ABSTRACT

This paper uses concepts from New Institutional Economics and subdisciplines within economics to describe factors related to schools' success. It draws on an exploratory study of a small sample of public and private primary schools in Chile to show that it is possible to apply the concepts proposed in the paper and that there is a positive relationship between institutional climate and school performance. The paper discusses how institutional factors influence the interactions or "transactions" among members of a school community. The institutional climate is strongly influenced by: (1) how clear the school's objectives are and how well they are understood and internalized by all stakeholders; (2) whether there are strong formal rules and effective mechanisms for enforcing these objectives; (3) whether the informal rules in the school's culture are consistent with the formal ones; and (4) the degree of trust and cooperation among members of the community. To understand these factors, five private subsidized schools in Santiago were investigated. The findings indicate that it is possible to define and measure a school's institutional climate and that there appears to be a positive association between having institutions favorable to making and upholding commitments and the quality of academic performance. (Contains 21 references.) (RJM)
Institutions within School Organizations: Looking inside the Black Box

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ABSTRACT

The paper applies New Institutional Economics concepts to transactions between key actors – students, teachers, parents, and school directors -- within school organizations. It views schools as governance structures within which contracting takes place. A theoretical framework incorporating co-production, agency theory, property rights of students and teachers, clarity of the organizational welfare function and social capital is presented. A small empirical study examines intra-organizational institutions in public and private primary schools in Chile, establishing that it is feasible to measure a school’s institutional environment, and supporting the hypothesis that there is a positive association between (a) having institutions that favor informal, relational contracting -- making and upholding commitments -- and (b) having good performance. The paper considers the implications of the theory for efforts to apply market-like incentives in education, including both rewards-based incentives (merit pay for individual teachers or merit awards to establishments) and competition (vouchers and other approaches to school choice.)
Economists working in the field of education have tended, with a few notable exceptions, to view schools as “black boxes”, or as production functions in which inputs of various sorts are combined instantly and costlessly to produce learning. This approach has yielded valuable insights but leaves aside important contributions that economics could make to understanding the factors that influence schools’ performance. This is especially true when it comes to understanding the impact of different approaches to providing incentives to improve education. This paper looks inside schools, using concepts from New Institutional Economics and sub-disciplines within economics such as agency theory, in an attempt to understand factors related to schools’ success. It draws on an exploratory study of a small sample of public and private primary schools in Chile to show that it is possible to apply the concepts proposed here and that there is, indeed, a positive relationship between the institutional climate within schools and how well the schools perform.

New Institutional Economics, which traces its origins to the work of Ronald Coase (1937), gives great importance to the costs of transactions, the formal and informal rules that operate in economic systems and the mechanisms for their enforcement. There have been few applications of this body of thought in education. Writing in the Handbook of Research on Educational Administration, Brian Rowan and Cecil Miskel (1999) review research on institutional factors in schools. They find that: “the new institutionalism presents a powerful set of explanations for the structure and functioning of educational organizations in modern societies” (Rowan and Miskel, 1999, p. 378). They go on to say that their review of a number of research studies “Did not find much organizational analysis of schooling using principal-agent theory and transaction cost economics. This is unfortunate because economists and political scientists are at the forefront of a movement to develop a ‘positive theory of institutions,’ one that can describe an array of governance arrangements that potentially can improve the efficiency and productivity of educational transactions…. Immediate work is needed to see how the common governance mechanisms studied
transaction cost economics and principal-agent theory can be applied to the analysis of teachers' work and to improving the effort and engagement that students put into learning" (p. 379). This paper constitutes a step toward the kind of research these authors describe.

The term "institution" is used here to mean an established set of practices, supported by formal laws and informal rules and customs, such as legal systems, political systems, markets and other "broad brush" sets of rules and customs. The phrase "the institution of marriage" captures the idea. Another and perhaps more common usage of institution refers to establishments such as schools (especially universities), hospitals, foundations, firms and other entities that have employees, buildings and other readily recognizable attributes. Institutional economics deals with the former usage, as does this paper. (The other kinds of entities are called "organizations").

Douglas C. North (1990) defines institutions as "the rules of the game" that shape the way societies operate. In his words, institutions "structure incentives in human exchange"; "institutions reduce uncertainty by providing a structure to everyday life". "They are a guide to human interaction" (North 1990, p. 3). Studies of institutions usually consider their nature and influence at the level of nations, sub-national units (states or provinces) or other large polities. The discussion that follows looks at institutions at an extreme micro level, within school organizations, and seeks to cast light on how "the rules of the game" influence the way actors inside a school community interact when performing their teaching and learning activities.

A recent study of institutions and education by Ludger Woessmann (2000) draws on data from the 1995 application of the Third International Mathematics and Science Study (TIMSS) relating to the institutional characteristics of school districts to show that school systems (usually national systems) with features usually associated with strong institutions had significantly higher performance on the TIMSS than other systems. The present study, however, constitutes a first attempt to study institutional factors within individual school organizations. Winkler and Alvarez (1998) discuss the importance of institutions in schools in Latin America, emphasizing the complexity of principal-agent relationships in education. Their work does not present a model of how institutions function in schools or attempt to characterize or measure institutional climates.

This paper presents a set of concepts about how institutional factors inside schools influence the interactions or "transactions" between members of a school community. The institutional climate within a school is strongly influenced by: (1) how clear the school's objectives are and how well they are understood and internalized by all members of the community, (2) whether there are strong, clear formal rules and effective mechanisms for enforcing them; (3) whether the informal rules in the school's culture are consistent with the formal ones, and whether informal enforcement mechanisms such as approval and disapproval.
are effective; and (4) the degree of trust and cooperativeness among members of the community or, in other terminology, the level of social capital in the school.

