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EIGHT YEARS OF THEIR LIVES

ERNESTO SCHIEFELBEIN/JOSEPH P. FARRELL

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Eight Years of Their Lives

THROUGH SCHOOLING TO THE LABOUR MARKET IN CHILE

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Preface

This study traces 8 critical years in the lives of many young Chileans. It also traces 12 years in our own lives: from July 1969, when we first met and saw the glimmerings of what became the initial stage of the project, to August 1981, when our report was completed. This project has been a great intellectual adventure, and many individuals and agencies have contributed to its success. Longitudinal studies are notoriously difficult, which is why there are so few of them. At each critical stage since 1969, someone or some agency has provided the encouragement and support required to continue.

During the early years, the work was supported by the Organization of American States, through its Regional Program for Educational Development, and the United States Agency for International Development. During the mid-1970s, assistance was received from the Ford Foundation, through its Programa Interdisciplinaria de Investigaciones en Educación (PIIE), and from a special fund of the Canadian ambassador to Chile. The International Development Research Centre (IDRC) funded the most difficult and risky stage of the study, during 1977 and 1978. Its willingness to support what had never been done, and what many thought could not be done, has been fundamental to the production of this book. During the past 2 years, the Education Division of the World Bank has funded additional analysis of the occupational data found in Part IV. During the past 10 years, the Ontario Institute for Studies in Education has provided small grants and access to its computing facilities, which has permitted us to massage the data much more thoroughly. We are indebted to these agencies and particularly to the many individuals in them who have provided not only encouragement but much useful advice. We hope that these pages will provide a return of interest on the monetary and intellectual capital they have invested in our work.

Special thanks are due to our many friends and colleagues in the three agencies where this study has been housed: during the early years in the Chilean Ministry of Education; then in PIIE; and since 1977 in the Centro de Investigaciones y Desarrollo de la Educación (CIDE). Through both formal seminars and innumerable informal discussions, they have given us useful insights and ideas. We, of course, take final responsibility for the shape the project has assumed and the conclusions drawn from it.

It is impossible to name all the friends, colleagues, and project staff members who have contributed, directly or indirectly, to the success of this venture, but our principal research assistants and consultants deserve special mention. During the earlier years, Ron Forbes was our research assistant. Among many other things, he was responsible for the original sample design. His dedication and intense concern for the quality of the

study are fondly remembered. John Hart worked periodically for several years as a consultant to us on research design and computer analysis. He developed programs in the early 1970s that permitted us to undertake styles of statistical analysis that, though they have since become commonplace, were only theoretical possibilities then. Perhaps more important, John had previously been employed in trying to rescue a failed longitudinal study in Canada. He recognized the possibilities of our work, advised us concerning the collection of the baseline data, and organized these so that we could match later information with them if we were lucky enough to continue. Without his foresight and skill at the outset, we would certainly have had difficulty in completing the several follow-ups of the original sample.

During the middle years, two research assistants from PIIE worked closely with us, Consuelo Gazmuri and Gabriela Lopez. Their thoughtful and unfailing dedication to the project will not be forgotten. During the 1977–1978 phase, Sebastian Donoso and Enrique Marshall, our research assistants in CIDE, were extraordinarily productive in helping us to surmount a variety of literally unprecedented difficulties.

The study could not have been done without the willing cooperation of the several thousand young Chileans who provided us with the information. They shared a portion of their lives with us; but we must never forget that while we may try to document a part of those lives, they are the ones who must live them. Each number reported in this book represents, however imperfectly, living human beings. Here, they are necessarily abstractions, but it is in their flesh and their souls that the consequences of the actions of policymakers, and of the social scientists who provide information for them, will be felt.

Engaging in an enterprise of this scope will necessarily bring moments of triumph, despair, pleasure, and frustration. Our wives, Maria Clara and Joan, have lived with this study as long as we have. They have worked actively with us, shared many ideas with us, and often been heroically patient with us.

This book is dedicated to our children: Andrés, Rodrigo, Cristián, Maria Clara, Paulina, Ignacio, Maria Rosario, Mike, and Jenny.

Part I
Background

Chapter 1

Introduction, General Background, and History of the Study

The central theme of this book is equality — within the educational system, within the labour market, and across the transition between them — in one developing nation, Chile. During the nearly 30 years since the major drive for economic and social development began in the poorer nations of the world, we have seen a shift from an early concentration on simple quantitative expansion of the economy and the educational system to a concern with how the results of such growth as does take place are distributed among a nation's people.

There is within the literature today considerable controversy regarding the extent to which investment in education in developing nations can produce greater equality in the distribution of education itself or in the distribution of whatever social and economic rewards society has to offer. Few still maintain the optimistic view of the early 1960s — that expansion of access to education would naturally, and rather automatically, produce greater social and economic equality. Nevertheless, most scholars and policymakers do not accept wholeheartedly the extreme opposite view — that nothing can be done short of violent revolution and indeed that increased investment in education may be perverse. The erosion of the old certitudes results from the vast amount of comparative data on education in developing nations generated during the past 2 decades. The current controversy stems not only from differing theoretical interpretations of available data, but also from existing data that are in many important respects still very limited.

It has long been evident that educational systems are not simply "black boxes" (to use the engineering metaphor): unitary systems that children enter and that mysteriously produce school leavers with different characteristics and life chances. Rather, educational systems are complex social institutions in which children are sorted and classified in many different ways at many different stages. In much of the thinking and research regarding education's role in developing nations, we have seemed to be, until recently, still at the black box stage. Years of schooling were counted (or, even more simply, the highest cycle completed was noted) and related to jobs acquired and incomes earned; achievement was measured at one point in time and related to a few measures of school quality taken at the same point in time, controlling for measures of original social status. Such studies have represented a necessary beginning. A major result has been to reinforce the perception that educational systems tend to ratify the

status of most children: middle- and upper-class children retain the advantages associated with their circumstances of birth, and lower-class children remain in their disadvantaged condition; for only a small percentage does education serve as the avenue of upward mobility. Given the results of such studies, we now can — and must — move beyond them. We must become clearer about *how* educational systems operate. At what points do critical sortings of children occur? At each such critical point, what are the in-school and out-of-school factors that determine the destiny of a student? When we get detailed answers to these questions, research is likely to have more to say to the educational policymaker who is looking for manipulable variables to increase the probability that schooling will enhance the life chances of its clients, and especially those from the lowest strata.

To attack such questions, one must get inside the school system and not view its inputs and products from outside. Most fundamentally, one must recognize that schooling and the learning that goes on inside schools are ongoing cumulative processes, that what happens at earlier stages constrains what may happen later. That is, longitudinal studies of the schooling process are required.

In this book, we report the results of what is, to our knowledge, the first large-scale longitudinal study of an educational system in a developing nation. The data have been gathered in Chile between 1970 and 1977. In 1970, about 3500 students in the original sample were in grade 8, the last year of primary school. By 1977, the date of most recent contact with them, some were still in school, having entered university, and many others had left school, before or after completing secondary schooling, either to enter the labour market or to devote themselves to household work. These data represent the richest and most detailed information yet available (at least in a developing nation — perhaps in any nation) regarding a cohort of young people as they pass through the critical transition from adolescence and studenthood to early adulthood and employment. Throughout, our concern has been to identify the differing life paths of these young people and the determinants and consequences of the various paths a young person's life may follow in a nation such as Chile.

This quest has involved attention at various points to a series of different questions. What factors determine whether a student will drop out of the educational system or survive within it? What factors determine the degree of academic achievement of students at the end of primary and secondary schooling, and changes in achievement levels between those two points in time? What sorts of nonformal educational experiences do these young people undertake? How is their formal and nonformal educational attainment related to entrance into and success within the labour market?

Throughout, the concern has been with the general quesion of educational equality, not only as a theoretical construct but as a matter of policy. We have been searching for instruments to equalize educational opportunities in developing societies that have a high degree of structural inequality and scarce resources to invest in education. Particularly, we have been seeking educational policy tools that may have their greatest impact upon the poorest strata. Because they are derived from a longitudinal study, the following data may provide more powerful answers to these

questions than have the variety of more specific cross-sectional studies undertaken in recent years in various developing nations.

Because the data are extremely complex and because many separate but interrelated analyses are reported here, it is useful at the outset to discuss the general model that has informed our thinking and to describe the development of the study itself. The general model we now use to think about these data differs somewhat from the original conception of the work. Almost 10 years of working with these data, plus developments in the substantive and theoretical literature during these years, has broadened and reoriented our original conception. Moreover, the general methodological approach throughout the study has been heuristic. We did not start out with a set of tight hypotheses to be tested, but with a set of general questions to be explored. Although we had hoped to follow the original cohort of students for a few years, we could not have predicted in 1970 that we would be maintaining contact with many of them 7 years later, particularly given the tumultuous history of Chile during this period. The chronological and intellectual history of this study has involved a process of gradual unfolding, of increasing understanding, of taking advantage of opportunities, of much good luck and considerable serendipity.

In the following chapters, before presenting the results themselves, we provide background information regarding the educational history of Chile in recent years necessary to interpret these results, plus a variety of methodological commentaries. In this chapter, we describe the general framework that represents the culmination (at least to this point in time) of our thinking about these data.

A Model of Educational Inequality

When considering problems of educational inequality in recent years, we have increasingly viewed schooling as a long-term process in which children may be sorted at many different points and in several different ways. Recognizing that schooling operates as a selective social screening mechanism, we address a complex question. At what points in the process, to what degree, and by what mechanisms are the children of which social groups screened out or kept in? From this point of view, equality can usefully be distinguished on the basis of:

- Access — the probabilities of children from different social groupings getting into the school system.
- Survival — the probabilities of children from various social groupings staying in the school system to some defined level, usually the end of a complete cycle (primary, secondary, higher).
- Output — the probabilities that children from various social groupings will learn the same things to the same level at a defined point in the school system.
- Outcome — the probabilities that children from various social groupings will live relatively similar lives subsequent to and as a result of schooling (have equal incomes, have jobs of roughly the same status, have equal access to positions of political power, etc.).[1]

The first three types of equality refer to the workings of the school system itself each representing a mechanism by which children are sorted and

screened by the school, and each occurring at every level or cycle of the system (primary, secondary, higher). Equality of outcome refers to the junction between the school system and adult life — especially the labour market.

During the past 2 decades, there has been a tendency to treat each type of equality in isolation, in separate bodies of literature and areas of policy concern. Our contention is that by viewing the four types as a set of interrelated ways in which children and young people are sorted and classified (i.e., the life of a young person as a passage through a continuing series of key transition points), it is possible to understand better each of what have frequently been viewed as distinct problems.

Equality of Access

Recognizing that millions of children in poor nations had no opportunity to enter school, and that those who did were typically the offspring of economically, geographically, racially, or tribally favoured groups, educational policymakers during the 1960s attempted to provide school places sufficient for every child to have access to schooling. As it became apparent, even by the late 1960s, that it is impossible for most poor societies to provide a school place for every child, at least for many years (Coombs 1968, 1970), the problem has been redefined: Given that only x% of children in a society can enter school, is the probability of entering school for a given child independent of the child's circumstances of birth? The answer almost everywhere is no, although the bases for discrimination vary from society to society. In many societies, rural children are much less likely to enter school than children of the towns and cities. Even in the cities, poor children are less likely than well-to-do children to enter school. In a number of societies, fewer girls than boys enter school. Frequently, certain tribal or ethnic groups are either consciously excluded from school or simply ignored (World Bank 1980:23–25). The question in many developing societies at the primary school level has thus become similar to the problem at the secondary school level in many rich societies that have restricted and selective secondary systems (Bowman 1970:146–147).

Equality of Survival

Even if we assume that all children have an equal probability of entering school, children from different social groupings have different probabilities of surviving in the system. In developing societies, rates of noncompletion, frequently preceded by grade repetitions, are very high (Schiefelbein 1975b; Simmons 1980:45–52; World Bank 1980:30–35). This phenomenon has traditionally been discussed under the rubrics of educational wastage or internal efficiency. Although it is generally assumed that the probability of dropping out of school before completing a cycle is linked with a child's social status (World Bank 1980:34), the evidence regarding this relationship is scanty, often in conflict, or differently interpreted (Foster 1965; Hurd and Johnson 1967; Heyneman 1974; Simmons 1974; Lin and Yauger 1975, Joe 1977).

Equality of Output

Children can, of course, learn many things from their experience of schooling, whether as a consequence of intended teaching or of their presence in an institution with particular organizational characteristics (the hidden curriculum — see Dreeben 1968); but whatever is learned, it may be learned to different levels by different groups of children. Even if all children have an equal probability of surviving to the end of a given educational cycle, differences in their levels of learning in most developing societies have a critical effect upon their access to the next cycle. Within the past decade, a vast literature has been generated regarding determinants of levels of educational achievement — recently labeled the educational production function. It has been generally believed, especially following the work of Coleman (1966) and Jencks (1972) in the United States, that inequalities in levels of learning are strongly associated with inequalities in circumstances of birth. Available evidence suggests, however, that the less developed a society, the less is the effect of social status on variations in learning levels, and the greater is the effect of school-related variables (Schiefelbein and Farrell 1973; Heyneman 1976, 1980; Schiefelbein and Simmons 1981).

Equality of Outcome

It has become increasingly popular in recent years to argue that even if a system has equality of access, survival, and output, achieving a relatively high level of education will not necessarily produce in the labour market the same benefits for children of the poor as for children of the rich. Three reasons are cited: the labour market (and perhaps more important, the political system) can be manipulated by the well-to-do to maintain their advantages for their offspring; as educational systems have expanded more rapidly than the modern sectors of the economy, there is increasing educated unemployment, which most strongly affects the children of the poor; and, as the educational system expands rapidly, the educational currency becomes devalued, so that the child of the poor family is forever pursuing a receding target, as jobs that a few years ago required only a primary school certificate may now require a secondary diploma or more (Carnoy 1974; Windham 1975; Bowles 1980). The literature on this issue is often found under the rubrics of education and social mobility or the effect of education on occupational-status inheritance or income distribution.

