee composed of faculty members (La Segunda, 2002d). However, the elimination of curricular content would only be temporary. Additional contents would be added yearly so that by 2006 the admission tests would include 100 per cent of the official curriculum covered in high schools in the four subjects as specified for the SIES tests.

The contents to be examined in the first version of the PSU were disclosed in November 2002, and the public was informed that sample tests would be available in April 2003 eight months prior to the first application of the new tests for admission purposes. However, in April of 2003 applicants were informed that only sample items instead of complete sample tests would be provided (La Segunda, 2003b; El Mercurio, 2003d).

Contrary to the expectation of test developers and Ministry officials who had claimed that a benefit of the new tests was that merely concentrating in school work would suffice as a strategy to perform well (Herrera, 2001; Diario Electrónico El Mostrador.Cl, 2002), the change of tests translated into a booming business for owners and managers of private coaching programs. The manager of one of these programs, owned by a prestigious university of the CR, reported an increase of 30 per cent of customers for 2003 (El Mercurio, 2003b). Also, new niche markets were created as private secondary schools contracted special programs to coach their students for the new tests making attendance mandatory. Prior to the introduction of the new tests it was mostly individual students who hired the services of coaching agencies (Las Lecciones del Simce y la PSU, 2005). The contention of educational analysts, namely, that the new tests would give an edge to the affluent minority who could afford the cost of coaching programs (Beyer, 2002; Fontaine, 2002), proved to be accurate.

In March of 2003, the CR informed about application requirements for their academic programs for the annual admission process. The weight assigned to high school grades in the admission process increased dramatically compared to previous years. Such a trend was interpreted as a sign of distrust towards the quality of the tests that were being developed (El Mercurio, 2003a).

During the year, the leaders of the SIES project, DEMRE officials, local educational authorities, and rectors offered reassuring statements that the new PSU tests being developed would be very similar to those in use, and described the changes as minor (La Segunda, 2003c, d, e; El Mercurio, 2003e). These statements echoed the opinion of a past consultant of The World Bank – and advisor to the SIES project – who had stated in an interview that the changes were only a timid and cautious innovation of outdated tests (Muñoz, 2002).

Finally, in September of 2003, three months before the first application of the PSU tests authorities announced that a free trial test of the math and language tests would be scheduled for November of that year (El Mercurio, 2003c). Based on the results of the trial, the Rector of the U. de Chile anticipated that scores in the new tests would be higher than in previous years. His hunch proved to be wrong since there was a significant drop in scores (La Segunda, 2003a).

Outcomes of the first applications of the PSU

After the first application of the PSU in December of 2003, ministry officials and educational authorities claimed that the process had been a complete success even though some outcomes were far from satisfactory both for applicants and universities. The number and composition of test-takers fell from 181,901 the year before to only 153,963 which represented a 15 per cent loss, mostly high-school graduates from the public education system and applicants from previous cohorts that had not been exposed to the secondary curriculum reform (Figure 1).

There was evident statistical malfunctioning and scaling problems with two of the new tests. The math and science tests were highly and positively skewed, very far off from the bell-shaped distribution that was expected and desired for admission tests.

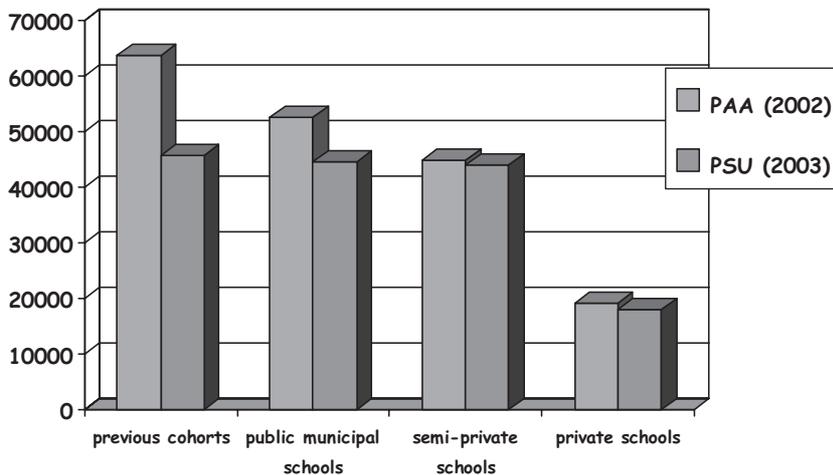


Figure 1.
Total number of test takers
by school type

Source: Koljatic (2004). Data provided by P. Universidad Catolica de Chile

Average item difficulty in the math and science tests were in the 0.30s range, a value far off the expected 0.60 range for achievement tests composed of items with five response options (Henrysson, 1971). The marked skewness of the distributions and item difficulty of the tests signaled a problem of a poor fit between the difficulty level of the tests and the ability distribution of the group. Still, an official six member PSU technical committee appointed by the CR that included a DEMRE official and the leaders of the SIES project claimed that from a statistical standpoint the performance of the new tests was highly satisfactory (Comité Técnico Asesor, 2004; Hawes, 2004).