Institutions influence the transactions between the key actors in a school’s community. Figure 1 diagrams the actors. The dyadic transactions between teachers and students and between parents and students are central, while the three-way nexus between these three sets of actors (T-S-P) is the absolute core of activities that produce learning. The leadership role of the school director in encouraging teachers and students to do their best and parents to support the process is also critical for good performance. Peer relations (teachers, students) influence attitudes. The Board’s role, though less direct, is also important. The external environment includes higher-level governance authorities, teachers’ unions, employers, media, neighborhood, etc. While potentially influential (e.g. a drug culture in the neighborhood), these are external to the school community.

**FIGURE 1.**

**DIAGRAM OF LOCUS OF TRANSACTIONS BETWEEN MEMBERS OF THE SCHOOL COMMUNITY**

The model discussed below helps explain how a number of factors we have long known to be important – for example, school autonomy, parental involvement, an orderly environment – interact to promote making and upholding agreements and commitments. The commitments have to do with whether teachers, students and parents make their best efforts to carry out their teaching, studying and parental roles. The model helps to understand why schools that are apparently highly similar in important respects may differ significantly in their productivity and performance. It also casts light on issues relating to incentives
to improve education, including reward- and market-based incentives, and why some incentives are effective in some circumstances and not in others.

Let us be clear about one point at the outset. Obviously teachers' skills, teacher training, curricula and teaching materials and all the other tangible and intangible "inputs" into the schooling process are essential. They are, undoubtedly, necessary conditions for good education and influence how effectively teachers can do their jobs and students can do theirs. Improving such inputs is likely to lead to higher achievement, and will probably make teachers and students happier in their efforts. In this study, however, these pedagogical inputs are assumed to be fixed and adequate, and are outside the scope of the discussion.

The following section presents the conceptual framework used to examine the institutional climate within schools. The subsequent section describes an exploratory study of institutions in primary schools in Chile. The final section considers some implications the study's findings.

A Different Conceptual Framework

The model based on the role of institutional factors within schools uses a number of terms and concepts not usually applied either in research on school performance or in the economics of education. The following sections present these briefly.

Co-production. An important (but often overlooked) concept that lies at the heart of this paper is that learning takes place in the minds of students, as a result of the energy and effort they devote to their learning activities. Certainly teachers play a central role in directing and encouraging students' efforts to learn, and the energy and effort that teachers themselves exert is also critically important. Davis and Ostrom (1991) introduced the idea of "co-production" in education, whereby both the producers -- teachers and schools -- and the students who are the beneficiaries of schooling must work together to make learning happen. (Other fields in which co-production occurs and where beneficiaries must participate in the "production process" include health care and police crime-prevention work.) These authors state that "Viewing the production of education as a process involving both the school and the students with their families as essential partners in a production process enables one to address questions somewhat differently than the more traditional view of looking at a school as the solitary producer" (pp. 324-5).

Schools as governance mechanisms. Rather than viewing schools as black boxes, this study proposes a different metaphor: that schools are governance structures within which various forms of contracting take place. This metaphor focuses attention on processes within the school, on the behavior of the most important actors in the school's community -- especially students,
teachers, parents and school directors — and on factors in the organizational climate inside the school that influence the behavior of the actors. Specifically it looks at how well the intra-organizational environment supports making and upholding various kinds of “contracts” — agreements and commitments between the key actors concerning how well each of them contributes to the co-production process that produces learning.

Property rights of teachers, students and others. The idea that schools are governance structures in which contracting takes place may seem strange to some readers and merits a more complete explanation. The actors in a school community engage in multiple transactions or informal contracts involving property rights. North (1990) describes property rights as, "the rights individuals appropriate over their own labor and the goods and services they possess" (1990, p. 33). The relevant property rights that teachers and students control are the energy and effort they devote to their respective teaching and learning tasks. Property rights in labor exist because it is costly (or simply not feasible) to monitor the activity and the outputs of workers, who in education are the teachers and students. Since managers and supervisors do not have complete information about what goes on inside classrooms or during students' study time, there is a fairly wide margin within which the teachers and students can vary the level of effort they expend. In other words, those who "own" the labor can exercise considerable discretion over how they use it. Transactions between actors take the form of micro-level contracts under which the participants negotiate and agree about how they will exercise that discretion and use their labor to perform their assigned tasks.

Neither educators nor education economists have given much attention to the existence, nature or functioning of property rights in schools; the rights that teachers and students have over their "labor" and how hard they work at their respective tasks. Teachers also possess human capital in the form of the knowledge they have accumulated and can impart, as well as the professional skill they have acquired through training and experience. Students also have a form of human capital based upon the schooling they have obtained in earlier grades, plus the family background with which they are endowed and which has a powerful impact on their performance. Both categories of actors employ their property rights — their human capital in combination with their labor — in performing teaching and learning tasks.

There is tremendous variability between teachers in the energy and enthusiasm with which they approach planning and preparing their lessons, trying to communicate effectively the content the students should learn, presenting each lesson in stimulating ways and evaluating whether students are learning satisfactorily. Time (both during school hours and spent out of class preparing lessons, grading papers, etc.) is an important and measurable resource in teaching, but does not fully incorporate the dimension of how diligently the teacher uses the available time. Similarly, there is great variation
between students in the attention they give to their studies both in and out of school hours, the time they spend on their lessons and the effort they exert in mastering the materials covered. The way teachers and students control and expend their "labor" determines the degree to which the students learn both the formal and the "hidden" content of the curriculum. In the aggregate this determines the performance of the school. Looked at another way, if two schools were identical in every way except for how teachers and students used their property rights, their performance would differ markedly.

Contracting within schools. We start from the position that institutions exist and function not only at the macro level of countries or societies but also within organizations. Applied at the extreme micro level of individual schools, institutions -- the "rules of the game" under which contracting takes place -- influence the commitments, tacit agreements or "deals" that are established between teachers, students and other members of the community and influence behavior. Recall that institutions include informal rules and the informal mechanisms of enforcing them. Since it is difficult and costly to monitor and enforce formal contracts in school settings, the informal agreements about how actors use their property rights (i.e. their control over their own labor) have an especially powerful role. Opinions of peers, approval or disapproval of superiors and other social rewards and sanctions have a significant influence on how well teachers, students and the school as a whole perform.