Fortunately, data have recently become available from a number of societies at different levels of development regarding the effect of education on intergenerational status transmission. Lin and Yauger, reporting data from Haiti, from Costa Rican communities at three levels of development, and from Britain and the U.S., have concluded that "the direct influence of educational attainment on occupational status is curvilinearly (concave) related to the degree of industrialization" (1975:557). That is, as one progresses from the least developed society (Haiti) to more developed Costa Rican communities, the strength of the relationship (controlling for the effect of father's occupation on son's occupation) increases; but as one reaches very high levels of development

(Britain and the U.S.), it begins to fall off. Holsinger's data from Brazil indicate that the level of education attained is a much better predictor of the type of occupation than is the level of the father's education and that this pattern is stronger the more industrialized a community is (1975:120–175). Ugandan data from three points in time between 1954 and 1964 similarly indicate that the level of education attained is a better predictor of occupation than is the father's occupation (Currie 1977). If one plots the data from all of these societies on the graph developed by Lin and Yauger, the curvilinear pattern they discovered is maintained (Schiefelbein and Farrell 1978b). Two important conclusions emerge: Even where the intervening effect of education on intergenerational status transmission is weakest, there is still *some* relationship — in no case does the beta coefficient for the relationship between son's education and son's occupation, controlling for father's status, fall below 0.15. The relationship is strongest among societies in the "middle range" of development, such as Chile.

In summary, then, we conceive of the schooling system as a continuous series of sortings of children, with each transition dependent to some extent on the results of the previous transition. A child may or may not enter primary schooling, may or may not survive to the end of the primary cycle, may or may not learn as much as other children do by the end of primary. Having completed primary, a child may or may not enter secondary schooling, may or may not survive to the end of secondary, and so on. Thus, in a three-level system (e.g., primary, secondary, higher), there are at least nine critical sortings of children; in a four-level system (e.g., primary, junior secondary, senior secondary, higher), there are at least twelve sortings. This classification of types of equality within the school system is itself a simplification. For example, in systems that have different types of schools at the same level (e.g., university-preparatory and vocational technical secondary schools, or universities and 2-year colleges at the higher level, or universities and university fields of study with different prestige levels), the access question is not simply whether a student enters the cycle, but what type of instruction the student is given access to. Then, whenever the student leaves the formal educational system, a final sorting occurs when the student confronts the labour market, where the results are to some extent, and often powerfully, determined by the results of the previous sortings. Finally, the same factors will not necessarily affect the destiny of children at all of the transition points. Since children confronting a later sorting point are themselves the "survivors" of earlier sortings, factors that are critical at the earliest points may lose their significance at later points (having already had their effect), while new factors come into play as the lengthy process moves along.

History of the Study

As noted above, this study began in 1970. For many years, Chile had been in an unusual position among developing nations. It had not had a significant problem of equality of access to primary schooling. Thus throughout the 1950s and early 1960s, educational debate focused to a great extent upon equality of survival at the primary level and upon

learning difficulties encountered by poor children. Recognition that although most poor children entered primary school, few completed the then 6-year primary cycle, was one of the driving forces behind the Chilean educational reform of 1965–1970. This study began as part of an effort to evaluate the effects of that reform. Its focus was upon equality of survival and output at the primary level. The specific objectives were to determine patterns of survival, to the end of what had become an 8-year primary cycle, among different social strata, and to isolate the in-school and out-of-school factors that most influenced the academic achievement of last-year primary students.

To accomplish these ends, questionnaires were administered to a random sample of 10 students in each of 353 grade 8 classrooms throughout Chile, to the teachers of each sample class (a maximum of 10 teachers per class — one for each of the 10 subjects in the grade 8 curriculum), and the director of each school in the sample. Codable data were received from 3469 students, 2340 teachers, and 353 school directors. These questionnaires produced more than 500 separate measures: characteristics of the students, their peers, their teachers, their school, their family, and their community. These data have formed the base line for all the following analyses.

To deal with the equality of survival question, we constructed a variety of selectivity indices. To confront the equality of output issue, we have analyzed the data in relation to the students' scores on a national achievement test that was administered to all students in the system near the end of grade 8. (Copies of the questionnaires used for the first phase of the study are found in the Appendix.)

The students in the original sample finished primary school in December 1970, and those who continued in the system entered secondary school in March 1971. At this time in Chile, almost all students who completed primary school entered the secondary level. Here, they encountered the problem of equality of access. The equality question related to the *kind* of school to which they had access — *liceos* (the academically oriented, university-preparatory school) or vocational/technical secondary schools. This question was linked to equality of output at the primary level, because academic achievement in grades 7 and 8 (through a formula that combined grades in the various subjects with scores on the national achievement test) was used to determine which students would be admitted to schools that had more applicants than spaces — primarily the more prestigious liceos. Near the end of the 1971 school year, an attempt to follow up these students was initiated to find out what kind of school they had entered. The secondary matriculation process in the two most populous provinces of the nation, Santiago and Valparaiso, had been computerized, and the records were used to locate students in these provinces. For the rest of the country, letters were sent to the directors of secondary schools geographically close to the students' grade 8 schools with lists of names of students in the original sample who might have enrolled in their school. The directors were asked to indicate which of these students, if any, were enrolled. Through these two methods, 1678 students were located in 1st year of secondary. The new data were joined to the existing data, and analyses were run to identify those factors operating at the

grade 8 level that best predict the type of secondary school a student would enter.[2]

During the 1974 school year, those students who were still in school and "on time" (i.e., had not repeated a grade) were in the last year of secondary schooling. In that year, we undertook an additional follow-up. Using the records of the university admissions system, we were able to locate all (or so near to all as to permit us to use that word) of the students in our original sample who were in the last year of secondary. Questionnaires were again administered to them, to their teachers, and to the directors of their schools. Of the 1369 students located, 986 returned usable questionnaires, as did 684 teachers and 252 directors. These questionnaires produced the same types of data as were available for the grade 8 analysis (except, of course, that the in-school measures refer to the secondary level, and we can also observe changes in family socioeconomic circumstances). In addition to these data, we have for each student the scores of an academic aptitude test. With these data, we can deal with the problems of equality of survival and output at the secondary level.

The Current Phase

In 1977, another (and up to this point the final) follow-up of the original sample was undertaken. Since most of the students were no longer in the formal school system, the procedures for locating them to complete a new questionnaire were much more complex. As this is to our knowledge the first such long-term follow-up attempted in a developing nation, the procedures are discussed here in some detail.[3] Briefly, the steps were:

- Obtaining approval to do the research from national authorities and authorities of each of the 13 "zones of emergency" into which the nation was divided.
- Locating in the zones each school in which sample students were enrolled in grade 8 in 1970.
- Searching through school archives to locate the addresses of the sample students.
- Sending a registered letter to each recorded address inviting the ex-student to come to the old school to participate in this study.
- Administering the questionnaire to those who came to the school.
- Administering the questionnaire individually, by appointment, in their homes to those unable to come to their old schools at the designated time.

Since undeliverable registered letters are returned, their reappearance provided an accurate indication of which students had moved since 1970, and, therefore, required additional searching to locate. During the administration of the questionnaires in a given school, attempts were made to secure the addresses of those who had moved, by asking ex-classmates or school officials. In 42% of the cases where these inquiries were made, they produced new addresses.

Because most of the subjects were out of school by 1977 and in a variety of life circumstances — working, unemployed but searching for work, undertaking nonformal education, homemakers raising families, etc., the questionnaire used at this stage was very comprehensive,

containing 253 separate questions, many with subquestions, spread out over more than 30 pages, with additional pages for individuals whose life histories had been unusually complex. A copy of the questionnaire is found in the Appendix. In brief, it covered the following classes of data:

- Current family socioeconomic status and living conditions.
- A year-by-year (1971–1976) history of formal educational experiences, including for each year questions regarding school resources available and personal problems encountered, and a detailed examination of reasons for leaving school.
- A detailed history of all nonformal educational experiences undertaken since 1970.
- A complete history of all employment since 1970, focusing on characteristics of each job, job search behaviour and problems encountered, and reasons for and process of job change.
- Occupational and educational aspirations, and perceived obstacles to fulfilling them.
- Questions regarding ideal family size, and knowledge of and attitude toward methods of fertility control.

When all steps of the data collection and assembly were finished, we had a total of 1205 completed questionnaires, of which 1123 were processed (Table 1).[1] The remainder were discarded because of response inconsistencies detected by a data-editing program. It was not possible to obtain an address for 1170 students. In some cases, in more remote areas (e.g., the province of Aisén), the addresses were not obtained because the original grade 8 school was not visited. In most cases, the addresses were sought but were not available — the school had been closed, had changed location, or had simply lost the records. It is an interesting, and positive, commentary on the administrative efficiency within schools in Chile that, in spite of the changes and turmoil experienced by the nation in recent years, in almost 75% of the cases it was possible in 1977 to locate addresses of students who had attended the school 7 years earlier.

Table 1. 1977 data-gathering results — national summary.

Students whose addresses were not obtained			1170
Students whose addresses were obtained			3371
no contact by visit or letter attempted		744	
contact successful:			
questionnaire at school meeting	476		
questionnaire at home	689		
questionnaire at CIDE	15		
questionnaire by mail	25		
		1205	
contact unsuccessful because of address change:			
to known location abroad	92		
to known location in Chile	451		
to unknown location	747		
		1290	
unable to respond:			
dead or disappeared	12		
sick or pregnant	15		
military service	69		
		96	
refused to respond		36	
Total			4541

Of the 3371 students for whom addresses were obtained, for budget reasons no attempt was made to contact 744 of them (Table 1). Of the remaining 2627 who were sent letters or visited directly, 1205 completed questionnaires, 1290 of the others had moved (time and resources available did not permit us to contact them at their new addresses), 96 were unable to respond, and only 36 refused to participate.

The total number of students in the 1977 sample (4541) is greater than the total original 1970 student sample (3469). As the coding of the data progressed, the reason for this discrepancy became apparent, as did its effects on the nature of the final 1977 sample. To identify students for this final tracer, the records from the 1970 study were used, which contained the name, student identification number, and grade 8 school for each student in the original sample. It was very fortunate that these records had survived, considering that the Ministry office in which they were located had changed location several times and there had been major changes in personnel. Without them, it would have been impossible to carry out this follow-up. However, a complementary set of records that were lost had indicated which students on the 1970 lists were in schools in a special subsample from which data had never been coded, which schools had not responded to the original survey (the response rate had been about 80%), and which students had been absent when the 1970 questionnaires were administered and had been replaced, according to instructions provided to the school directors, by another student in their class. These last groups account for the discrepancies in Table 1.

Of the 1123 respondents whose questionnaires were usable in this final sample, 458 can be confidently identified as 1970 respondents. Another 412 are students who had been absent for the 1970 questionnaire administration and had been replaced in that sample. Although these students can be linked with 1970 data regarding their classmates, teachers, schools, and communities, there are no previous individual data available for them. The remaining 249 are from schools that did not respond in 1970 or special subsample schools from which earlier data are not available. Thus, we have 870 cases that can be completely or partially matched with 1970 data. The unmatched cases in the 1977 sample do not represent a complete loss as they are included in many analyses that use only data collected in the final stage (1971–1977). They are excluded only from those analyses that extend back 1 year earlier to the original baseline data. Moreover, data on family SES (socioeconomic status) were collected from all students in the 1977 sample. The main loss for this unmatched group is the lack of data on grade 8 achievement and school and teacher characteristics.

Possible Biases in the Data

Given the various problems encountered during the collection of the data for the latest follow-up, the deviations from the original 1970 sampling plan may have introduced systematic biases into the final 1977 sample.

When comparing the geographic distribution of the 1977 respondents with that of the original sample, we found the principal differences to be in

Table 2. Comparison of geographic distribution of original 1970 sample and 1977 sample.

Region		1970 sample (%)	1977 sample (%)
Rural north			
I.	Tarapacá	2.6	2.0
II.	Antofagasta	3.5	3.6
III.	Atacama	2.2	2.0
IV.	Coquimbo	3.9	3.3
Rural central			
V.	Valparaíso–Aconcagua	11.1	10.6
VI.	O'Higgins–Colchagua	5.1	6.5
Rural south			
VII.	Curicó–Talca–Linares	5.2	5.0
VIII.	Chillán–Concepción–Arauco–Bíobío	11.6	17.8
IX.	Malleco–Cautín	5.9	2.5
X.	Valdivia–Osorno–Llanquihue–Chiloé	6.6	3.5
Far south			
XI.	Aisén	0.4	0.0
XII.	Magallanes	1.3	1.3
	Santiago	40.3	41.6

region VIII, which is overrepresented, and regions IX and X, which are underrepresented (Table 2). In region VIII, the process of locating subjects was unusually successful, owing to a high level of cooperation from the local educational officials who are very well organized. Since regions IX and X, immediately to the south, share many of the geographic and socioeconomic features of region VIII, the slightly lower level of success in locating subjects there is not serious. Indeed, the representation of the total rural south (regions VII to X) in the 1977 sample is very close to that in the 1970 sample (29.3% vs 28.8%). The large urban area of Santiago is not overrepresented in the follow-up sample in spite of the relative ease of locating subjects there. Nor are the extremes of the nation, which are geographically isolated, with dispersed small populations, and thus very difficult and expensive areas in which to conduct research, significantly underrepresented.

Factor analyses in the early stages of the study have consistently shown that father's education and occupation are the best indicators of family SES. When comparing the 1977 and 1970 samples with respect to father's education, we find that students whose fathers are illiterate or have only primary education are slightly underrepresented in the 1977 sample (Table 3). This reflects in part the greater difficulty involved in locating young people of lower social strata, who appear to move more frequently or who live in marginal populations that are completely uprooted from time to time so that it is impossible to find neighbours or mail carriers who know their whereabouts. The differences are not large because special efforts were made during the data collection process to locate students in rural areas and to not abandon the search until all possible avenues were exhausted. Of the original 1970 sample, 453 students with completely matched data were located in the 1977 follow-up (Table 3). Lower-status students located in 1977 are modestly overrepresented. Those students in the 1977 sample who had been replacements for students absent in the

Table 3. Comparison of samples with respect to father's education.

Father's education	Comparison of total samples: 1977 (%)		Comparison of total samples: 1970 (%)	Disaggregation of 1970 sample: Located 1977 (%)	Disaggregation of 1970 sample: Not located (%)
Illiterate		2.9	3.3	2.9	2.9
Incomplete primary	22.1				
Complete primary	21.2	43.3	46.5	56.8	44.9
Incomplete secondary	21.6				
Complete secondary	16.3	37.9	34.2	30.7	34.7
Incomplete university	3.9				
Complete university	8.9	12.8	10.6	7.2	11.1
Others, no response, or not known		3.1	5.6	2.4	6.0
Number of cases		1046	3530	453	3077

1970 study, or who were in special subsample schools or schools that did not respond in 1970, are of slightly higher status than those from the original sample who were located. In any event, the variations are not large, and we have a distribution in the 1977 sample that has adequate variability and representation of the educational extremes to permit us to use this variable in analysis.