Shortly after the scores of the tests were released, criticism surfaced regarding the scaling procedure employed by DEMRE. The normalization of scores utilized in the new math test was questioned (Del Pino and Aravena, 2004). However, if DEMRE technicians had used the procedure suggested by its critics, the gap between the affluent private school applicants and deprived groups from the municipal public schools would have increased by 8 per cent. Because the new tests had been presented as a means to favor equitable access to higher education, the issue of the magnitude of the gap was at the time a matter of interest. The Rector of the U. de Chile declared to the press that the PSU had proven more equitable to socio-economically deprived students (La Segunda, 2004a), ignoring that the apparent reduction of the gap was merely a function of the statistical transformation used by DEMRE (Beyer, 2004).

The downside to the normalization procedure employed by DEMRE was a generalized drop in test scores. College admission officers were not warned about it, and the admission process at the universities of the CR continued to operate on the basis of the same cut scores that had been used in the past. As a result, for the first time in three decades slots for prestigious programs at state-funded institutions were not filled. The oversight resulted in a migration of qualified students to the more costly and less prestigious system of private universities in Chile (La Segunda, 2004b). Also, cut scores for merit scholarships for economically deprived students were not adjusted for the changes in the scale, and at least in one prestigious university, the funds were not fully allocated that year (Delpiano, 2004).

Instead of acknowledging the shortcomings of the process, the CR and members of its PSU committee publicly defended the process of change and made repeated claims that the process had functioned impeccably. However, the problems were tacitly acknowledged since a few months before the second application of the PSU in December of 2004, the Rector of the U. de Chile hired the services of Educational Testing Service Global. Its experts audited the process and issued a report, but ETS's report was not made public despite the numerous requests to release the information (Castro, 2005; Koljatic and Silva, 2005b; Matte, 2005).

The same problems of statistical malfunctioning and persistent denial of these by the PSU technical committee arose after the second year of use (Comité Técnico Asesor, 2005). In addition to the above, the second application of the PSU tests was plagued by accusations of leaks in the PSU science tests (Zúñiga, 2005a; Cento, 2005), where 36 out of 54 questions were disclosed to at least two students attending a private coaching program (El Mercurio, 2005). The Rector of the U. de Chile promptly attributed the problem not to a leak but to an accurate "reconstruction of the test," facilitated by the fact that a number of the items in the PSU admission tests were repeated from the previous year in order to equate tests (Zúñiga, 2005b). Although the explanation forwarded by the Rector was deemed implausible and far-fetched by some (Fontecilla, 2005; Ibáñez, 2005), the incident was not further investigated (Carvajal and Zúñiga, 2005).

The incident of the leak of questions and the explanation of the Rector regarding the need to include questions from previous applications should have been a matter of concern. If the PSU tests contained a number of items from previous tests, and coaching programs sent their instructors to take the tests and memorize the items as suggested by DEMRE officials and others, then students attending those programs would have an unfair advantage over those who could not afford them (Valdés, 2006; Zúñiga and Olivares, 2005). This scenario did not appear farfetched given that one of the many coaching businesses that thrived with the PSU boasted in their advertisement that over 40 per cent of all applicants nationwide that had obtained perfect scores in the PSU tests had enrolled in their program. In a country where secrecy and constraints in the access to information prevailed, many were taken by surprise when the Rector of the U. de Chile, the highest-ranked university in the country, reported a progressive decline in the enrollment of students from public municipal high-schools in his institution from 32 per cent in 2003 to 20 per cent in 2006 (Zúñiga, 2005c; El Mercurio, 2006). The declining trend coincided with the change in tests, and the Rector acknowledged that it was associated to the changes in the admission system. His statement appeared consistent with the widening performance gap between the applicants from public and private school which grew 11 per cent for the language test and 15 per cent for the mathematics test from its first implementation in December of 2003 to its third application in December of 2005 (Table I).