Principals and agents. Contracts are made between what economists call "principals", meaning the person in position of authority who wants something done, and "agents" who are those who perform the activity desired. (This use of the term "principal" may seem jarring in a paper about education. To avoid confusion, this discussion will use "School Director" to describe the senior official in a school). There are several basic assumptions about relations between principals and agents.

(1) There is conflict of interest. Even though a teacher may love teaching and want the job, he or she probably does not want to do it exactly the way the supervisor wishes it done, or with the same intensity of effort. And although students may understand the importance of doing well on a test, they may not want to devote the time and concentration necessary to prepare for it.

(2) The parties will have different information about the nature of the task to be performed and the quality of performance. This asymmetry of information has frequently been noted with regard to teaching. There is no way a school director can monitor the performance of every teacher or even have the same view as the teacher about what needs to be done in a specific class.

(3) Transactions between principals and agents have costs. These include the costs of making the agreement or contract, negotiating before and during performance of the task, monitoring how well the agent implements the task.
and evaluating how well the original agreement has been performed. In transactions between teachers and students, tests can sometimes be important sources of information, but there are costs involved in designing, supervising and grading tests. Because transactions are costly and contracts are necessarily incomplete, informal rules and enforcement mechanisms take on added importance.

Accomplishing objectives. Another key concept when examining institutions within organizations has to do with the objectives the organization (in this case the school) seeks to accomplish and how clearly these are expressed, communicated, understood and shared among members of the school community. Clear objectives operate to reduce principal-agent differences of opinion and problems.

A climate of cooperation and trust: social capital. When a society or an organization has within it a high degree of trust and prevailing attitudes of cooperation, it is easier for its members to make arrangements of a quasi-contractual nature – commitments to carry out what has been agreed – than if the prevailing culture is one of betrayal and opportunism. Ever since James Coleman (1988) introduced the concept of social capital, educators have recognized that schools well endowed with this elusive quality tend to function more smoothly and effectively. In the present context, high levels of social capital create a context in which community members tend to make their best efforts – whether in teaching, studying or other tasks – toward achieving agreed upon goals.

Drawing the concepts together. In briefest terms, the argument of the paper is as follows:

1. From agency theory: when principal-agent relationships are direct and clear rather than distant and diffuse, there is greater clarity about the school's objectives and incentives have greater power.
2. Clear, shared objectives improve the effectiveness of schools because all participants in the "co-production" of student learning -- most importantly teachers, students and parents, but also school directors and local boards -- are working toward the same ends.
3. Schools are governance mechanisms in which contracting takes place. It is possible to look at processes inside schools, the intra-organizational transactions and the institutions that govern them, and understand how these processes and institutions influence the ways actors use their property rights and the effectiveness of the co-production process. A good institutional environment encourages actors to make and uphold agreements that have to do with making their best efforts to accomplish the school's objectives, thus promoting good performance.
4. These agreements or transactions are, in a sense, informal "contracts" of a relational nature. That means they take place between actors who...
continue to deal with each other over an extended period of time. Behavior under relational contracts is influenced by factors of reputation, loyalty, trust and sentiment, as well as concern for the future of the relationship and the benefits and costs associated with protecting or betraying it. All contracts in schools are relational.

5. The contracts deal with the "property rights" of the central actors involved in teaching and studying. These rights have to do with how hard and well the actors use their labor -- their energy, attention and effort -- in teaching as well as they can, and studying hard and effectively. Parents also their property rights by exerting effort to support the school and help enforce good study behavior on the part of their children.

6. The property rights exist because of the transaction costs of establishing and monitoring contracts, both formal and informal. Because it is essentially impossible to monitor all aspects of a teacher's work (or a student's time and effort spent studying), the actors can decide how hard they work. Informal contracts and enforcement mechanisms fill the gap left by incomplete contracts. A "good" institutional environment -- meaning clear goals, sound formal and informal rules, mechanisms (both formal and informal) that tend to ensure their enforcement, and an atmosphere of cooperation and trust (social capital) -- favors making and upholding contracts to use one's property rights in labor to accomplish agreed-upon objectives.

7. In reduced form, then, the main hypothesis of the study is: The better the institutional environment in a school, the better the performance. As North (1990) says, institutions reduce uncertainty. They make people willing to undertake agreements because there is a high probability that other parties to the agreements will do their part at least reasonably well. And since the transactions involved in the co-production of learning depend on people being willing to make commitments and do their best to uphold them, the institutional environment is fundamentally important for success.

If a school's institutional climate is favorable, the school director can establish agreements with teachers to use their energy and effort to the best of their ability to accomplish the school's goals; informal peer pressure among teachers will tend to enforce such behavior and the individual teacher will find it worthwhile to adhere to the agreement. Similarly a teacher can "transact" with students about what they need to study and know. Examinations are the most obvious form of monitoring and enforcing these informal contracts, but approval and disapproval of teachers, peer pressure from other students, and parents' insistence that students study hard and perform well all operate to support the explicit and implicit agreements made. On the other hand if institutions do not function well within the school -- if nobody really cares, or if there is no reliable benefit or "payoff" to teachers or students for good performance and no sanction for bad -- then the agreements or informal contracts will not be made or, if made, are unlikely to be honored. As a result performance will suffer.
An Exploratory Study of Institutions within Primary Schools in Chile

A study of a small sample of public and private primary schools in Chile provides some empirical content to the conceptual framework above. One challenge was to operationalize the key independent variables that characterize the institutional climate within schools. With regard to dependent and control variables, Chile is a relatively data-rich country and these presented relatively few problems. Our study team chose to draw a sample of schools that included both private schools subsidized under Chile's nationwide system of vouchers and municipal (public) schools. Information came mainly from structured interviews with (a) school directors, and (b) focus groups of five to six teachers selected to represent a range of subject specialties and responsibility levels, years of service in the school and gender (if there were male teachers.)