With respect to father's occupation, the only notable differences are an underrepresentation of children of agricultural workers (5.0% in 1977 vs 16.4% in 1970) and an overrepresentation of children of office workers (Table 4). Migration from rural to urban areas, which has continued for many years in Chile, may account for part of these differences. The proportion of agricultural workers within the total economically active population of Chile shrank from 33.0% to 25.0% between 1960 and 1970, and the trend appears to have continued in the post-1970 period (Raczynski 1974). Although 38.2% of the 1977 student sample indicated that they were born in Santiago, 41.3% lived there in 1977: that is, 3.1%

Table 4. Comparison of samples with respect to father's occupation.

Father's occupation	1977 (%)	1970 (%)
Professionals and technicians	9.8	8.8
Managers and administrators	6.9	7.7
Office workers and other white-collar workers	18.1	11.3
Sales personnel	12.3	10.1
Agricultural labourers and miners	5.0	16.4
Transportation workers	5.1	7.6
Artisans and skilled tradesmen	17.5	24.2
Other labourers	17.4	5.1
Personal service workers	3.1	6.2
Others, or no response	4.5	3.6

had migrated to the capital. (Much of the internal migration is from rural areas to nearby cities rather than to Santiago.) We can assume, therefore, that the differences are due to internal migration and changes in the nation's occupational structure during the period between the two sample dates. Once again, however, whatever modest differences are found, the 1977 sample exhibits sufficient variation and representation of the occupational extremes to permit us to carry out meaningful analyses.

When we compare that portion of the 1970 sample located individually in 1977 with the rest of the original sample on a series of other variables, 10 of the 14 comparisons are statistically significant (which is not surprising, since with samples of these sizes, even rather small absolute differences may be significant), but the differences are generally not large (Table 5). At two standard deviations on each side of the compared means, the distributions of the variables in the two samples overlap very substantially. Moreover, the differences favour the group located in 1977 in some cases (grade 8 national test scores, teachers' experience, class average national test scores) and the group not located in other cases (textbook availability, family SES, pre-service training of teachers, and pedagogical excellence of the grade 8 school).

The effect of looking in 1977 especially for those who had not been located in 1974, and trying very hard to get representation from lower social strata, also shows up in the distributions of another set of variables compared across the two subgroups of the original sample (Table 6). We find that the subgroup students located in 1977 have lower levels of father's education (as noted in previous tables), are more likely to be shorter than the norm in stature (which we used as a rough indicator of nutrition), were mainly attending primary schools rather than primary classes attached to secondary schools in 1970, and were slightly less likely to have a television set in their home. On the other hand, there are not appreciable differences between the two subgroups in educational aspirations, the proportion of free time devoted to reading, or community size in 1970.

Looking over all of these data, we conclude that the total 1977 sample does not differ in any important way from the total 1970 sample and that the portion of the 1970 sample located in 1977 is not significantly different from the remainder of the original sample. What small differences are observed are not likely to affect the conclusions drawn from analyses reported in later chapters.

A Note on Theoretical Orientation

As noted at the outset, it is now a matter of considerable debate whether formal educational systems can ever be more than ratifiers of existing social-class structures. Many observers, especially those operating from a Marxist, neo-Marxist, or dependency theory point of view, argue that educational systems can never contribute much to "equalizing" a society that is characterized by severe structural inequalities (typically, in developing nations, either caused by or aggravated by their dependent

Table 5. Mean comparisons on 14 variables of students in original sample located in 1977 (N = 453) and those not located (N = 3077).

Variable[a]	Located in 1977		Rest of 1970 sample		F value	Significance (p)
	$\bar{X}$	SD	X	SD		
National test score	51.7	15.4	49.4	20.8	1.82	0.00
Textbook availability, grade 8	2.7	0.9	2.8	0.9	1.21	0.01
Family SES	−0.176	0.9	0.026	1.0	1.33	0.00
Teachers' pre-service training, grade 8	3.2	1.1	3.3	1.2	0.02	0.10
Teachers' in-service courses, grade 8	2.0	0.9	2.0	1.1	1.26	0.00
Teachers' professional experience, grade 8	9.0	5.3	8.5	5.1	1.08	0.24
Teachers' fathers' education, grade 8	5.3	1.7	5.4	1.8	1.17	0.03
Textbook availability, grade 8 class	−0.001	0.006	0.000	0.006	1.04	0.64
Class size, grade 8	34.0	14.8	32.3	16.4	1.22	0.01
Pedagogical excellence, grade 8 school	−0.48	1.2	−0.21	1.3	1.17	0.03
Verbal part score, grade 8, class *SD*	6.8	2.1	6.7	2.1	1.02	0.82
National test score, grade 8, class average	53.6	11.1	52.7	12.2	1.21	0.01
Family SES, grade 8, class average	−0.156	0.71	0.022	0.84	1.38	0.00
Family SES, grade 8, class *SD*	0.546	0.19	0.578	0.19	1.02	0.76

[a] Descriptions of these variables are found in chapter 3.

Table 6. Comparisons of distributions on 7 variables of students in original sample located in 1977 and those not located.

Variable and categories	Located in 1977		Rest of 1970 sample	
	N	%	*N*	%
Father's education				
primary or less	270	59.7	1484	48.2
secondary or more	172	37.9	1408	45.8
Height in relation to sex and age				
below norm	86	19.0	416	13.5
above norm	366	80.8	2414	78.5
Educational aspirations				
enter secondary	40	8.8	269	8.7
complete secondary	106	23.4	718	23.3
complete university	298	65.8	1971	64.1
TV in home				
available	170	37.5	1333	42.7
not available	276	60.9	1656	53.8
Hours/week in free reading				
0	32	7.1	233	7.6
1	147	32.5	929	30.2
2–3	218	48.2	1375	44.7
3+	51	11.3	433	14.1
Population of community in grade 8 year				
<1000	22	4.9	128	4.2
1001–10 000	60	13.2	350	11.1
10 001–50 000	77	17.0	513	16.1
50 001–100 000	51	11.3	409	13.1
>100 000	222	49.0	1448	47.1
Type of grade 8 school				
primary school	248	54.7	1222	39.7
primary education centre	22	4.9	268	8.7
professional school	27	5.9	163	5.3
liceo	127	28.0	1133	36.8
other	8	1.7	62	2.0

position). Others continue to hold the position that was nearly universal a decade or more ago: education does, or with relatively modest modifications can, contribute significantly to social mobility and increasing social equality. The literature generated by this debate is vast and generally well-known. Several pieces have appeared recently that summarize much of the available evidence and highlight the major issues in contention (Simmons 1974, 1980; Foster 1975 and rejoinders; Windham 1975 and rejoinders; Foster 1977; Paulston 1977), at least as they apply to developing societies.

The position one takes on so fundamental a debate must necessarily influence one's understanding of the kind of data we will be presenting. Therefore, we will make our own position explicit. We accept as given that developing societies in general, and a society such as Chile in particular, have frequently inherited high degrees of structured social inequality, and that internationally they are in a relatively dependent position. They are poor, inegalitarian, and dependent. We also assume that such societies will neither be deschooled nor transformed into independent egalitarian

utopias in the foreseeable future. Indeed, we regard attempts to so transform them as often pernicious. As Schiefelbein has suggested: "In developing countries authoritarian organizations often emerge from the efforts of utopians to squeeze imperfect individuals into *their* (developed) model of the perfect system" (1975a:34). Chile is a classic case in point. We assume that poverty, inequality, and dependency define the problem and constrain its possible solution, but we do not believe that they *determine* the actions of policymakers or their consequences. We assume that policymakers in countries that share these problems have some degree of freedom and that the nature of their actions and the results of their decisions are highly conditioned not simply by their shared circumstances but by the special historical experience of each one's own society. What will work in Chile will not necessarily produce the same results in Bolivia, let alone in Sri Lanka or Nigeria. We assume that in societies such as Chile there is some room to maneuver, albeit constrained — in what society is that not the case? — and that our challenge is to find those points of leverage that will permit us to perform what has been called the "judo trick," using small amounts of force to produce large changes in direction. Poor societies — being poor — have limited resources to invest. We do not aim for perfection, but for improvement, and we believe that means for such improvement can be discovered through careful research.

Notes

1. In distinguishing system output from outcome, we are drawing on work by Bertram Gross (1965). A system's *output* is whatever the system produces directly. In the case of a schooling system, we take the output to be learning. A system's *outcomes* are the effects of its outputs (as defined above) on the lives of its clients.

2. This first follow-up sample was imperfect, in that it underrepresented students in technical vocational schools, especially outside of Santiago and Valparaíso. That is, the proportion of the follow-up sample in such schools was lower than the percentage enrolling in them in the total population, according to Ministry of Education figures. Later follow-ups have permitted us to fill in these sample gaps and recheck the original analyses.

3. Readers interested in the methodology employed, the problems encountered, and the solutions devised may request a more detailed description of the methodology from the second author.

4. The sampling target figure for this follow-up was one-third of the original 1970 student sample, or approximately 1200 cases.

Chapter 2

The Chilean Educational System: Recent Developments

To understand and to compare the data presented in the following chapters, one must keep in mind certain salient features of the Chilean educational system, especially as it has developed during the last 2 decades. Chile has long had a reputation as one of the most educationally advanced of the developing societies, as evidenced by relatively high enrollment ratios and low illiteracy rates, a primary-to-secondary transition that is less of a barrier than in many societies, and participation rates for girls that equal or exceed those for boys. In recent years, the educational system has undergone massive structural changes and significant quantitative expansion. The students in our sample started school early in the 1960s. During the latter part of their primary careers, between 1965 and 1970, a very thorough educational reform was implemented. They entered secondary school in 1971, the 1st year of the regime of the Popular Unity government of Salvador Allende. Shortly before they completed secondary schooling (i.e., those who remained in the system), the current military government came into power. Though neither of the past two governments has instituted changes in education of the magnitude of those of 1965–1970, their policies have had effects upon the quantitative growth of the system that naturally affected the survival potentials of students within the system, including those in our sample. Moreover, the general turbulence of the era when these students were in secondary schooling, and especially political turbulence within the schools themselves, must have affected their educational experience. We may be able to identify some of these effects; others we can only speculate about. This chapter documents briefly the changes that have affected the ways in which the students in the sample have experienced and been able to use schooling.

Early Historical Development

Before the attainment of independence from Spain early in the 19th century, Chile had a very rudimentary educational system typical of Spanish colonies of the epoch. There were few schools, serving a very small portion of the population. Females were virtually excluded. At the pre-university level (no major distinction was made between primary and secondary education), curriculum was simple and inflexible — reading, writing, arithmetic, and religion — although late in the period a few Latin grammar schools were established of the type contemporary in Spain,

associated with churches or convents. Two universities in Santiago offered advanced study in the few traditional academic fields known in the Spanish-speaking world.

The post-independence governments quickly grasped the relevance of education to the formation and consolidation of a nationality, and education was given relatively high priority. Many primary-level schools were established, and in 1813 the Instituto Nacional, combining pre-university academic instruction and professional vocational training, was founded. Drawing upon a provision of the Constitution of 1833 that declared public education to be a state responsibility, Chile became in 1842 the first Latin American nation to establish a system of public instruction. Before the middle of the century, the first normal school had been founded, the University of Chile had been established, and the university-preparatory liceo had expanded its classical-humanistic curriculum to include experimental science. Under an Organic Law passed in 1860, elementary education was made free, and additional secondary and normal schools were established. Toward the end of the 19th century, Chile became the first Latin American nation to admit women to university and permit them to practice the liberal professions, secondary education opened its doors to women, and European professors were invited to the Instituto Pedagógico of the University of Chile, where they had a profound influence on the training of teachers and on the development of the educational system.

During the 1st decades of the 20th century, there was a growing awareness of social imbalances within society and increasing recognition of inequalities of opportunity as a social problem. These ideas led, among other things, to the establishment of the first social security system in Latin America and, in 1920, the enactment of a compulsory elementary education law for all children below the age of 15. The continuing expansion at the primary level was a response to growing social demand for education, and in its turn created greater demand for further education, which strained the capacity of the secondary and higher levels. In the period following World War II, there were several attempts at pedagogical experimentation and system reform to respond to the increasing social pressures. In 1945, there was an experiment with consolidated schools. The Gradual Renewal Plan for secondary education in 1950 included an early effort at educational planning; a diagnosis was prepared showing the gaps between school and the labour market, the effects of the European tradition of academic selectivity, and the lack of attention to individual characteristics and needs. The Integrated Education Plan was introduced experimentally in the northern city of Arica in 1955.

The effect of this early development and steady expansion of the educational system can be seen in the growth in the percentage of school-age children in school between 1865 and 1952 (Table 7). Another indicator of the spread of schooling is the literacy rate, which grew from 17% in 1865, to 50% in 1920, and to 80% in 1952.

The Educational Scene in the Early 1960s

Although considerable progress had been made in expanding the

Table 7. Percentage of school-age children in school, 1865–1952.

Year	Percentage in school	Year	Percentage in school
1865	10.9	1907	35.5
1875	17.1	1920	46.2
1885	20.4	1930	60.6
1895	27.7	1940	57.5
		1952	61.5

Source: E. Hamuy, La evolución de la educación elemental y el problema educacional, in E. Schiefelbein and N. McGinn (eds.), El sistema escolar y el problema del ingreso de la universidad (Santiago, CPU, 1975), p. 103.

educational system, it became increasingly evident throughout the 1950s that Chilean education continued to suffer serious problems. Social demand for education from the lower strata of society was growing. Increasing political power of traditional parties of the left, plus the emergence of a new political force, the Christian Democratic Party, both reflected and stimulated the emergence of the poor as a major political force. An environment developed in which major educational reform assumed high priority.

Between 1962 and 1964, a major study of the Chilean educational system, leading to a number of reform proposals, was undertaken by a team of economists, sociologists, statisticians, and educators, supported by the ministries of Education and Finance. On the positive side, it was noted that only about 15% of the population was illiterate, and that enrollment among children between 7 and 12 years of age had reached 85%. There was also no severe shortage of high-level workers. Chilean universities were producing a number of highly trained professionals, technicians, and researchers, many of whom pursued postgraduate studies in North American and European universities. Indeed, the presence of this pool of highly qualified talent was important to the success of the diagnosis.

It was also clear, however, that children from the lower half of society experienced a different educational track from children from the upper half. Although a very high percentage of the primary-school-age population attended school, repetition bunched half of the enrollment in grades 2 and 3. Almost half of those entering grade 1 were made to repeat it, and those who repeated were predominantly children of the poor. Most urban children had access to complete 6-year primary schools, but the more dispersed rural population had proportionately far fewer schools available; many of these, in one- or two-room buildings, offered only 3 or 4 years of education. Thus, although the population as a whole had an average of 4.2 years of schooling, the rural population had only 2.4 years. Fewer than a third of the students entering grade 1 completed grade 6, the end of primary schooling; more than 30% of those fortunate enough to complete primary education were denied access to secondary education, a barrier that served to prevent most lower-class children from qualifying for higher education.