A plausible explanation for the gap increase appeared to be the progressive inclusion of advanced contents in the tests. The yearly addition of new contents might be taking its toll among the applicants from the public school system since it was lagging behind in the implementation of the full-day schedule (Zúñiga, 2006). Students from public schools were competing on unequal terms with applicants from private schools who not only had a full-day schedule but also had access to expensive coaching programs. Still, no sign was given by policy makers that the new tests would be revised or that palliative measures would be taken to neutralize the adverse effects over equity although this was clearly an instance where the consequences would have

required “additional policy initiatives to address the [negative] effects of test implementation” (Hartmann and Fisher, 1999, p. 371).

Discussion

The change in the admission tests in Chile was defended employing arguments of increased equity of access to higher education. Instead of substituting the existing battery of tests for a set of achievement tests that measured 100 per cent of curricular content, an agreed-upon subset could have been defined as a prerequisite for college admission. Namely, the focus should have been on developing selection criteria that assessed relevant prerequisites in areas considered to be most functionally germane to academic success (Jensen, 2000). The inclusion of the full-breadth of contents was unwise, particularly when a majority of public schools were not functioning on a full-day schedule. The Chilean experience could be characterized as an emblematic case of faulty implementation where test development done in a haphazard manner was associated to serious negative consequences (Heyneman, 1987).

Implementation errors

The implementation process was plagued with technical problems that were not publicly acknowledged. A particularly disturbing issue was the evidence of an increased gap in test scores between applicants from public and private education associated to the change in tests. This outcome appeared to be consistent with international findings that the adoption of highly competitive examinations would not contribute to equity in developing countries, and often the results turned out to be just the opposite (Lewis and Dundar, 2002). In a country like Chile where social mobility was closely associated to access to higher education the mounting evidence of inequity should not have been ignored by policy-makers, particularly since the change of tests was presented to the public as a step towards greater equity of access.

The chain of bad decisions was totally inconsistent with the training of those in charge of running the educational reform. In the 1990s, with the return to democracy after 17 years of an authoritarian regime, a cadre of researchers entered government and were appointed to key posts in ministries including education. From their new positions in education, they designed and implemented the ambitious reform program including the change of tests, but something happened in the transit from the academy towards the corridors of power. Contrary to expectations that educational policies would be regarded as an evidence-based process (Brunner, 2005), the “researchers-turned-into-policy makers” did away with academic rigor in the implementation of

Table I.
Performance gaps expressed as the standardized effect size (ES)^a between applicants from public municipal and private schools

	Language test	Mathematics
ES PAA (2002)	0.98	1.08
ES PSU (2003)	0.97	1.01
ES PSU (2004)	1.00	1.07
ES PSU (2005)	1.08	1.15

Note: ^aEffect sizes are reported since they are independent of the response scale. These are defined as the raw difference between the two groups divided by the standard deviation of scores (within groups) on the response scale (Abelson, 1995). Data provided by P. Universidad Católica de Chile

their program. For reasons that are still unclear, the new tests were implemented without a validation framework.

In the omission of a validation framework there was a joint responsibility of the policy makers who promoted the change and of the test developers who wrote the project proposal without mentioning the need to conduct validity studies before eliminating the test battery in use. When the issue of the omission of a validation framework was brought up, rather than correcting the deficit, it was downplayed. After independent organizations provided technical evidence of the shaky quality of the new SIES tests being developed, its name was changed and minor concessions were made to calm public upheaval. These concessions did not solve the core problem, namely the dearth of evidence to guarantee the quality of the new selection tests and to assure a smooth transition between the admission systems, thus preventing negative consequences for applicants. The change of tests was imposed from top-down and the public was deceived as to the true purpose of the change, namely, to guarantee the sustainability of the secondary education reform and to assess its outcomes. Aside from the deception to public opinion and the lack of transparency and accountability that it signals, the attempt to transform the admission tests into an evaluation of secondary education was a technical mistake simply because admission tests and exit exams serve different purposes and require different types of instruments. As stated by a leading measurement expert, Ronald Hambleton, Distinguished Professor from the University of Massachusetts at Amherst, USA: "if a test measured the curriculum that was taught and the students learned the skills, the score distribution would be negatively skewed. This would be expected and desirable. For admissions tests however, the goal is to spread out the scores to maximize the reliability and validity of the scores for predicting success, hence a symmetrical and bell-shaped distribution of scores would be expected and desired. It is unlikely, to say the least, that the two purposes – admission selection and outcomes evaluation – could be well accomplished via a single instrument" (Personal Communication, 17 March 2004). But even if such a magic bullet test could be conceived for the dual purpose of selection and outcomes evaluation, validity evidence should have been garnered for both purposes regarding test content, response processes, internal structure, relations to other variables, and the consequences of testing in order to assess its technical quality (American Educational Research Association, American Psychological Association and National Council on Measurement in Education, 1999).