Interviews of an hour or slightly more were carried out with the school directors and the focus groups. The study team was joined by two trained and experienced interviewers (a psychologist and a journalist) who led the questioning. In each school, the principal investigator plus one other member of the study team and one interviewer took part in the interviews. When appropriate or needed, the principal investigator or study team member joined in the questioning, although the principal investigator spoke as little as possible.

*Measuring the institutional climate inside schools.* Our study approached the task of evaluating institutions in schools in a simple and direct way. The first institutional factor we sought to measure concerned the school's objectives. The clarity of organizational objectives is an important element in the institutional climate. Clear objectives tend to reduce problems of differences between principal and agent. Objectives need to be well-formulated; that is to say there should be a reasonable number of clearly-stated objectives the accomplishment of which is, in some realistic way, subject to observation. To be effective, objectives must be disseminated to members of the community, understood and, optimally, internalized. The schools in our sample all possessed a document called the "Proyecto Educativo" that is, in effect, a mission statement. These documents were made available to us prior to the interviews.

The second complex of institutional factors consists of the school's formal rules and the formal mechanisms for enforcement. In Chile the rules are relatively easy to assess. Just as all schools had a Proyecto Educativo, they also had a written "Reglamento Interno" or statement of the rules, regulations and responsibilities of each category of members of the school community, as well as penalties in the case of infractions. All schools had written Regulations, although in the case of one municipal school the only copy (with some pages handwritten in pencil) was kept in a folder and photocopies were made when necessary. In contrast, in schools with strong institutions, all parents received printed copies of the regulations and had to sign statements each year saying they understood and accepted the rules.
It was also necessary to evaluate the enforcement of the formal rules, which depends not only on the written documents and descriptions of the formal mechanisms of enforcement but also, and most importantly, on the degree to which these are applied. Information on these factors came from interviews. One School Director spoke of going outside the main school entrance to ensure that students continued to adhere to the dress code, even when outside the school doors. There were statements such as: "If there's no discipline, you can't teach". Responses in schools with less favorable institutional environments indicated that the rules were not always observed (e.g. parents who "forgot" to pay for repairing a window their child broke) or were difficult to enforce. "There are things in the Regulations that just aren't backed up; nobody makes people follow the rules".

More challenging was the task of characterizing schools in terms of their informal rules and the informal mechanisms within the school's culture for enforcing them. The study team and interviewers developed questions that would cast light on informal rules (e.g. What happens when a student is caught cheating? How do students feel about classmates who don't respect the rules or whose academic performance is very poor? What are some examples of how they express these feelings? What do teachers think of colleagues whose professional performance is less than it should be? How do they express these feelings? How do the standards of behavior -- the atmosphere or culture in this school -- compare with other schools where you have taught?)

Both the directors and the focus groups of teachers indicated that informal means of showing approval or disapproval, often symbolic gestures, were the most important tools for encouraging and enforcing good behavior. They emphasized the importance of "conversation" as a means of communicating approval, disapproval, guidance or orientation, both to students and among teachers. Schools with strong internal institutions had more elaborate arrangements for providing recognition and praise: honor rolls, prize ceremonies, awards for a variety of good behaviors (in addition to academic success) such as "best companion", or "has achieved greatest improvement this month". One outstanding director, when asked how she communicated desired behavior and levels of effort to teachers, replied "By my example".

Finally, the degree of cooperation and trust within the school was assessed on the basis of interview questions. For example: How do the students feel about studying and learning? How do the students show their "school spirit" or feelings toward the school? How can you tell if a (fellow) teacher has a feeling of commitment to the school and the students? When a new teacher comes to the school, how is she or he introduced to new colleagues, students, and to the rules and general norms and culture of the school?

In this area, as in all the others, the team members gathered information on the basis not only of the interview questions but also by observation. In
schools with high social capital, we heard comments such as "[Teachers] only leave until they retire. Once they get into this school, they don’t want to leave.... Here we're treated like people, because the Director doesn't impose her will on us. We do things by consensus". In more than one school, teachers spoke of their relationships (with students as well as with fellow teachers) as "like a family". "There is a lot of mutual support among us [teachers]; good communication between us: at lunch, in the halls, at meetings and training courses". Respondents in schools with high social capital indicated that students feel a strong bond with the school, spend extra time there, and return to visit after they graduate. "There's a mystique about this school". Teachers in other schools did not say there was little solidarity but did not cite positive examples of social capital or express much interest in the subject.

The interviews enabled us to form an impression of the status of each institutional variable in the schools. The study developed a form for evaluating and rating schools in terms of these variables. This form or rating sheet, presented in Appendix Table A, shows the weights assigned to the variables. The weights add to 100. Schools were scored on each variable on a ten-point scale, with "10" being "the best that could reasonably be expected". The sum of the weighted scores of the variables yields the school's Institutional Index score. The theoretical maximum is 1000. Index scores ranged from 685 to 955. Team members and interviewers familiar with schools in Chile said that, if the sample had not been chosen to maximize the similarity between schools, the range of scores would have been much greater.

Immediately after each set of interviews, members the three-person interview team evaluated the school separately. Only after individual interviewers had completed the evaluation sheets was information shared. No changes were made in the original ratings. The consistency between evaluators was high.¹

**Study variables.** The institutional index scores of the ten schools constituted the only independent variable examined. Dependent variables included scores on Chile's national standardized tests (Sistema de Medición de la Calidad de la Educación, SIMCE.) The SIMCE tests are administered in even years at the fourth grade level and odd years for eighth grade. We used schools' fourth grade SIMCE scores for 1996 and the eighth grade scores for 1997 as separate dependent variables. Another dependent variable was the school's promotion rate.