Primary teachers were trained in *escuelas normales*, completing 13 years of education before beginning to teach. Secondary teachers were graduates of *institutos pedagógicos* in the universities. Vocational teachers were drawn from among qualified artisans and skilled workers. Overall, 80% of the

teaching staff had professional training. The less well-trained teachers usually worked, however, in more isolated rural areas. Moreover, the training provided, strongly influenced by the European missions at the end of the previous century, placed heavy emphasis on the teacher's professional role as guardian of academic standards. This emphasis, combined with inflexible nationally set curricula and teaching methods that relied upon lectures and rote memorization, with little use of textbooks or other didactic aids, contributed to the high dropout and repetition rates.

On the basis of the diagnosis, three main tasks were outlined by the planning commission.

First, there was a need to study and develop a new structure for the educational system in all its branches and levels. Out of this work came a proposal to restructure primary, middle, and secondary education into a 9-year/3-year arrangement instead of the 6-year/6-year system that prevailed. Completion of the 9-year primary/middle-school program was set as the basic educational target for all Chilean children. The proposal was modified in the reform that followed in 1965–1970, and the system was restructured into 8 years of basic education followed by 4 years of secondary education.

Second, there was a need to study new forms of administration of school services to assure unity, decentralization, and more community involvement and support of education. This focus provided an important conceptual basis for the reform that followed, in which there was a determined effort to open the schools to the wider community, to make the curriculum more relevant to the world of work and the larger society, and to give local community groups a greater voice in the development and governance of the schools.

Finally, a plan was required that would provide for expansion and improvement of school services at all levels and for all Chileans. This emphasis led to a drive for quantitative expansion of the system and an effort to allocate greater resources to the improvement of educational programs. The principal aim of the reform was to provide more education, to provide it more effectively and efficiently, and to provide it as soon as possible to as many children as possible.

Strategies and Targets of the 1965–1970 Reform

When the Christian Democratic government came into power in 1964, educational reform was given very high priority; and, based upon preceding work, decisions were swiftly taken and implemented. Attention first focused on increasing the system's capacity. Although the existing capacity could have theoretically met, or even exceeded, the demand for places, there were problems due to the chronic high repetition rates in the lower grades, which pushed grade 1 enrollment figures up to 70% above the 7-year-old population. It was concluded that classroom capacity had to be expanded to accommodate both the children passing successfully through the grades and the repeaters in the bottleneck at the lower grades. This decision had political support. Resources were thus obtained for the required buildings and accelerated teacher training, and existing space was

more efficiently used by slightly increasing the student/teacher ratio and reducing its variance.

It was also decided to begin restructuring the system immediately.

Basic Education

There was to be a general and common compulsory cycle of 8 years for all children between the ages of 6 and 15 in all regions of the nation. New curricula were designed and completely implemented for all 8 grades by 1970, with the purpose of stimulating the children's overall personality development, preparing them for subsequent active participation in a democratic society, and guiding them toward a sound decision either to enter the labour market or to continue studying in the next higher level. Grades 1–4 of the basic cycle attempted to provide general development through large and comprehensive units of material that would simultaneously stimulate motor and cognitive development, teach basic knowledge and skills, and integrate psychological development, social learning, and cognitive achievement. Traditional subject areas were not sharply differentiated, although each had a place in integrated units. In the second cycle (grades 5–8), subject matter was coordinated in three large areas: language and social sciences, mathematics and natural sciences, and technology.

Secondary Education

As of 1968, the secondary cycle was reduced to 4 years. Premature vocational training was to be avoided. Although at this level curriculum design and program implementation problems were more complex, the major aim was to integrate general scientific/humanistic studies with technical and vocational education. The first 2 years of the program were supposed to fit [illegible] a common base, and the last 2 years were designed to offer diversified specialized preparation. Flexibility was built into the secondary program to meet the special demands of Chilean regional and cultural differences and to try to meet the needs of individual students more precisely. General curriculum guidelines were issued, but in practice school directors and teachers were to have wide latitude in adapting the plan to individual school and student needs. Though this flexibility was not always attained, it was permitted and encouraged. Curriculum integration between vocational-technical schools and university-preparatory liceos was planned, and lateral movement between them was provided for. Under the old system, irrevocable vocational decisions had to be made at the end of grade 6. Children now had, in theory at least, 4 more years before the die was cast.

Although system expansion and structural and curricular change are common aspects of educational reforms, the Chilean experience was novel in the way the job was done. At the start of the reform, parents and children were told that there would be places for all to enroll in the grade 7 level in 1966, provided only that they had a certificate of completion of grade 6. It was stated by the Minister of Education that all children

between 6 and 15 years of age were entitled to a complete 8-year basic education. Educators were given a year to prepare for the influx of about 0.1 million students to the new grade 7. In the same year that grade 7 was opened to all, new developments for the 8th year were tried out in several hundred pilot schools, and the new grade 8 curriculum was implemented the following year. Within 3 years, the new basic education program in grades 1 to 8 was fully operative. In 1968, the 1st year of the new secondary program (grade 9) was introduced, with pilot programs for succeeding years, and the complete secondary program was in place by 1970.

To lower dropout and repetition rates, several additional strategies were pursued. School breakfasts and lunches, shoes, uniforms, and learning materials were provided free of charge to children from poor families. A system of automatic promotion was introduced for the early grades of basic education. Schools were permitted and encouraged to group students by levels of achievement and ability. New types of formative evaluation were introduced. To support all of these changes, the Centre for In-Service Training and Educational Experimentation was established, which mounted a vast effort in in-service teacher training and in the preparation and pilot testing of new curricula, teacher guides, textbooks, and supporting materials. By 1970, three-quarters of all teachers in the system had received in-service training in courses averaging 3 weeks in duration; 3.65 million primary-school texts had been designed, printed, and distributed (slightly more than two books per enrolled student); 1.3 million students were receiving free breakfasts at school every day and 0.6 million were receiving free lunches, with the meal program reaching practically all children with nutrition problems.

Post-Reform Developments

The Chilean educational reform of 1965–1970 was big and it was comprehensive. Since its completion in 1970, there have been few major changes in the educational system, certainly no changes of the magnitude of the reform itself, until very recently. A few developments that may have had an effect on the young people involved in this study should, however, be noted.

The Allende Regime

No major structural transformations in the educational system were implemented between 1970 and 1973 to match the massive changes in the economic system, and many social policies that were school-related (e.g., the "half-litre of milk per day per child" campaign) were aimed at children younger than the subjects of this study. Quantitative expansion, especially in technical vocational secondary education, was a major policy goal, however. Before the beginning of the 1971 school year, it was announced that school places would be made available for all eligible students who wished to enroll in the 1st year of secondary schooling. Although most young people who completed grade 8 already went on to some form of secondary schooling, this measure did increase enrollments in the 1st year

of secondary, especially in many technical/vocational schools. Perhaps the most significant phenomenon in education of this epoch was political turbulence within the schools, particularly at the university and secondary levels. Throughout the 3 years of the Allende regime, but especially in the last 18 months as the national political crisis became more acute, the schools were in turmoil. The major political forces used organized students as shock troops in often violent street demonstrations. The turbulence spread into the schools themselves: student strikes became commonplace, and many schools were taken by students who effectively closed them for long periods of time. Although it is hard to document conclusively, this intense politicization of students must have had profound effects upon their educational experience.

The Military Regime

Apart from some minor curricular changes (e.g., increased emphasis on dates of famous battles and major military heroes in history classes), the establishment of patriotic rituals in the schools, and the firing of many teachers for their political beliefs, the military government that deposed the Allende regime in September 1973 initiated no major changes in the educational system while our subjects were in school. The one policy change that may have affected them was a reduction of places in the 1st year of university (30% fewer in 1975 than in 1972) at precisely the time when many were attempting to gain university admission.

The Effects of Educational Change

The changes in education that had potentially the most important impact upon the educational destiny of our subjects were those implemented during the 1965–1970 reform period. As with most major educational reforms, the Chilean proposals were far from completely implemented, and many of the consequences have never been adequately identified. Nevertheless, a number of major quantitative changes can be easily documented.

Between 1965 and 1970, primary enrollment doubled and enrollment at the secondary and university levels tripled. While in 1964, 87% of the population aged 7–12 years were in school, by 1970 the figure was raised to 95%, and by 1972 had come close to 100%. By 1970, 85% of those entering grade 1 were doing so on time (at 7 years of age), and primary repetition rates were drastically reduced. Roughly 0.2 million children who had previously been denied access to a meaningful basic education were accommodated in the schools, to the point that by March 1970 all children who requested entrance to primary schools were enrolled. Whereas before the reform only about a third of those who started grade 1 completed the then 6-year primary cycle, by 1970 half of the entrants completed the full 8 years of basic education. Whereas before the reform about a third of those who completed primary school did not continue on into grade 7, by 1970 almost all students who completed grade 8 enrolled in secondary school, and about 40% of secondary starters completed the cycle.

The effects of these changes upon the size of the system, and the flows through it, can be seen in the number of students enrolled by grade compared with the population for the age normally corresponding to each school grade (e.g., 7 in grade 1, 10 in grade 4) for 1964, 1970, and 1975 (Fig. 1). When the enrollment by grade is taken as a percentage of the population of the corresponding age, percentages greater than 100 indicate the high level of repetition in the early primary grades and late entrance to school. In 1964, grade 1 enrollment was 167% of the 7-year-old population. By 1970, the figure had dropped to 149%, and by 1975 was down to 140%. (By 1977, the grade 1 repetition rate was down to 23% — Schiefelbein and Grossi 1978:37.) The percentages for the higher grades, which steadily increase throughout the period, indicate that more children were staying in school longer.

Between 1962 and 1970, the percentage of overage students decreased markedly at each grade level, although it remained relatively stable between 1970 and 1975 (Table 8). Students enrolled in each grade who were at least 2 years older than the normal age for the grade were clearly either repeaters or late entrants. (An 8-year-old in grade 1, for example, may be on time, depending upon the relationship of birth date to the date in the school year when the age data are recorded; however, a 9-year-old, or older, is clearly overage.) The figures indicate that repetition rates and late-entrance rates were decreasing sharply and, consequently, that students were flowing more rapidly through the system and teachers were dealing with classroom groups more homogeneous in age composition.

Table 8. Percentage of students at least 2 years older than the normal age per grade, 1962–1975.

Grade	1962 (%)	1970 (%)	1975 (%)	Grade	1962 (%)	1970 (%)	1975 (%)
1	28	15	18	7	25	22	22
2	35	20	20	8	27	20	17
3	38	24	24	9	27	17	19
4	38	26	26	10	27	16	20
5	33	26	27	11	28	16	20
6	30	25	25	12	24	13	16

Source: E. Schiefelbein and M.C. Grossi, Análisis de la matrícula escolar en Chile (Santiago, Documento de Trabajo No. 10, CIDE, 1978), p. 70.

Conclusion

Some of the major effects of the changes just discussed on the destiny of our subjects are fairly evident. The structural reforms and quantitative expansion during the 1965–1970 reform permitted more children to continue in school past grade 6, the terminal point of the old structure. In the prereform period, many young people like those in our study, especially those from lower socioeconomic backgrounds, would never have been in a sample representing the 8th year of schooling. Our students represented one of the first waves of a new type of student flowing through the upper reaches of the educational system. Moreover, all students in our

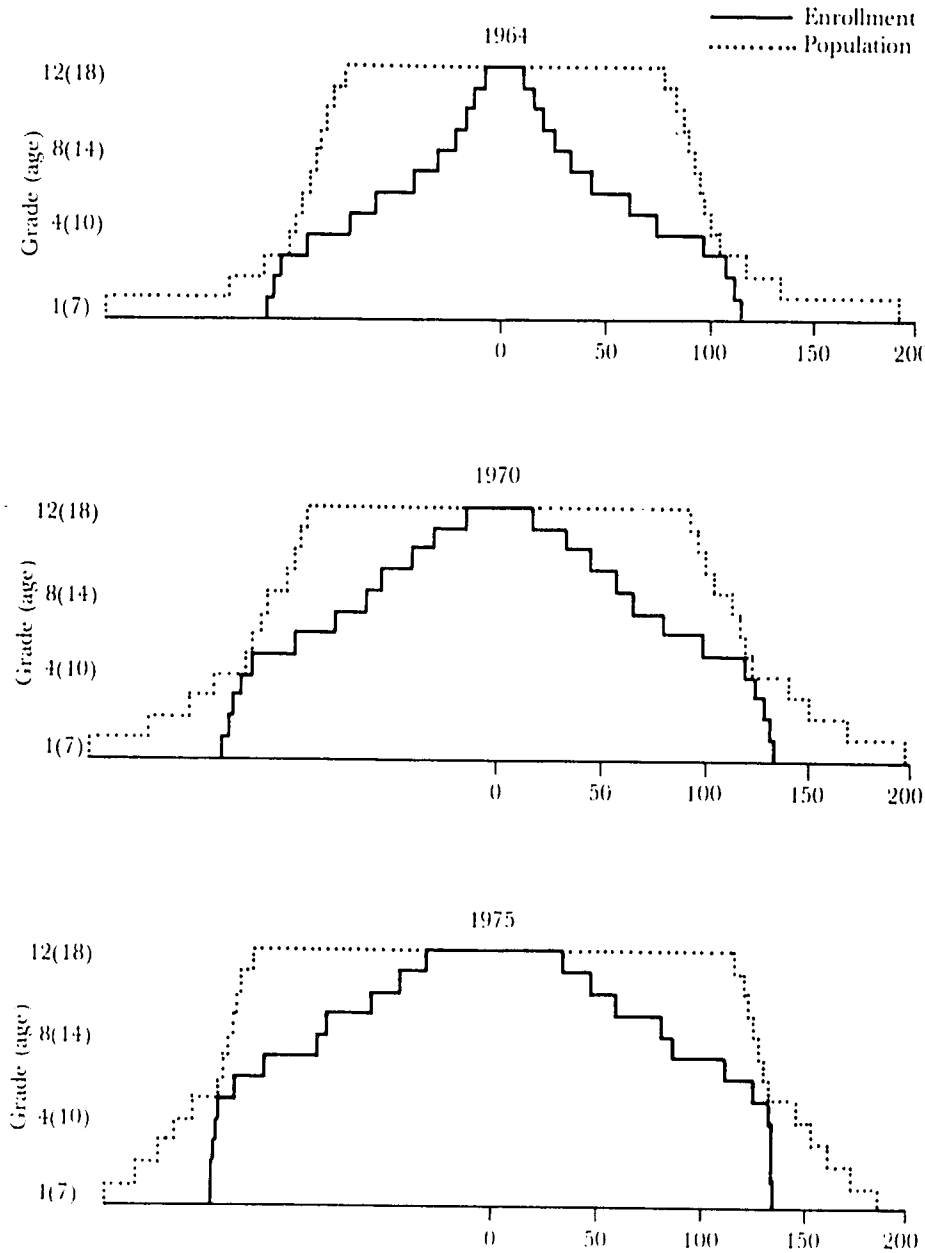

Fig. 1. Evolution of the population and education pyramids (elementary and secondary enrollments in thousands).

sample had experienced in the 4 years prior to 1970 substantial changes in curriculum and teaching methodology. Although considerable expansion at the secondary level occurred during the reform period, these students applied for entrance to that level in 1971, precisely when the newly elected Allende government was placing great emphasis on even greater secondary-level expansion so as to provide a place for all who wished to enter that level. Thus, their chances of enrolling in secondary school were

at least somewhat greater than for any previous cohort of students. During the students' first 3 years in secondary school, however, the schools were subjected to an unprecedented degree of violence and turbulence, and the society around them was rapidly moving to a point of profound crisis. Precisely how this climate may have affected their educational experience is hard to document, but it must be kept in mind when we consider, for example, the effects of pedagogical variables on school achievement or survival patterns. Those who completed secondary schooling and wished to continue their studies then entered the competition for university places at precisely the time when 1st-year admissions were being systematically restricted.