Even for the best plans laid by the smartest policy makers some unanticipated consequence seem to be inevitable (Kingdon, 1995). Still, in this case the likely negative consequences for equity were brought to the attention of policy makers, but inexplicably they chose to ignore the risks entailed for applicants from public municipal schools. Overlooking the adverse consequences was the bottom line of a process that was characterized by inadequate planning and faulty implementation along with unfulfilled expectations regarding the new tests' potential to promote equitable access to higher education. The outcome of increased inequity associated to the change process betrayed the essence of the 1990s' educational reform move towards increased equity and showed that it is one thing to implement a policy initiative and a different matter to claim that it is effective (Odden, 1991).

Transparency and accountability

Experts agree that a testing agency is in the best position to do a good job when it is independent of government financing and political control (Heyneman, 1987). This was

not the case in Chile where DEMRE was a department within the U. de Chile, an institution that depended on government funds. The change of tests was centrally planned and implemented, and DEMRE staff were not in a position to demand the necessary conditions to do a thorough job. Had the testing agency been autonomous, there would have been a chance that the quality of the tests and its impact on equity would have been addressed. Although a PSU technical committee was appointed by the CR to oversee the process, some of its members had vested interests. Those who planned the change and implemented it ended up acting as the sole evaluators of the quality of the PSU (Koljatic and Silva, 2005a). Their reports of the new tests resembled a type of pseudo-evaluation defined as a “public relations inspired studies based on a propagandist’s information needs for data that construes a positive image of a policy or program” (Stufflebeam and Webster, cited in Browne and Wildawsky, 1983, p. 189).

The lack of transparency, accountability, and the concealment of information that pervaded the process was evidenced by the refusal to make public ETS’s report of the PSU. This signaled the need to strive for an autonomous agency in charge of test development, one that maintained professional standards and did not succumb to political pressures to test inappropriately as suggested by Heyneman and Ransom (1990).

Although accounts of insufficient attention to validity issues that result in inappropriate use of testing can be found in other parts of the world (Hartmann and Fisher, 1999; Popham, 2003), in developed countries there is greater awareness on the part of policy makers and test developers that these should be taken seriously to promote the sound and ethical use of tests. The justice system in the US regulates and stimulates the good practices in measurement forwarded by American Educational Research Association, American Psychological Association and National Council on Measurement in Education (1999). The standards endorsed by these organizations represent a safeguard of the rights of test takers to be assessed with well-constructed instruments. In developing countries, such as Chile, the lack of a legal backup system makes it more necessary to emphasize the need for self-regulatory ethical standards on the part of professionals, especially in the construction of high-stakes instruments. Consultants to international projects can contribute to the promotion of good practices in developing countries by advocating the same high standards that they are required to uphold in their own countries.

Notes

1. Identification of the report is withheld because of a policy of The World Bank that reports have to be five years old to be made public.
2. The SIMCE tests were similar to the National Assessment of Educational Progress of the USA, in that the aim was to periodically assess what Chilean students could do in selected subject areas.
3. In the graded-response items test-takers knew that there was one correct answer and one partially correct or “approximately” correct answer among the options. If appropriately used, that information allowed them to pick the correct option for some items without even reading the problem statement . For example the options for one graded-response SIES item read: 9, 27, 39, between 35 and 40, and over 40. The correct answer can be easily guessed because there is only one option that allows for another “approximately” correct answer. Thirty nine is the only answer that is contained in the 35-40 range. This simple heuristic allowed a respondent to select the correct answer without any additional knowledge (Dusaillant, 2002).

4. One powerful inducement to preserve a single and centralized admission test for public universities, was that state funds were allocated to the institutions that attracted the top scoring students in the admission tests. This policy was introduced in the early eighties by the Ministry of Education as a way to stimulate the competition and the quality of education between universities. Although any university represented in the CR could use any admission procedure to select students the cost for not employing the approved tests was giving up access to these resources (Aravena and Molina, 2002).

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