**Selecting the Sample.** We wanted our sample of schools to be as similar as possible in terms of background variables usually associated with academic

¹ Three interviewers rated each of the ten schools on five variables, or a total of 50 ratings. Ratings could potentially range from zero to 10 but those given by individual interviewers ranged from 5 to 10. In only seven of the 50 cases was the standard deviation between interviewer ratings greater than 1.0; the highest sigma was 2.0.
performance so as to highlight the importance of differences in institutions. A first step was to select schools using data from the SNED merit award system. SNED evaluates schools within “homogenous groups” or strata so that the competition for the awards is between approximate equals. (Test scores are not used in forming the homogenous groups; there is considerable variability in scores within the same group.) SNED scores are only truly comparable between schools in the same homogenous group and we chose all our schools within a single homogenous group in the Metropolitan Region of Chile. (For a full description of these awards, see Appendix B.)

We selected a sub-sample of five private subsidized schools that were all in the same homogenous group from among the fifteen schools operated by the Sociedad de Instrucción Primaria (SIP) of Santiago. The SIP was established in 1856, before there was any public education system in Chile, with the explicit aim of providing good-quality education for children of families with scarce resources. This highly-regarded network of private schools – better known as the Matte Schools – has a long history of excellence and commitment to providing education for children of poor families. The SIP has a particular vision of primary education that is expressed in the Mission Statement for the society as a whole. Its schools, each of which has its own unique mission statement or “proyecto educativo”, are noted for their emphasis on developing values as well as for their academic success. SIP schools operate within the parameters of publicly financed education and receive the same voucher payments or subventions as other subsidized schools, both public and private. They also take advantage of a system of “shared financing” (financiamiento compartido), which allows schools to collect limited fees from parents.

We chose private schools operated by the SIP for the sample for two reasons. First, they are specifically oriented toward educating children from poor families. The schools are located in low-to-middle income communities. They do not select students on the basis of ability, and they make every effort to keep students from dropping out; they do not to exclude or expel students who do not perform well. Second, the SIP kindly agreed to allow our interview teams access to their schools and to facilitate the process of gathering information.

Once the five private schools were selected, the sub-sample of municipal schools was then chosen from the same SNED homogenous group on the basis of criteria designed to “pair” municipal schools with those of the SIP. Pairs of municipal and private schools were selected from the same communities. Schools were then further matched in terms of several criteria of similarity:

- Average education level of parents of students in the
- Schools that are very similar in terms of a “vulnerability index” compiled by the Board of School Assistance and Scholarships (JUNAEB), which is based on a set of variables that include mother’s education level, height-to-weight relationships, and the medical, dental and nutritional needs of students;
- Average income of the families of children in the school, in pesos per month, according to a questionnaire administered by the Ministry of Education in connection with the SNED system 1997-98;
- Family expenditure on education, based on the same questionnaire.
With support from the national Ministry of Education, we contacted the education authorities in the five municipalities involved and obtained permission to carry out interviews in the municipal (public) schools. The municipal schools all provided copies of their mission statements and Regulations.

Analytical Approach. The analytical methodology used is very simple. The small size of the sample limits the statistical techniques that can be applied to test for association between the independent variable – the Institutional Index – and the dependent variables. We used one-way Ordinary Least Squares (OLS) regressions between the Institutional Index and each of the dependent variables: averages of the mathematics and Spanish language scores from the 1996 (4th grade) and 1997 (8th grade) applications of the SIMCE standardized tests, and the schools' pass rate or promotion rate. Table 1 shows the results.

Table 1. Relationship between the Institutional Index and Dependent Variables

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>R²</th>
<th>Beta</th>
<th>Significance (T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMCE 96 (4th Grade)</td>
<td>.471</td>
<td>.03536</td>
<td>.028 **</td>
</tr>
<tr>
<td>SIMCE 97 (8th Grade)</td>
<td>.322</td>
<td>.0393</td>
<td>.087</td>
</tr>
<tr>
<td>Promotion Rate</td>
<td>.520</td>
<td>.0052</td>
<td>.019 **</td>
</tr>
</tbody>
</table>

Source: Data on dependent variables from Ministry of Education

** Significant at the .05 level

All the associations are in the direction theory would predict and, in the case of the relationship between our Institutional Index and the 1996 SIMCE score and the promotion rate, they are significant at the .05 level. Taking all factors into account, when one considers the small size of the sample, the degree of association between the study's Institutional Index and the dependent variables indicating school performance can be considered strong. The study does not address the question of direction of causation. Understanding whether a more positive institutional climate is a cause of higher performance levels (as this study hypothesizes) or an effect of good performance or exogenous factors associated with academic success will have to wait for later studies with larger samples drawn, in part, with the aim of testing the direction of causation. Figures 2 and 3 below present scatterplots showing the relationships between the Institutional Index and each of the dependent performance variables.

Choosing schools as alike as possible in terms of factors that are often associated with academic performance provides a way of controlling for those factors. From the time of the Coleman study Equality of Educational Opportunity, socio-economic factors such as family income and parents' education have been
known to have powerful effects on levels of academic performance. In fact
Figure 2  Independent Variable: Institutional Index  Dependent Variable: SIMCE 1996, Average of Math and Language Scores

Figure 3  Independent Variable: Institutional Index  Dependent Variable: Promotion Rate

R² = 0.4713

R² = 0.5199
Coleman’s 1966 study found that the effects of background characteristics of families and peers outweighed the influence of within-school factors and, since that study, researchers have struggled to show that schools do indeed “make a difference”. In our approach, similarity between schools in terms of family income, parents’ education level, family expenditure on education and the JUNAEB vulnerability index were key criteria for sample selection. Table 2 shows the levels of association between the background variables and the 1996 SIMCE scores.

Table 2. Relationship between background variables and average scores on SIMCE 1996

<table>
<thead>
<tr>
<th>Background Variable</th>
<th>R²</th>
<th>Beta</th>
<th>Significance (T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Income</td>
<td>.210</td>
<td>0.000102</td>
<td>.013 **</td>
</tr>
<tr>
<td>Parents’ Education Level</td>
<td>.007</td>
<td>0.721</td>
<td>.118</td>
</tr>
<tr>
<td>Family Spending on Education</td>
<td>.002</td>
<td>0.000006401</td>
<td>.583</td>
</tr>
<tr>
<td>Vulnerability Index</td>
<td>.116</td>
<td>-2.61</td>
<td>.07</td>
</tr>
</tbody>
</table>

** Significant at the .05 level

Source: Data for the analyses from the Ministry of Education

Because of the way the schools were selected, it is not surprising that the association between the background variables and SIMCE scores is low. The negative relationship between the JUNAEB vulnerability index (an indicator of poverty) and performance is in the direction theory would predict.