This particular sample of young people passed through the schooling system and into the adult world at precisely the time to experience to the maximum the positive and negative effects of the vast changes experienced by Chile since the early 1960s. We cannot hope to trace all the effects of these environmental changes — and they may indeed be small: we often tend to overestimate the probable effects of external forces on fundamental social institutions such as education. Nevertheless, they must be considered when we interpret the data presented here, particularly when we think about their applicability to other societies.

Chapter 3

Methodology

To the present, very few longitudinal studies of education or labour market entry have been carried out and reported in the literature. In the U.S., there are two massive data sources that have been used for a variety of studies: Project TALENT (see Flanagan and Cooley 1966; Jencks and Brown 1975), which has followed students who were between grades 9 and 12 in 1960, and the "National Longitudinal Study of the High School Class of 1972" (see Hilton et al. 1973; Peng et al. 1977; Kohen et al. 1978; Peng and Fetters 1978). In addition, comparisons between the two large data sources have been reported (Peng 1977). Beyond these, a few smaller-scale longitudinal studies have been carried out in the U.S., England, and Sweden (Feldman and Newcomb 1969; Hanushek 1971; Fagerlind 1975; Sewell and Hauser 1975; Pauly 1976; Harnqvist 1977; Maynard 1977; Schwimhart and Weikart 1977; Summers and Wolfe 1978). As an examination of those other studies will show, and as our own experience has taught us, the very richness and complexity of the data generated from a large-scale longitudinal study present the researcher with difficult methodological problems. One is trying to exploit the data as fully as possible, particularly to reveal the dynamic aspects of life that a cross-sectional study cannot capture, while attempting to keep the analyses simple enough to be conceptually manageable. In this chapter, we discuss some of the methodological choices we have made, understanding of which is necessary background for the following chapters.

General Strategy and Specific Techniques

It is important to reemphasize that this study has not been designed as a hypothesis-testing exercise. Our approach has consistently been exploratory and heuristic. And necessarily so. At almost every stage during the past 10 years, our work has been either the first, or among the first, of its kind in a developing nation. We have had very little in the way of precedents or useful theory to guide us. Moreover, resources available have always been scarce: we have invariably run out of time or money before running out of potentially interesting questions to ask of the data. At each stage, the choice of particular issues to be addressed, and the line of analytical attack upon them, has depended upon our own perception of what problems were most important, in terms of either educational policy or theory, at that time.

The analyses have extended over a decade during which both the

statistical state of the art and the literature regarding the issues addressed here have changed markedly. The computer programs and computing machinery available during the early stages were much less sophisticated and flexible than those used in the final stages. One consequence is that some tables found in later chapters include certain types of information not provided in similar tables in earlier chapters. Obviously, the earlier analyses also could not take into account the results of studies that have been published more recently. For example, the work on predictors of educational achievement at the grade 8 level was completed and published before most of the educational production function literature was available. Were we starting now, we might ask a different set of questions than we did in 1971–1973. In some cases, we have been able to redo earlier analyses. But generally, our resources have not permitted us that luxury.

Nonetheless, there is continuity in the chapters that follow. Many of the issues examined in the consideration of equality of survival and output at the primary level come up again and again in succeeding chapters. Particularly useful in this regard has been the general organizing framework provided by the equality model presented in chapter 1. The results reported below are arranged chronologically, following these young people through each successive critical transition or sorting point suggested by that model. Organizing the presentation in this fashion permits us to see how the influence of different variables and classes of variables changes over time; how the "results" of early screenings become themselves key predictors at later stages; how educational inputs provided very early have quite longlasting effects directly or indirectly. We can thus develop an understanding of at least some of the dynamic and cumulative aspects of the educational process.

At each stage of the study, we have followed the same general strategy, starting with very simple statistical analyses and building slowly up to the most complex multivariate approaches. First, patterns of distribution for individual variables were examined, and a number of cross-tabulations and correlation matrices built. Next, where appropriate, complex variables were formed, through factor analysis, a special optimal scaling program designed for us, or more straightforward combinatorial techniques (e.g., adding, averaging), and such recordings as were needed were done. Following this stage, preliminary analyses were undertaken to screen very large sets of possible predictors and reduce them to manageable groups of variables to enter into a multivariate analysis that would contain the potentially most powerful individual predictors while minimizing intercorrelations among them. Only after this work, would final multivariate analysis begin.

Throughout, a wide variety of statistical techniques have been used, most of which are quite common. Several that may not be familiar to many readers deserve special note, however. Whenever a dependent variable is continuous and ratio-scaled (or a satisfactory approximation thereof), we have used standard multiple regression analysis. It is well known that multicollinearity (the lack of independence among regressor variables) frequently confounds interpretation of regression results for such data. To minimize interpretation problems, we have supplemented the regressions with a technique called commonality analysis. This technique was originally

developed by Wisler (1970) for use in the reanalyses of the "Coleman study" data carried out by Mayeske et al. (1970). (See also Newton and Spurrell 1967; Rozeboom 1968.) It has since been used in several analyses of International Educational Achievement data. In commonality analysis, the explained variance in a regression is divided into *unique* effects — that portion accounted for independently by each variable or variable set — and *joint* effects — that portion accounted for by each possible combination of variables or variable sets. In the commonality analysis tables found here, the unique and joint effects are first presented as proportions of the total variance (these sum to the total r^2 for the regression equation) and then as percentages of the *explained* variance. The latter figures permit one more easily to compare the results of different commonality analyses, particularly when the total r^2s vary, but both kinds of data are needed if the results are to be read correctly.

Boardman and Murnane (1977) suggest that commonality analysis may not completely overcome the problem of multicollinearity: it may result in an overestimation of the total r^2 and in errors in estimation of some joint effects of variable sets. As our principal interest will be in producing good estimates of unique effects, and of the strength of these vis-à-vis various joint effects, this may not be a serious objection. In any event, commonality analysis is the best technique we know of to attack the problem. The reader should be aware, however, that it is not necessarily a perfect solution. Indeed, Boardman and Murnane suggest that no such perfect solution may (at least yet) exist.

At several stages, the dependent variable is a simple dichotomy. For multivariate analysis in such cases, we have turned to two techniques, discriminant analysis and weighted net percentage differences (WNPD), which are suitable for attempting to predict a dichotomous outcome from a number of variables with different scaling characteristics.

Discriminant Analysis

The technique can best be understood if one compares it to the more familiar regression model of analysis. In both techniques, a number of variables are used as predictors. Also, in both techniques, these variables are given different weights to maximize the accuracy of prediction. In the regression model where the criterion variable is continuous and ratio-scaled, the objective is to attempt to predict an individual's score on that variable. Variables with the highest weights are those that best predict that score. The criterion in discriminant analysis is not a single continuous variable. Rather, it is a set of mutually exclusive categories. The objective is to predict in which category an individual will fall. Those predictor variables with the highest weights are those that best predict the category.

Although we will not go into the details of the mathematics here (a number of statistics texts can be consulted), in general terms the procedure operates to locate a vector or vectors (called discriminant functions) in the total predictor space that best separate the categories of individuals. The maximum number of such discriminant functions is limited to the smaller of the number of variables used or the number of categories on the output

variable, less one. Since we are working with two categories on the output variable, no more than one vector could be obtained. The values reported for each variable are the weights on the discriminant function. The higher the weight, the greater is the power of the variable to predict, independent of the effect of the other variables, in which category an individual will fall. Thus, although it works with very different types of data, the discriminant analysis provides information analogous to that derived from a regression analysis — the relative independent contributions of each of a set of variables to the ability to predict an outcome. The more recently available programs for this technique also permit one to calculate the "percentage correctly classified." Via the discriminant weights, the original data are used to predict in which category each individual in the sample will be, and these predictions are compared to the actual locations. The higher the percentage correctly classified, the greater is the accuracy of estimation. This figure, then, is in a general way analogous to the total r^2 in a regression equation.

WNPD

A relatively new data analysis technique, WNPD has not yet been used a great deal in educational research. Perhaps the best detailed explanations are found in Spady (1970) and Farrell (1980). Briefly, WNPD requires that the output variable be divided into ordered categories (usually but not necessarily two). A cutting point between categories is established so that all individuals falling above it meet some minimum conditions (such as having survived to 4th-year secondary) and therefore considered as members of a conceptually homogeneous group. Predictor variables need only be dichotomies (they can be trichotomous, but that only complicates the arithmetic). One can then calculate easily for each predictor variable the percentage in each of its categories who are above the cutting point on the output variable (e.g., the percentage of high-social-status students vs the percentage of low-social-status students who are in 4th-year secondary).

To perform a multivariate analysis using this technique, one first produces a multiple cross-tabulation of all the predictor variables one wishes to use, entering into each cell the percentage of those in that cell who have the higher score on the output variable and the N on which the percentage is based. To calculate the effect of each predictor on the output variable, independent of the other predictors considered, one calculates the average difference in percentage scoring "high" on the output variable for all comparisons on the predictor variables where all other predictors are equal. The average is calculated by weighting each comparison of percentages by the N upon which it is based. One thus calculates a weighted net percentage difference for each predictor variable. The higher this WNPD, the greater is the independent effect of the predictor upon the output variable. For example, in an analysis of secondary survival, a WNPD of 5.2% for family SES indicates that, with all other predictors in the analysis held constant, an average of 5.2% more students with a high SES than a low SES survive to 4th-year secondary.

We have used these two multivariate techniques, because each has its unique advantages. The discriminant analysis permits one to consider

simultaneously a very large number of predictor variables. While with WNPD one must settle for a much reduced number of predictors (unless one has an enormous sample), one can get not only estimates of the "overall" relative effect of each predictor but, quite easily, an estimate of the relative effect, by categories of one or more predictors, of all the other predictors. Thus, the WNPD technique permits one to play with the data, to look for interactions between variables, and to search out substantive meaning, in a way that is difficult to duplicate with discriminant analysis. The strategy we have often followed is first to do a discriminant analysis to determine general patterns of relationship in a large number of variables, and then to do a WNPD analysis using those variables that the discriminant analysis has indicated to be most important.

Description of Variables Used

Different variables are used as predictors in the analysis reported in the following chapters. These include the personal characteristics of the student, the family and community characteristics, educational characteristics at the grade 8 and secondary levels, and nonformal education.

Personal Characteristics of the Student

The characteristics deemed important were: sex, age, educational aspirations, hours in free reading (at both the grade 8 and secondary levels, students were asked to indicate how many hours/week they spent in reading for pleasure, excluding comic books), liking for academic subjects (students at both levels were asked to indicate on a four-point scale how well they liked each subject in the curriculum and the arithmetic mean was computed for those subjects), lives with spouse, area in which student would like to live after schooling (at the grade 8 level, students were asked whether, when they completed their schooling, they would prefer to live in Santiago, a provincial capital, a small town, or a rural area), personal estimation of academic success (for each year in secondary school, students were asked to estimate whether their grades were higher than, lower than, or around the mean of all their classmates, and the arithmetic mean was calculated for each year in which a student studied), personal estimation of academic ability (subjects were asked to assess on a three-point scale their own academic ability relative to that of their classmates in secondary school), and occupational aspirations (in the 1977 questionnaire, the respondents were asked what type of occupation they desired to have in 1983 and their responses were coded into the same census categories used for analysis of level of first occupation — see chapter 11).

Family and Community Characteristics

The characteristics included: father's education, father's occupation, family SES, height, TV in home, family value environment, direct stimulus from parents, population of community, modernity of community, lived in city or country when young, and level of urbanization of current province.

The family SES is a complex variable derived from factor analysis by weighting the raw scores on component variables, taken from grade 8, by their factor loadings. Scores have a mean of 0 and a range of −1.00 to +1.00. Component variables include education of the student's father and mother; a family consumption scale (students were asked to indicate the presence in their home of various consumer items — radio, bicycle, refrigerator, car, number of books and magazines — and the responses were combined by means of an optimal scaling program to produce a single index); and an index of father's occupational prestige (Bucknam [1971] developed an index of occupational prestige in Chile, using data taken from secondary students in 1969, and these scores were applied to the paternal occupation data from our sample).

Height is used as a proxy for quality of nutrition. Information regarding age, in years and months, and exact height was available for all subjects in the grade 8 sample. From the research of an eminent Chilean investigator of childhood nutrition (Monckeberg 1969), it was possible to establish, for each sex and for half-year age intervals, a height level below which a strong likelihood of significant malnutrition was indicated.

To determine the family value environment, Grade 8 students were asked to estimate (on a five-point scale) the value placed by their parents on intellectual interests and activities, education, economic success, and social prestige.

They were further asked a series of questions regarding their parents' interests in and direct help with schoolwork.

Teachers of each grade 8 class in the original sample were asked to agree or disagree with a series of questions, taken from previous studies (Kahl 1968, as adapted for use in Chile by Ochoa 1969), designed to indicate the extent to which a community had a traditional or a modern social structure.

The province in which a subject lived in 1977 was recorded and its level of urbanization was scored according to the percentage of the population living in urban areas.

Educational Characteristics, Grade 8 Level

The educational characteristics comprise individual variables, characteristics of grade 8 class, characteristics of grade 8 teachers, and characteristics of grade 8 school.

Individual variables — These included grade 8 national test scores, textbook availability at the grade 8 level, total primary grade repetitions, and average grade 8 mark.

Starting in 1967, a national achievement test had been administered to all students in Chile toward the end of grade 8. In 1970, the year to which these data pertain, the test consisted of 100 multiple-choice questions, divided equally between a verbal and a mathematics section.

At the grade 8 level, all students were asked whether they had a textbook for personal use in each subject in the curriculum.

Characteristics of grade 8 class — To assess the peer group effect on

educational behaviour, we calculated the average and standard deviation (SD) of the score for a number of individual student characteristics of all students in each grade 8 class from which we had data. The average or SD was assigned as a class score. (In several tables found in the following chapters, the same variable is used at both the individual and classroom level. If the variable name is not followed by the designation class average or class SD, it is used at the individual level.)

The significant variables were: grade 6 national test score, class average; grade 8 national test verbal part score, class SD; textbook availability, class average; grade 8 mark, class average; family SES, class average; family SES, class SD; TV in home, class average; hours in free reading, class SD; and educational aspirations, class average.

Characteristics of grade 8 teachers — Each variable is the average of the scores for all of the student's grade 8 teachers who responded to the teacher questionnaire.

The variables take in level of pre-service training, number of in-service courses, experience, age, education of father, consumption scale, and inherited status.

Teachers were asked to indicate the level of their pre-service training on a five-point scale, ranging from incomplete normal school to a university degree in pedagogy.

The inherited status is a complex variable derived from factor analysis. It includes the same component variables as the family SES for students, with the exception of the consumption scale. For teachers, the consumption scale did not form part of the same group of variables in factor analysis. Consequently, for them it has been treated separately. Since the consumption scale represents current conditions in the teacher's home, whereas the other variables refer to the teacher's parents, the consumption scale can be considered an index of "current" status and this complex variable an indicator of "inherited" status.

Characteristics of grade 8 school — The characteristics deemed important were pedagogical excellence, school size factor, class size, and type of school.

School directors were asked a number of questions regarding the teaching learning facilities in their school, its teaching force, and its enrollment. When the responses were subjected to factor analysis, two distinct factors emerged. One refers principally to teaching-learning facilities and characteristics (laboratories, workshops, library, specialized professional personnel, etc.) and has been labeled pedagogical excellence. The other refers principally to the size of the school.

The type of school refers to public or private, and primary, liceo, or secondary vocational.

Educational Characteristics, Secondary Level

It will be noted that the educational data available for the secondary level are less rich and detailed than those collected at the grade 8 level. The nature of the 1977 follow-up sample did not permit us to locate and

acquire information from each student's secondary teachers, school director, and classmates. We had to rely then on information that could be accessed through the student's own recollections. The variables used here were school type in 1971, average class size, textbook availability at the secondary level, score on AAT, calendar year in which left school, and last school year entered or completed.

Since there was considerable variation in the sets of courses taken by students at the secondary level, and we had discovered that many teachers did not use texts in their teaching, data pertaining to secondary schooling had to be treated differently from the grade 8 textbook information. All respondents were asked whether they had a textbook for personal use, and whether the teacher had required a text in each subject, for each year in which they studied.

The AAT score is the score on the Academic Aptitude Test, which is taken at the end of secondary schooling by all students aspiring to enter university.

Subjects who were no longer studying were asked to indicate the calendar year in which they had *definitively* left school (since we expected, and found, cases where a student had dropped out of secondary for 1 or 2 years and then reentered).

Nonformal Education

Detailed information was gathered in the 1977 sample with respect to each nonformal educational experience in which respondents engaged. Data regarding the nature of the course itself, and the reasons cited for taking it, were used to classify courses into those clearly related to work and those not so related. The three nonformal education variables used here are: total number of nonformal courses, number of nonformal courses related to work, and number of nonformal courses not related to work.

Conclusion

Examination of the questionnaires found in the Appendix will indicate that a great deal of information was collected in this study that is not captured in the variables just listed. In some cases, the unused information refers to questions we have not yet had the opportunity to address in detail: for example, enough information is available regarding nonformal education for a complete separate study; up to this time, we have been able only to count and classify the courses. In most cases, the information that does not appear here in one form or another refers to aspects of students' personal, familial, or educational history that we originally thought might influence educational or occupational results but that turned out not to survive the preliminary data screenings. The information that has not been used directly to form identified predictor variables is not useless. For both theory and policy, it is as necessary to note those factors thought to be important that do not affect a student's destiny as it is to identify those that do.

Part II
Primary Schooling

SCT

Chapter 4

Equality of Output at the Primary Level

Because almost all Chilean children enter primary school, equality of access at this level is not a problem. Consequently, the first two problems with which to concern ourselves are (chronologically) equality of survival and equality of output in primary schooling. We deal, in this chapter, with equality of output so that, in the following chapter, we may deal with equality of survival and some *interactions* between these two types of equality at the first schooling level.[1]

Three general classes of variables are considered here: the output measure, in this case the scores of students on the national test for grade 8; variables that affect a student's academic performance but are not directly controllable by the policy determinations of educational officials, such as family background and community size; and variables that are directly manipulable by educational officials, such as class size, the availability of such didactic materials as textbooks, and the amount and type of teacher training provided. The general question to be asked is what effect the educational policy variables have upon academic performance, independent of the effect of the out-of-school factors. To answer this question, regression analysis, with commonality analysis, is first used, followed by detailed specifications of several potentially interesting educational policy variables.

The results of the regression and commonality analysis are found in Table 9. For the commonality analysis, the unique and joint effects are expressed as proportions of the total variance in the output variable. To permit easy comparison with later tables, they are also presented as percentages of the total explained variance. By far the strongest unique effect is that of peer group characteristics. Family and personal characteristics have a much smaller unique effect, and the unique effect of the school quality variables is smaller still.

At first glance, the strong unique effect of peer group characteristics may seem unsurprising. In Chile, as in most countries, primary schools generally serve neighbourhoods or clienteles that are relatively homogeneous in terms of social class.[2] If socially advantaged children go to school with other socially advantaged children (and the converse), one might expect a strong association between individual students' performance levels and those of their immediate peers, especially if their class is homogeneous. The very strength of commonality analysis is that the unique effects of this

Table 9. Regression, with commonality analysis, on grade 8 national test score.

I. Commonality Analysis

	Percentage of total variance (total r^2 = 0.265)	Percentage of explained variance
Unique effects[a]		
A. Family and personal characteristics	0.040	15.1
B School quality characteristics	0.009	3.4
C. Peer group characteristics	0.075	28.2
Joint effects		
AB	0.007	2.6
AC	0.032	12.0
BC	0.022	8.1
ABC	0.081	30.5

II. Regression Equation

Variable[b]	Beta
Grade 8 mark, class average	0.181**
Verbal part score, grade 8, class *SD*	-0.168**
Hours/week in free reading, individual	0.153**
TV in home, class average	0.118**
Family SES	0.096**
Liking for academic subjects	0.069**
Age of grade 8 teachers	0.067**
Textbook availability, grade 8	0.063**
Hours/week in free reading, class *SD*	0.051**
Inherited status of grade 8 teachers	0.039*
Height (proxy for nutrition)	0.036*
School size	0.034*

[a]Family and personal characteristics: family SES; height; liking for academic subjects; hours/week in free reading, individual. School quality characteristics: age of grade 8 teachers; inherited status of grade 8 teachers; textbook availability; school size. Peer group characteristics: grade 8 mark; verbal part score, TV in home; hours/week in free reading, class *SD*.

[b] Predictor variables are in order of regression weight.

$^*p < 0.05$ $^{**}p < 0.01$ p (total equation) < 0.01

variable class are presented. We are mapping here the relatively strong effect of these classroom variables *independent of* the social class of the individual student (a variable in family and personal characteristics).

Peer group characteristics are subject to policy manipulation. Educators can do little about the background characteristics that individual students bring with them to the school. They can, however, consciously alter the mix of personal characteristics found in classrooms. Combining peer group characteristics with the unique effects of school quality characteristics, which are also policy manipulable (especially textbook availability and school size), we find that almost a third of the total explained variance (31.6%) is attributable to the unique effects of policy-manipulable variables, whereas only 15.1% is uniquely attributable to the relatively immutable personal characteristics of students.

Of the three first-order commonalities (joint effects of variable

groups, two at a time), the first is relatively small — that is, there is little important interaction between family and personal characteristics and school quality variables. The second is relatively large. It is here, not in the unique effects of peer group characteristics, that the relation between individual students' family and personal characteristics and classroom group characteristics, discussed above, is picked up. That the third is also relatively large suggests that the school and teacher variables have their strongest effect on academic performance in conjunction with the other policy-manipulable variables (peer group characteristics). If we add the joint effect of school quality characteristics and peer group characteristics to their unique effects, we find that 39.7% of the total explained variance is attributable to policy-manipulable variables. Finally, almost a third of the total explained variance (30.5%) is accounted for by the joint effect of all three groups. That is, this proportion cannot be attributed to any of the three sets taken one or two at a time.

Knowing, however, that there are some policy-manipulable variables that have an independent effect upon academic performance does not tell us exactly which ones are most worth our attention. To answer this question, we must consider the regression coefficients associated with the 12 regressor variables. Several patterns are of note. First, the importance of the peer group effect is quite evident. It is clearly to a student's advantage to be in a class where other students do well, where there is relatively little variation in national test verbal part scores, and where most students have access to television. Indeed, three of the four strongest coefficients are associated with these classroom group variables. In relation to the individual background variables, the family SES is a less powerful predictor of academic performance than is the amount of time a student spends in free reading. Given the emphasis generally placed upon social class as a predictor of student achievement, it is significant that in Chile social status is only the fifth strongest of these 12 regressor variables, and is only slightly stronger than the student's general liking for academic subjects. Among the school quality variables, teachers' age and textbook availability are clearly the most important. The data suggest that several educational policy variables have a considerable effect upon students' academic performance.

As noted earlier, whatever the strengths of regression analysis as an analytic tool, it does not provide information about the specification effects of policy variables — the extent to which the effects of policy variables upon academic performance may vary across, for example, different types of students or different types of schools. To get at these specification effects, a different analytic strategy must be followed. In the ensuing pages, we present the results of attempting to specify the effects of several policy variables of interest. First, we consider textbook availability, which has an appreciable overall independent effect upon academic performance. Then teacher training is considered. While this latter variable did not do well by itself in regression analysis, it is a component of the teacher's inherited status factor, is the most easily manipulable component of that factor, and exhibits some noteworthy specification effects. In-service teacher training is also examined. In-service training programs for teachers are a significant component of many large scale educational changes — and the Chilean

educational reform was no exception. A few years ago, Coombs (1970:67) argued for the necessity of massive efforts to change the behaviour of practicing teachers in developing nations. Hence, this is a variable of considerable policy interest. Finally, the class-size variable is analyzed. It is a component of the school-size factor and is, from a policy standpoint, very interesting.

Textbook Availability

Finding that the availability of textbooks has a significant effect upon academic performance is of importance to educational policymakers in poor nations, because a textbook is one of the simplest, cheapest, and most easily produced didactic aids. Textbook production and distribution are also areas where costs can be easily predicted and controlled.

To interpret the data on the effect of textbook availability, two facts must be considered. First, in Chile, texts were not usually provided by the school. They were bought by the student or the parents; thus, one would expect a high correlation between number of textbooks owned by students and family SES. That this is in fact the case ($\theta^2 = 0.47$) makes all the more impressive the relatively strong effect of textbook availability independent of family SES.

Second, textbooks are rather widely available to grade 8 students in Chile (at least by the standards of most developing nations): 71.4% of the students reported that they had a Spanish text; 74.6% stated that they had a text for the foreign language they were studying; 54.7% had a social science text; 43.9% had a mathematics text; and 12.8% — the lowest figure — had a natural science text. Only 11% of the sample reported that they had no book of any kind in any of these five subject areas.

In the following paragraphs, we attempt to specify the effect of textbook availability on academic performance in terms of three variables: social class of the student (measured by level of father's education),[3] type of school (public vs private), and sex of the student. Textbook availability is divided into three categories — few texts, normal texts, and many texts — with the cutting points between the categories being ±0.5 SD of the mean.

There is an almost nine-point difference in national test score between students with few texts (49.89) and many texts (58.49), considering no other variables (Table 10).[4] Such a result is to be expected, given the relatively high correlation of text availability with national test score. The difference between the extreme categories is somewhat more pronounced among boys than among girls and among students in private rather than public schools.

The finding that text availability has a stronger relationship to academic performance among children in private schools has an interesting implication. Private schools in Chile cater mainly (though not exclusively) to children of wealthier, higher-status parents.[5] We may be observing here the so-called headstart effect: that is, that programs designed to improve the academic performance of all children tend to benefit most those who are already advantaged, thus increasing rather than decreasing the learning gap between high- and low-status children. In a

Table 10. Relation between textbook availability and academic performance, by sex of student, type of school, and father's education.

Variable	Few texts			Normal texts			Many texts		
	$\bar{X}$	*SD*	*N*	$\bar{X}$	*SD*	*N*	$\bar{X}$	*SD*	*N*
Total students	49.89	14.59	974	53.51	14.76	1225	58.49	14.52	879
boys	50.65	14.53	456	53.44	14.70	547	60.71	14.55	432
girls	49.21	14.53	518	53.02	14.83	678	56.33	14.49	440
in public schools	49.70	14.73	799	53.16	15.03	807	56.64	14.19	430
in private schools	50.70	13.95	175	53.28	14.27	418	60.25	14.83	449
Father's education									
FEP[a]	48.39	14.37	719	50.84	14.51	636	54.22	14.58	264
FES[b]	54.10	14.10	255	56.38	14.41	589	59.35	14.06	615
Boys in public school									
FEP	48.77	14.36	296	50.44	14.07	218	57.35	11.38	66
FES	55.07	14.13	90	56.81	14.87	145	58.83	14.30	126
Boys in private school									
FEP	47.05	14.64	39	53.84	14.77	56	56.60	17.98	44
FES	60.24	12.66	31	57.41	14.47	128	64.00	14.35	197
Girls in public school									
FEP	48.71	14.81	321	51.88	15.21	265	53.54	14.90	112
FES	50.96	15.07	92	55.44	15.00	179	56.84	14.40	126
Girls in private school									
FEP	45.81	11.98	63	47.16	13.46	97	48.71	14.42	42
FES	54.38	12.96	42	56.20	13.10	137	59.72	13.28	166

[a] Primary or less.