Implications of the exploratory study

Research has established a number of characteristics of good schools, about which there is considerable consensus. Such schools have a clear mission, able leadership, and orderly environments. They monitor student performance, promote parental involvement, and possess a strong sense of community among director, staff, students and families. They build teams of excellent teachers who are committed to the school’s objectives and to the students’ success, about which they have high expectations. What has not been established is an explanatory model showing how and why these factors interact to produce excellence.
Our study, although small exploratory effort, suggests that it is possible to define and measure a school's institutional climate -- the environment that does or does not encourage and enable members of the school's community to do their best -- and that there appears to be a positive association between having institutions favorable to making and upholding commitments and the quality of academic performance. If one accepts this indication that institutions within schools do promote the successful co-production of learning, then it becomes clear how the characteristics generally associated with good schools described above interact to promote learning. It also helps explain why studies focusing on one or a few factors show weaker relationships between the selected factor(s) and school performance, and why production function studies of inputs and outputs do not produce more robust findings.

Regarding Incentives to Improve Education

From a policy point of view, it is also possible to draw on the institutional model to examine the role of different approaches to providing incentives to improve education. While a full discussion of this theme is beyond the scope of this paper, it is possible to hazard some thoughts. The rationale for educational incentives is improving school performance (although, as the discussion in Levin [2000] shows, there can be multiple criteria for evaluating an incentive scheme such as vouchers). Recalling the diagram of relationships between actors in schools in Figure 1, one can ask, “What will be the impact of this incentive on the transactions between different pairs of actors, and how will the incentive affect whether they do their best to accomplish their school's learning objectives?”

Most educational incentives can be grouped into three categories: “rewards” (merit pay; merit awards to schools), “competition” (various approaches to providing choice), and “threats” (external standards). Rewards and competition are based on economic or “market-like” incentives. The subject of standards and accountability is so sprawling and complex that the following paragraphs discuss only these first two.

Rewards. Murnane and Cohen (1986) presented a powerful critique of the idea of merit awards to individual teachers. Their article emphasized the difficulty (in effect the high transaction costs) of measuring individual teachers' performance and unique contribution to what is essentially a joint activity. It is not feasible to establish rewards for good teaching in the same way a piece-rate contract sets payment for ironing shirts (or picking apples, or similar tasks). Moreover, there is a risk that teachers will engage in opportunistic behavior (as contract theory predicts) either by acting so as to make themselves appear to be making greater contributions than they really are, or by making undesirable changes in their teaching practice in order to improve their apparent “output” (focusing effort on students with greatest potential for improvement; teaching to the test). The authors mention the possible negative effects of merit pay on individual motivation and cooperative feeling among community members, saying.
“merit pay could easily backfire” (Murnane and Cohen, 1986, p. 8). They recognize that “the principal's success ... depends to a large extent on his or her success in encouraging teachers to work hard and work together”, and quote one school director as saying "Merit pay turns my job from being a coach into being a referee" (p. 9).

A system such as Chile’s SNED system, based on merit awards to all the teachers in a school rather than to individual teachers, largely avoids these problems. This approach has the advantages of far lower transaction costs (the data may already be available to a large extent, as was true of the SNED system), and the impact of such a system on teachers' feeling of being part of a team and their motivation to perform well as a group would tend to be positive rather than negative. Table 3 summarizes the effects of the two rewards systems.

Competition. The literature on school choice, vouchers, privatization, charter schools and other approaches to creating competition is vast, polemical and growing rapidly and constantly. Still, as Patrick McEwan (2000) finds in an extensive review of research, “the evidence is notably unhelpful in predicting the effects of large-scale voucher programs – particularly the effects of newly-created private schools – on outcomes, or the effects of competition on public schools.” While there are some indications that private schools have advantages over public ones, the powerful impact of market forces that Milton Friedman (1955) and other proponents of vouchers and choice predicted has not occurred. Why not? There are various contributing factors. Most programs to provide choice have not really produced strong competitive pressures on public schools. Using the institutional model, it is possible to look at how choice programs affect the behavior of key actors. The model would suggest that greater school autonomy and more authority in the hands of school directors to establish and "sell" a specific set of objectives, choose and develop their teaching teams, and allocate budget resources would - under certain circumstances - contribute to creating a favorable institutional climate. But the circumstances would have to be favorable to building strong intra-school institutions, and not all approaches to privatization have had this effect.

Table 4 presents a highly condensed assessment of how two alternative approaches to providing school choice -- vouchers and charter schools -- would influence performance-related transactions between pairs of key actors and incentives within schools.
Table 3. Effects of Two Approaches to Providing Reward-based Incentives on Key Transactions within Schools