[b] Secondary or more.

society that is trying to reduce educational inequalities based on out-of-school factors, and at the same time trying to use education as a lever to reduce social inequalities in the society as a whole, the discovery of this kind of pattern could be quite important.[6]

The magnitude of difference in national test scores between students with few and many texts is nearly identical for students with high-education and low-education fathers. Moreover, in considering all the variables jointly, we observe that among boys the greatest textbook effect is found among lower-class students in private schools (a difference of 9.45 in mean national test score between those with few and many texts), whereas the textbook effect among higher-class boys is much smaller and is identical in public and private schools (a difference of 3.76 in mean national test score between those with few and many texts). Also, the difference between lower-class boys with few and many texts is almost as great in public schools as in private schools. Among girls, in contrast, the textbook effect is greater for those with higher levels of father's education, in both public and private schools. For both levels of father's education, the textbook effect is greater in public than in private schools. It appears that if the headstart effect operates at all, it is only among girls in private schools, and there only slightly. Indeed, what is most striking in these data is the very strong reversal of this headstart effect among boys.

In conclusion, textbook availability is a policy variable that has a

positive relationship to academic performance over many different types of students. Most important, this variable seems to have its greatest effect among precisely those children who are most in need of educational assistance — the children of the lower social strata.

Teacher Training

In all parts of the world, including Chile, a great deal of time and money is invested in the training and retraining of teachers. In teacher training, as in most areas of education, the common assumption seems to be that if some is good, more is better.

The 8th year of school is a particularly strategic point at which to consider this relationship in Chile. In the first 6 years of primary school, the vast majority of teachers are normal school graduates. In the 4 years of secondary school, teachers are usually university graduates. As 8-year classes were formed starting in 1966, some teachers were drawn from the ranks of university-educated secondary teachers and others were normal-school-educated former primary school teachers. Thus, one encounters among grade 8 teachers the entire range of levels of training, from normal school graduation to a university degree in pedagogy.

In regression analysis, the average level of training among a student's teachers had no significant independent effect upon academic performance although it did form part of the teacher's inherited-status factor (which was itself one of the weakest of the regressors). By itself, level of training is not highly correlated with test score ($r = 0.12$). Moreover, when this correlation is controlled for level of education of the student's father, the resulting partial correlation coefficient is 0.01. Globally, then, the level of training of students' teachers appears to have little to do with students' performance. Such a global analysis may disguise, however, as much as it reveals. It may be, for example, that teacher training is more relevant in some subjects than in others. Or perhaps, a high level of training is more important for teachers who come from families with lower levels of parental education, and less important for teachers from families with higher levels of parental education. Or perhaps, teachers who work with educationally disadvantaged lower-class children require higher levels of training than do teachers who work with children from more privileged backgrounds.

To investigate these possibilities, we undertook a more complicated analysis. First, we considered the verbal part score of the national test in relation to the training of a student's Spanish teacher, and the mathematics part score in relation to the training of the mathematics teacher. Second, both teachers and students were divided into two categories according to father's level of education. Teachers were then divided into three categories according to their level of professional training (normal school, university experience without a degree in pedagogy, and university degree in pedagogy).[7] Finally, the average national test part score for students falling in each subcategory was calculated.[8]

We find small overall differences in verbal part scores among students whose Spanish teachers had the different types of training (Table 11).

Table 11. Relation between level of Spanish teacher's training and student's verbal part score on national test, by education of teacher's father and education of student's father.

Teacher's father's education	Teacher's level of training	Education of student's father: Primary or less $\bar{X}$	SD	N	Secondary or more $\bar{X}$	SD	N	Total $\bar{X}$	SD	N
FEP[a]	Normal school	25.45	9.19	299	30.99	9.68	72	26.77	9.60	301
	University	23.71	7.86	49	32.21	8.61	24	26.51	9.01	73
	University with pedagogy	30.28	9.04	124	33.31	8.39	165	32.01	8.80	289
FES[b]	Normal school	30.20	9.30	314	34.74	8.71	116	31.36	9.34	430
	University	29.03	9.89	237	33.40	9.57	164	30.81	9.99	401
	University with pedagogy	29.65	9.26	182	34.84	8.58	408	33.24	8.94	590
Total	Normal school	28.20	9.55	543	33.14	9.25	188	29.47	9.72	731
	University	28.12	9.78	286	33.24	9.46	188	30.15	9.96	474
	University with pedagogy	29.91	8.85	306	34.49	8.55	573	32.83	8.92	879

[a] Primary or less.

[b] Secondary or more.

Students whose Spanish teacher had normal school training or university training without a degree in pedagogy attained almost identical average verbal part scores, whereas those whose teachers had a university degree in pedagogy scored slightly higher (the differences, though small, are statistically significant at the 0.01 level). This same pattern holds for lower- and higher-class students. When the data are divided according to the teacher's social class, however, some noteworthy differences show up. Among higher-class teachers, the overall pattern is maintained. Among lower-class teachers, the magnitude of the difference in scores between students whose teachers had a university degree in pedagogy and those whose teachers had the other two training levels (where the scores are again nearly identical) is substantially larger. Moreover, this training effect for lower-class teachers shows up much more among lower-class than higher-class students.

The data regarding the relationship between mathematics teachers' initial training and students' scores on the mathematics part of the test are not presented, as they differ little from those for Spanish teachers. There are, however, three variations worth noting. First, the average score differences between teacher-training categories are smaller in the mathematics area than in the verbal area. Second, the overall mathematics scores associated with university training without pedagogy are slightly lower than those associated with normal school training. Third, that subcell where the greatest verbal part score differences are found (lower-class students with lower-class teachers) is precisely the subcell with the smallest mathematics score difference.

Substantial costs are attached to producing and using university-

trained as opposed to normal-school-trained teachers. The initial cost of producing a university graduate is much more than the cost of producing a normal school graduate. As well, university-trained teachers are paid more than are normal-school-trained teachers — a situation that means that the extra cost continues throughout a teacher's career. These data suggest that this extra cost is associated with an increment in student performance only if it is used to produce and continue to pay for a university graduate in pedagogy — and even then the increment in achievement is large only among Spanish teachers who come from lower socioeconomic levels.

The extra costs associated with the use of university-educated teachers who have no formal training in pedagogy are, from the standpoint of students' academic performance, a notably poor investment. Indeed, given the modest differences between performance levels associated with normal school training and with a university degree in pedagogy, one might suggest that in Chile those policies that encourage the use of expensive universities as teacher-training mechanisms, and that provide substantially higher rewards to teachers thus trained, could well be rethought.

In-Service Training

One of the major efforts of the Chilean educational reform was the establishment of a massive program of in-service teacher training, carried out in a main centre in Santiago and in regional centres throughout the nation. Given the extent of the effort (67.4% of the teachers in our sample had attended at least one such in-service course), an examination of the relationship between exposure to such training and student achievement is of considerable interest.

The correlation between student scores on the national grade 8 test and number of in-service training courses undertaken is, oddly, negative ($r = -0.10$). That is, the greater the number of courses taken by a teacher, the lower the student test scores. Taken alone, this finding could suggest that the efforts at in-service training were not only inefficient but counterproductive. Given the resources involved, a more detailed analysis is warranted.

In the first place, there is a relationship between the level of pre-service training of a teacher and the propensity to take in-service courses. Of the teachers with normal school training, 82.3% had taken at least one in-service course, compared to 58.5% of those with university training in pedagogy. It could be that those teachers who were least efficient, who most needed help, were precisely those who were most inclined to take in-service training. If this were the case, the training might be considered successful even if student scores were not high; the scores might have been even lower if the teachers had not taken the courses. It must be remembered that although students with normal-school-trained teachers did not achieve the highest scores on the test, neither did they receive the lowest scores. The lowest scores were achieved by students whose teachers had a university degree *not* in pedagogy. It is also possible that the effectiveness of in-service training varies with the subject matter involved (for example, the courses in mathematics had what may have been the more difficult task of introducing teachers to the new mathematics).

Given the overall thrust of this work, we must also consider whether the effect differs with the social status of the student or the teacher. Accordingly, the original relationship has been specified by level of pre-service training of the teacher, subject matter taught, and the social status of the teacher and student defined as above.

The relationships for teachers of Spanish and the verbal part score on the national test are extremely complex. Considering first the level of pre-service training, we note for Spanish teachers a curvilinear pattern among teachers with normal school training or a university degree not in pedagogy (Table 12). In both cases, the average test score associated with one course is higher than that associated with no courses, but is also higher than that associated with at least 2 courses. Among those Spanish teachers with a university degree in pedagogy, there is no significant difference in test scores associated with in-service training.

Table 12. Average verbal part score related to in-service training of Spanish teacher, controlling for pre-service training of teacher and teacher and student SES.

I. PRE-SERVICE TRAINING OF TEACHER

In-service courses	Normal school		University		University with pedagogy	
	$\bar{X}$	N	$\bar{X}$	N	$\bar{X}$	N
0	27.4	103	31.6	179	32.8	387
1	31.2	124	34.6	45	33.6	252
2 +	29.4	502	29.3	250	33.4	230

II. TEACHER AND STUDENT SES

Teacher's father's education	Pre-service training	In-service courses	Education of student's father: Primary or less		Secondary or more	
			$\bar{X}$	N	$\bar{X}$	N
Primary or less	Normal school	0	22.6	25	22.4	20
		1	18.2	66	24.8	34
		2 +	19.7	241	24.7	108
	University	0	18.[illegible]	41	20.2	38
		1	16.1	8	14.0	2
		2 +	23.1	44	23.8	51
	University with pedagogy	0	17.3	7	27.1	28
		1	20.0	1	21.7	8
		2 +	21.2	25	22.1	66
Secondary or more	Normal school	0	24.9	20	20.3	18
		1	23.3	83	23.7	55
		2 +	22.5	213	23.7	104
	University	0	18.6	54	23.0	65
		1	19.1	29	22.9	51
		2 +	22.7	172	23.5	139
	University with pedagogy	0	21.3	19	27.2	76
		1	19.9	25	23.6	74
		2 +	21.6	38	24.6	83

Table 13. Average mathematics part score related to in-service training of mathematics teacher, controlling for pre-service training of teacher and teacher and student SES.

I. Pre-service training of teacher

In-service courses	Normal school $\bar{X}$	Normal school N	University $\bar{X}$	University N	University with pedagogy $\bar{X}$	University with pedagogy N
0	22.6	83	20.2	198	25.8	130
1	22.2	238	20.9	90	22.8	108
2 +	22.0	668	23.1	406	22.9	212

II. Teacher and student SES

Teacher's father's education	Pre-service training	In-service courses	Education of student's father: Primary or less $\bar{X}$	Primary or less N	Secondary or more $\bar{X}$	Secondary or more N
Primary or less	Normal school	0	22.7	48	36.5	26
		1	30.1	25	30.0	12
		2 +	25.5	156	26.5	32
	University	0	27.4	18	32.7	16
		1	—	0	—	0
		2 +	21.5	31	31.2	8
	University with pedagogy	0	31.5	59	32.9	81
		1	27.7	43	33.0	59
		2 +	32.2	22	35.4	25
Secondary or more	Normal school	0	27.3	24	26.6	5
		1	30.8	62	33.8	25
		2 +	30.3	228	35.1	86
	University	0	30.5	80	32.3	65
		1	37.8	21	31.9	24
		2 +	27.9	136	34.8	75
	University with pedagogy	0	28.8	83	35.4	164
		1	31.0	47	34.3	113
		2 +	29.8	52	34.6	131

In mathematics, the picture is quite different. Among normal school teachers, different quantities of in-service training do not generate significant differences in student achievement (Table 13). Among teachers with a university degree not in pedagogy, there is a marked positive effect on achievement, but only after at least two courses have been taken. For those teachers with a university degree in pedagogy, the relationship is negative.

In-service training courses appear to have had some utility for Spanish teachers, except for those with university degrees in pedagogy, but taking more than one course does not seem to have paid off in student achievement. In all cases, however, the average achievement gains are small. That the mathematics courses seem to have had no, or negative, effects may indicate the validity of our earlier observation that such courses had a more difficult task to perform.

When one considers in addition the specifying effects of teacher and student social class, the picture becomes extremely complex and difficult to interpret. There are, however, some interesting subpatterns. In mathematics, for example, the status of the teacher has no noticeable effect, but the status of the student does seem to make a difference. When normal school teachers are working with low-status students, the relation between in-service courses and student achievement is negative. When such teachers work with high-status students, the relation is positive. Among mathematics teachers with university degrees in pedagogy, the relationship is inverted. In the verbal achievement area, there is one inversion of this type, depending here on the status of the teacher: when a low-status normal school teacher works with high-status students, the relationship between in-service training and achievement is negative; but when high-status normal school teachers work with high-status students, the relationship is strongly positive.

In short, the relationship between in-service training and student achievement is highly complex, depending at least upon the subject matter taught, the pre-service training of the teacher, and the social status of the teacher and the student (and probably on other variables as well). While investment in in-service training was not wasted, it appears to have been effective only under limited circumstances. Careful experimentation is clearly warranted, focusing specifically on what kinds of courses will better equip what sorts of teachers to work more effectively with lower-status children, since at least some such effect can be seen in these data.

Class Size

The final school policy variable to be considered in detail is class size. Enrollment increases combined with financial constraints create a constant upward pressure on class size. At the same time, a common belief among practicing teachers is that the size of a class has an important effect upon the learning of students. It is generally held that small classes are better classes — that large classes, with their attendant discipline problems and lack of personal attention to individual students, make learning more difficult. The results of previous research on the question do not support the common belief. Marklund's (1962) summary of relevant research done up to 1962 indicates that class size is not an important factor in student achievement one way or the other. The 12-nation international study of achievement in mathematics, the results of which were reported in 1967, indicates that where significant differences in mathematics achievement between different class sizes do exist (and in the majority of comparisons made in that study the differences were not statistically significant), they favour larger classes among students of or near 13 years of age (Husén 1967, 2:79–85). More recent reviews of the literature have produced similar conclusions (Ryan and Greenfield 1976; Simmons and Alexander 1978).

In the present study, class size was measured as the average size of a grade 8 class in a given school.[9] The first result in relating this variable with

academic performance is consistent with previous research. The correlation between class size and total national test score is both low and positive (0.07). That is, there is a slight overall tendency for children in larger classes to do better on the national test than children in small classes. A student's SES and the size and nature of the community might be variables, however, that intervene in the relationship between class size and student performance. It may well be, for example, that for children of high-status families living in large cities, class size is unimportant, since these children have many extra-school educational resources at their disposal. For poor children in small communities, for whom the school is virtually the only academic resource, the lack of personal attention and the general learning environment found in a large class could be a serious impediment to learning.

To test this idea, the total sample was divided along three dimensions: average class size, taken in six categories — 0–19, 20–29, 30–39, 40–49, 50–59, and 60 or more; level of father's education, in three categories — basic education or less, secondary, and university; and community size, in three categories — < 20 000 population, 20 000–100 000, and > 100 000. (See Table 14.) The average total national test score was then calculated for each subcell.