<table>
<thead>
<tr>
<th>TRANSACTIONS BETWEEN:</th>
<th>MERIT PAY TO INDIVIDUALS</th>
<th>MERIT AWARDS TO ALL TEACHERS IN SCHOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Directors and Teachers</td>
<td>Director becomes &quot;referee rather than coach&quot;; relationships strained rather than collegial.</td>
<td>Director works with teachers and encourages whole team to make best efforts. May strengthen relation.</td>
</tr>
<tr>
<td>Peer Relationships between Teachers</td>
<td>Competition rather than cooperation between teachers.</td>
<td>Tends to strengthen cooperation between teachers.</td>
</tr>
<tr>
<td>Teachers and Students</td>
<td>Teachers may concentrate efforts on students who will make most gains.</td>
<td>Teachers may increase efforts to encourage and reward good study behavior</td>
</tr>
<tr>
<td>Peer Relationships between Students</td>
<td>Essentially none.</td>
<td>Possible increase in student approval of good academic performance.</td>
</tr>
<tr>
<td>Parents and Students</td>
<td>Weak effects, if any.</td>
<td>Weak effects, unless Director and teachers encourage parents to urge good study behavior</td>
</tr>
<tr>
<td>Board and School Director</td>
<td>Director, as agent of the Board in deciding on who wins awards, becomes fully associated with administration.</td>
<td>Board, through awards system, puts Director in position of member of the school's team</td>
</tr>
<tr>
<td>Board and Teachers</td>
<td>Board becomes the dispenser of rewards. Slight effect, if any.</td>
<td>Board is dispenser of rewards.</td>
</tr>
<tr>
<td>Board and Parents</td>
<td>Parents may feel merit pay will have positive effect on performance. Relatively weak effect.</td>
<td>Parents may feel merit awards both signal which schools are successful and promote good performance.</td>
</tr>
</tbody>
</table>
Table 4.  Effects of Two Approaches to Providing School Choice on Transactions Within Schools

<table>
<thead>
<tr>
<th>TRANSACTIONS BETWEEN:</th>
<th>SCHOOL CHOICE THROUGH VOUCHERS</th>
<th>CHARTER SCHOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Directors and Teachers</td>
<td><em>If vouchers lead to true competition, teachers in traditional schools may feel pressure to improve effort and effectiveness.</em></td>
<td>Establishment of new charter school encourages positive relationship, may increase motivation to perform.</td>
</tr>
<tr>
<td>Peer Relationships between Teachers</td>
<td>May promote joint efforts to improve performance; relatively weak effect.</td>
<td>Tends to be cooperative because goals clear and shared.</td>
</tr>
<tr>
<td>Teachers and Students</td>
<td>If teachers influenced by competition, tends to motivate teachers to encourage student effort</td>
<td>Because of clear goals and strong community bonds, teachers tend to feel close to students and encourage student efforts to succeed.</td>
</tr>
<tr>
<td>Peer Relationships between Students</td>
<td>Essentially no effect.</td>
<td>For reasons above, tends to promote positive peer attitudes toward academic success.</td>
</tr>
<tr>
<td>Parents and Students</td>
<td>Parents, having taken step to move student to better school, may have greater interest; may increase participation.</td>
<td>Parents understand goals, become involved in and supportive of school; tend to urge students to study well.</td>
</tr>
<tr>
<td>Board and School Director</td>
<td>Board (public) may put pressure on Director in raise performance levels</td>
<td>Chartered authority tends to work closely with Director and encourage implementation of school vision.</td>
</tr>
<tr>
<td>Board and Teachers</td>
<td>Weak effects. Pressure of competition is indirect.</td>
<td>Chartered authority tends to maintain close relations with teachers; encourage implementing school vision.</td>
</tr>
<tr>
<td>Board and Parents</td>
<td>Weak effects once choice is made.</td>
<td>Parents become part of school's community</td>
</tr>
</tbody>
</table>
Regarding Institutions and Educational Governance.

Chubb and Moe (1990) purport to make an institutional argument that market-based governance is superior to prevailing public school arrangements. They attack the role of "powerful political groups... in the current institutional system: teachers unions and the myriad associations of principals, school boards, superintendents, administrators and professionals – not to mention education schools, book publishers, and many other beneficiaries of the institutional status quo" (pp. 11-12). The authors say these groups, acting through "democratic institutions", have different interests, none of which are coincident with the interests of parents and students. The extensive arguments in their Chapter 2, on "An Institutional Perspective on Schools", boil down to principal-agent problems. With many decisions made at a great distance from the school and on the basis of objectives – equity, cost-efficiency, political interests and many others – that are disassociated from those of parents, it is not possible (they argue) to have schools that respond to the preferences and priorities of the true consumers of their services. "Democracy, like all other institutions, works imperfectly. The interest group system is biased in favor of some interests over others.... As a result, who wins and who loses in politics is not necessarily representative of what ordinary citizens actually want" (p. 31).

All that is perhaps a valid summary of principal-agent problems in school governance (at the level of the school district), but their institutional argument is shallow. The authors say that political power is unequally distributed, which is undoubtedly true, but they do not delve into how formal and informal rules and associated enforcement mechanisms work (or do not work) to encourage or undercut contract-like arrangements and incentives to achieve educational quality. They do not go beyond principal-agent arguments to explain why some educational authorities have better schools than others, or why some countries (Sweden, Korea, Japan), with varying forms of democratic governance, seem to produce better educational performance than others. The origin of agency theory and the concept of principal-agent problems is in the private sector, especially landlord-tenant arrangements. The history of efforts to introduce private management into education (under contract, for example) is not without examples of failures. Hanushek, et al. (1994) conclude that "Writing an effective contract is not easy.... To the extent that the contract does not accurately reflect the goals of the schools, the added profit incentive... might lead to significant distortions in the services provided" (pp. 91-93). Chubb and Moe do not prove that there is no public sector solution to agency problems, nor that market solutions will guarantee satisfactory institutions.

Networks of Schools. Our research has identified a form of governance that we refer to as "networks of schools". While not a panacea, it has demonstrated its effectiveness in responding to the needs and wishes of parents and students and in improving the quality of education offered to students at risk. The Matte Schools of the SIP constitute one kind of network of private schools
whose aim, for a century and a half, has been to offer excellent education to children of families with "scarce resources". Other networks that focus on providing education for poor or disadvantaged students include the Fe y Alegria schools in nine Latin American countries and the "Accelerated Schools" program initiated at Stanford University and now based at the University of Connecticut. Swope and Latorre (2000) find that the Fe y Alegria schools achieve substantial success in reducing dropouts, one of the few comparable indicators of school performance, even though they are usually public schools with no greater financial resources or pedagogical inputs than other public schools. Studies reported by the National Center for the Accelerated Schools Project (2000) indicate this network of over 700 schools, serving at-risk children in 39 states, is achieving significantly better results than comparable schools, even though almost all are regular public schools and have no special status or advantages.

What do networks of schools offer to their members? A full discussion would require an article in itself. Some key features are listed here.

- **Short, clear principal-agent chains or relationships.** The operators (who may be public entities or private groups) maintain close relationships with the schools and provide their vision, guidance and supervision directly to the schools. There tends to be a high degree of consensus between the network leadership (or operating authority) and the member schools. Clear principal-agent relationships are associated with strong, clear incentives.

- **A strong sense of mission.** Networks are usually formed because some leader or group seeks to accomplish an educational mission. Those mentioned above have all sought to improve education for children of families in or near poverty. Such a mission attracts participants -- whether parents, teachers or others -- who agree with the mission and try to give their best.

- **Clarity of objectives.** A general characteristic of networks of schools is a set of clear objectives, which are communicated clearly to the educational communities within the network. Clear objectives (and direct principal-agent relationships) are characteristic of schools with favorable institutional climates.

- **Guidance and supervision.** One of the benefits networks provide is sharing experience within the network and making information (such as up-to-date knowledge on relevant research findings or proven practice improvements) available to network members. In addition to the value of the content itself, such communication tends to provide professional stimulation and a sense of participating in a purposeful team activity.

- **Inputs of resources.** Most networks provide resources in the form of network leadership and guidance. Some also offer curricular guidance, materials, training and, in some instances, economic resources in money or in kind. In most cases the financial resources available are limited, but some networks are adept at raising additional funding.
Other networks, such as the Coalition of Essential Schools, seek to improve the quality of member schools, regardless of whether they serve disadvantaged children. Profit-making chains of private schools, such as the Edison Project, constitute another subcategory of networks. There are small groups of charter schools in some states that constitute networks. The special characteristics of networks have not been studied to our knowledge, either from the standpoint of the contributions of network membership to the institutional frameworks in the schools or from the perspective of economics or management.

**Summing Up**

The institutional model helps explain how a number of characteristics of successful schools interact to produce good educational performance. By introducing concepts of principal-agent relationships, property rights of students and teachers, contract-like transactions regarding use of these property rights and the role of a favorable institutional environment in encouraging people to do their best, this model answers a number of questions that have puzzled analysts for years. It helps clarify the effects different incentive systems on the transactions between key actors in a school's community, and reveals the differences between the effects of alternative incentive schemes. It is a useful addition to the policy analyst's tool kit. It contributes to explaining why some incentive systems seem to work better than others, and why the same approach to providing incentives may have different effects in schools with different characteristics.

The empirical study presented here serves to demonstrate that it is feasible to measure the institution climate in schools, and that schools with "good" institutional environments perform better than those with less favorable internal institutions.

Brief consideration of two categories of incentives suggests that it is necessary to consider the transaction costs of different incentive mechanisms, and their impact on intra-organizational institutions. Moreover, there are great differences in the way incentive systems influence institutions inside schools with different characteristics. Blunt-instrument incentives, however intuitively appealing, can be counterproductive in the case of some schools. One size does not fit all, and there is a need to recognize differences and provide flexibility.

Examples of networks of schools, a governance arrangement to which little attention has been given, suggest that interposing a governing authority between a public education authority and its schools can have many of the same effects on transactions within school communities as more market-based approaches to offering school choice. Networks seem to promote sound intra-organizational institutions. The subject merits further research.
Other topics on which research would be useful would include:

(1) replication of the study of institutions within schools, with larger sample sizes, at different educational levels, and incorporating the views of parents and students in studies of secondary education;

(2) applications of the institutional model to school districts or other governance authorities, digging deeper than Woessmann (2000) did to understand the way institutional factors function to promote better performance;

(3) application of the model to analyze teachers and their employment relations, or teachers' unions and their impact on members' performance;

(4) investigation of decentralization and autonomy and of the effects of different degrees of autonomy on schools with different characteristics;

(5) exploration of the management and industrial organization literatures such as Jensen (1998) and Baker, Gibbons and Murphy (2000) to see what analyses of private sector firms have learned that might be applicable in the education sector.
## RATING SHEET: INSTITUTIONAL INDEX

**School Name** __________________________  **Director** __________________________

**Address** __________________________

<table>
<thead>
<tr>
<th>FACTOR EVALUATED</th>
<th>WEIGHT</th>
<th>FACTOR SCORE (Scale of 10)</th>
<th>WEIGHTED SCORE (Weight X Score)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of objectives (from Proyecto educativo or vision statement)</td>
<td>10</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Objectives understood by members of school community (school staff, students and parents)</td>
<td>15</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Formal rules are clear, internally consistent and enforced.</td>
<td>25</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Informal rules are clear and consistent with formal rules, influence behavior, and are enforced through informal means.</td>
<td>25</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Spirit of cooperation and trust (social capital)</td>
<td>25</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Total weight:</td>
<td>100</td>
<td>Weighted Score</td>
<td>0</td>
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</tbody>
</table>
Appendix B.

Information on Chile's SNED System of Merit Awards to Schools

Chile has established a system of monetary prizes to school establishments (not individual teachers) called System for Evaluation of Performance of Subsidized Schools (Sistema de Evaluación de Desempeño de Establecimientos Educacionales Subvencionados, SNED.) Key characteristics of the SNED system are:

(1) competition is between relatively comparable establishments in "homogenous groups" (grupos homogéneos) or strata;

(2) Awards go to schools (regardless of whether they are public or private) that account for 25 percent of the enrollment in that stratum;

(3) the awards are based on an index of six factors, including both absolute scores (which count for 37 percent of the index) and changes in achievement since the last SIMCE tests (28 percent), or a total 65 percent of the index;

(4) the remaining 35 percent of the index reflects factors such as parental involvement, equity-related factors, teacher and student organizations, etc., and

(5) the awards are fully competitive in the sense that schools can win repeatedly.

For more detailed information, see Ministry of Education (2000), Mizala and Romaguera (1999), and McMeekin (2000).
REFERENCES


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