The results can be briefly summarized. The relationship between class size and academic performance is random in most cases (in subgroups accounting for almost two-thirds of the sample population). It is strongly positive (i.e., larger class size associated with higher scores) where one might least expect it, among children whose fathers had basic education or less; and it is negative among those few children (15% of the sample) from small communities whose fathers had a secondary education and from large cities whose fathers had a university education. No tenable explanation for these patterns has yet been discovered.

The original notion (more a hunch than a hypothesis) that class size was important only for lower-class children in small communities is clearly not supported by the data. Two other explanations have been advanced and rejected. Some observers have suggested that overall school quality is an important confounding variable — that because many students try to go to schools with a reputation for quality, such schools tend to have larger classes even while imparting better education. By this argument, class size would simply be an accidental proxy measure of school quality. These data demonstrate, however, that there is a strong positive relationship between high test score and large class size among those with the least effective choice of schools (the lower classes), whereas the relationship is negative among those with more-educated fathers, who have a much greater choice of schools for their children. Moreover, class size is not strongly correlated with individual measures of school or teacher quality. Thus, this explanation does not hold.

Still another possibility, mentioned in some studies of schools in European and North American settings, is that the assignment of children to classes by ability level accounts for the relationship. That is, when children are grouped by ability (however evaluated), there is a tendency for classes for those with lower ability to be kept smaller than classes for those

with average or high ability, because children with learning difficulties require more careful personal attention. Therefore, smaller classes tend to have lower scores than larger classes as an effect of this pre-sorting. Since grouping by ability is a rare practice at the grade 8 level in Chilean schools, this explanation also does not apply.

Given that the results reported here have potential policy implications, that these results, while consistent with other research in other nations, run counter to common belief among practicing teachers, and that no tenable explanation has yet been advanced for them, the class-size/student-performance relationship should be studied in greater depth than has been possible in this investigation. It would be particularly useful to consider how class size affects aspects of student behaviour that are not measured by the national test, such as social relations skills, creativity, and attitudes toward learning. Whatever else may be discovered in the future, it is clear that the traditional idea that an increase in class size will necessarily produce lower levels of academic performance in students simply is not correc..

Table 14. Class size related to achievement, controlling for community size and student SES.

Community size	Father's education		Class size					
			0–19	20–29	30–39	40–49	50–59	60+
<20 000	Primary	$\bar{X}$	45.3	45.7	48.4	50.6	51.4	56.0
		N	6	105	284	138	31	1
	Secondary	$\bar{X}$	58.4	58.6	51.7	52.8	52.0	65.0
		N	11	21	92	35	4	8
	Higher	$\bar{X}$	54.0	53.0	55.0	47.8	40.0	74.0
		N	4	1	13	5	1	1
20 000–100 000	Primary	$\bar{X}$	46.1	47.8	48.2	48.1	55.3	0
		N	20	39	225	82	17	
	Secondary	$\bar{X}$	0	55.2	52.5	51.9	57..	0
		N		26	120	50	15	
	Higher	$\bar{X}$	0	46.0	54.3	61.5	69.7	0
		N		1	24	14	3	
>100 000	Primary	$\bar{X}$	46.7	44.3	54.3	51.6	59.2	48.9
		N	6	6	90	120	35	9
	Secondary	$\bar{X}$	53.8	55.4	55.9	57.6	52.6	54.1
		N	5	16	117	126	23	8
	Higher	$\bar{X}$	69.7	69.7	59.5	60.7	69.5	54.0
		N	9	16	49	48	2	1
Controlling for community size only								
<20 000		$\bar{X}$	53.8	47.8	49.4	54.0	51.2	65.0
		N	21	127	389	178	36	10
20 000–100 000		$\bar{X}$	46.1	50.7	50.4	50.7	57.7	0
		N	20	66	369	146	35	
>100 000		$\bar{X}$	58.8	59.7	56.0	55.7	57.0	51.5
		N	20	38	256	294	60	18
Total sample		$\bar{X}$	52.9	50.6	51.3	53.1	55.6	56.3
		N	61	231	1014	618	131	28

Conclusion

In general, these Chilean data are consistent with the comparative pattern noted in the introductory chapter: the less developed a society, the less the effect of social status on learning and the greater the effect of school-related variables. In terms of overall economic and social development, Chile is a middle-range society. The effect of family SES on achievement in Chile is much stronger than that reported from very much poorer nations such as Uganda or Malawi (see Heyneman 1980). The effect of school quality variables on achievement, compared to that of family SES, is much greater in Chile, however, than in such highly developed nations as Britain or the U.S. Foster (1977:224–225) has offered the following explanation for the tendency for the effect of social status on achievement levels to increase with increases in levels of national development:

> "In broadest terms, as less developed nations "modernize" the pattern of "objective" differentiation of populations becomes more complex with the growth of a monetized economy and a greater division of labour. Not only this, possession of a "modern type" occupation becomes an increasingly important factor in determining the generalized social status of an individual. In other words social strata defined in *objective* terms of occupations and income begin to emerge. Initially, however, this pattern of objective differentiation may not be accompanied by an equivalent degree of cultural differentiation as represented by increasing divergence of values, attitudes and life-styles among various subgroups. In time, however, this may occur and we move, in effect, toward a pattern of stratification that more closely resembles that obtaining in developed societies."

For example, the child-rearing patterns, attitudes toward schooling, aspirations, and other family traits that may affect the school success of the child of a newly rich African may differ little from traits of families not yet participating in the cash economy, or participating at a much more marginal level, at least during the early part of the social change process.

Kifer (1977) has recently presented comparative data that suggest that parental attitudes toward and encouragement of schooling do not differ between wealthy and impoverished families in low-income countries, although they differ markedly in industrialized nations. Using data from Israel and England, Bulcock, Clifton, and Beebe (1977) have suggested that differences in the richness of the language used in the home are the underlying factor that explains why family background predicts school achievement in industrialized societies, whereas in poorer societies home language patterns differ much less. (See also Heyneman and Currie 1979.) What we may be observing, then, is the educational effect of the process of "class formation" (in the Western sense) as poor societies become more industrialized and more differentiated socioeconomically.

Notes

1. Some of the results in this chapter and in the following chapters have been published previously. They must be presented here to give a full picture of the

interplay of factors that have affected the destiny of these young people over time, and to provide a background for understanding the completely new results found in later chapters. A substantial portion of the data in this chapter has been published in Schiefelbein and Farrell (1974).

2. For some years prior to 1970, private fee-charging schools in Chile were required to provide a certain number of places to socially less privileged children. Moreover, many students in this sample were in grade 8 classes attached to secondary schools. Such schools typically serve a more geographically dispersed, and to some extent socially more heterogeneous, student population.

3. This variable was used, rather than the SES factor score, for two reasons. First, it has intuitively meaningful categories, which a set of factor scores lacks. Second, it is the single variable that loads most heavily on the SES factor score.

4. In this and the next table, levels of statistical significance are not reported for individual comparisons of mean national test scores. The difficulties in interpreting tests of significance for multiple comparisons among the data generated from a single survey are well known. We do not wish to pretend to a level of analytical sophistication unsupported by the data. Multiple analyses of variance were run, however, for all of these specification analyses. The overall *F* tests across categories of specifying variables, taken one at a time, are all significant to at least the 0.01 level. Just over half of the possible interactions are significant at either the 0.01 or 0.05 levels.

5. A qualification is necessary here: 76% of private schools in Chile are non-fee-paying. These free private schools enroll at least 40% of lower-class school children (at all levels). There remains, however, at the grade 8 level a substantial difference in the social-class characteristics of private and public school children. For example, against a seven-point scale of the father's education (ranging from no schooling to postgraduate university work), the average score of public school students (4.32) is 1.5 below the average score of private school students (5.82). Of the grade 8 students with illiterate fathers, 80.6% are in public schools; of the students with university-educated fathers, 60.8% are in private schools. One also finds higher-class occupational groups substantially overrepresented among grade 8 students in private schools, and lower-class occupational groups substantially underrepresented.

6. There is an alternative explanation for this differential effect between private and public schools, however. It may be that in private schools the students who have few texts are lower-class children. In this case, the relatively wider performance gap between children with few and many texts would not be an indication of the greater advantage that the textbooks give higher-class children. Rather, lack of texts would simply be one more indicator of the general educational disadvantage of lower-class children. We note from the table, however, that of the 175 children with few texts in private schools, just over 40% (73) have fathers with secondary education or better. Thus, this explanation does not hold.

7. These categories comprised, respectively, 41.1%, 26.6%, and 32.2% of all teachers providing data for this study.

8. Students were also categorized by sex. No important differences in the effects of teacher training on boys and girls were found, however.

9. It had been hoped to use the exact size of the class a student attended. In previous years, the information was available as part of the data collected regularly by the Ministry of Education on each grade 8 student. When it came time to take data from the Ministry tapes for this study, however, it was found that the class-size information was not available for 1970. Therefore, we used as a proxy the average size of a grade 8 class in the student's school, which was known. This fortunately does not represent a serious loss of information. Although there is great variation in

grade 8 class size between schools (ranging from fewer than 10 to more than 80), there is little variation in class size within a given school. A preliminary study was done relating data available on the Ministry tapes to scores of students on the national test in 1969, using a random sample of 5% of all students who took the test that year. The 1969 tapes included the exact class size for each student. The correlation of this variable with total test score was 0.02 (Schiefelbein and Farrell 1972).

Chapter 5

Equality of Survival at the Primary Level

In the previous chapter, we noted that, although SES is not *the* most important predictor of academic achievement at the end of primary schooling, it is one of the strong predictors. Lower-status children who survive to the end of primary schooling are learning less than their higher-status peers. Several policy variables may be manipulated to improve the performance of lower-status children — notably textbook availability. In this chapter, we extend that analysis by considering patterns of survival to the end of primary schooling for various social groupings, and some interactions between equality of survival and equality of output at this level. We examine these patterns and interactions first for the system as a whole and then for various specific types of schools.[1]

To examine equality of survival, "selectivity indices" are used. These compare the proportion of students with particular parental characteristics in the relevant school population with the proportion of individuals in the total adult population with the same characteristics. The selectivity index technique permits one to consider the probabilities of educational survival for different social groupings in various parts of the school system separately. One can thus not only determine that some discrimination is occurring overall, but can identify which particular groups are most affected, and where in the system the adverse effect occurs most strongly. To measure a child's social status, we have used two common and intuitively meaningful indicators, which also load most heavily on the SES factor score — education and occupation of the student's father.

The data regarding father's occupation and education are found in Table 15, which indicates the percentage of the fathers in each occupational and educational category and the percentage of economically active males in each category of the census of 1960. (Data from 1960 are appropriate, since children in grade 8 in 1970 started school soon after 1960.) The selectivity indices specify the degree of representation.

Clearly, children of higher-status fathers (i.e., managerial and professional or university-educated) were substantially overrepresented. Children of fathers from such white-collar occupational groups as office workers and sales personnel and children of fathers with secondary education were also overrepresented, although to a lesser extent. Children of parents engaged in primary resource exploitation (i.e., farming, herding, and fishing or mining and quarrying) and children of illiterate

Table 15. Comparison of primary-level selectivity indices and scores on the grade 8 national test by type of occupation and education of student's father.

	Percentage of fathers	Percentage of econ. active males 1960[a]	Selectivity index: A/B	Average national test score[b]
Father's occupation				
Professionals, technicians, and related occupations	8.8	3.2	2.75	60.0 (13.8)
Managers, administrators, and other directive personnel	7.7	2.1	3.67	60.1 (13.6)
Office workers and related occupations	11.3	6.1	1.85	57.0 (14.5)
Sales personnel and related occupations	10.1	6.6	1.53	56.8 (13.8)
Farmers, herders, fishermen, and related occupations	14.4	34.2	0.43	45.9 (13.1)
Miners, quarrymen, and related occupations	2.0	3.0	0.67	52.1 (13.2)
Conductors of transportation and related occupations	7.6	4.2	1.81	48.6 (14.1)
Artisans and skilled tradesmen	24.2	23.0	1.05	51.2 (14.6)
Labourers not otherwise classified	5.1	5.6	0.91	51.1 (14.9)
Personal services and related occupations	6.2	5.1	1.22	51.3 (14.5)
Not otherwise classified, not identifiable, or no response	3.6	6.9	0.52	51.6 (14.9)
Father's education				
Illiterate	3.5	15.7	0.22	46.2 (15.7)
Primary	49.1	54.6	0.90	49.3 (14.9)
Secondary	36.2	24.3	1.49	35.6 (15.6)
University	10.1	2.5	4.04	61.5 (15.9)

[a]Source: XIII censo de población, serie A, resumen del país (Santiago, Dirección de Estadísticas y Censos, n.d.), table 7, p. 113.

[b] Maximum score on the test was 100. Standard deviations are shown in parentheses.

fathers were very much underrepresented.[2] The fate of children of what might be called the urban and industrial working class (i.e., transport conductors, artisans, labourers, and workers in personal services), is particularly interesting. This working class, which constituted roughly 40% of the active male population, and which had been thought to be very much disadvantaged educationally, was actually being served adequately by the educational system in that the probability of a child from these groups being among the survivors to grade 8 did not differ significantly from chance (i.e., the selectivity indices are all near to or above 1.00).

Table 15 lists the mean scores (and their standard deviations) on the national grade 8 test for children whose fathers were in each occupational and educational group. A close correspondence between the size of the selectivity index and the average test score for the group is evident. For both occupation and education, the differences between the highest and lowest average test scores are slightly more than one standard deviation. It must also be noted that the zero-order correlations between test score and a measure of father's occupational prestige ($r = 0.21$) and father's education ($r = 0.30$) are rather low.

There is an evident pattern of social-class selectivity in the Chilean primary school system. What is notable, however, is the extent to which some groups usually considered to be completely or very much disenfranchised educationally in poor nations were represented in the grade 8 population in Chile (e.g., urban industrial workers — the industrial proletariat).

Whether one considers retention in the system or what children were learning, the majority of Chileans were being served equitably by their primary educational system (belonging to occupational or educational groups whose selectivity indices were near to or substantially above 1.00, and having average achievement test scores near to or substantially above the nationwide mean score of 54). The main problem groups were the children of workers employed in primary resource exploitation or of illiterate fathers. Indeed, when one cross-classifies father's education by father's occupation, the only group that has a selectivity index below 0.60 is resource exploitation workers with primary education or less (index = 0.56). This group represented 25.2% of the economically active adult male population in 1960. All other subcell indices are either near or above 1.00.

This result illustrates the advantages of using more than one indicator of SES, and suggests that these two dimensions of status (educational and occupational level) may interact such that a relatively high level on one counteracts the potentially damaging effect on a child's educational career of a low level on the other. It is the children of fathers who are low on both dimensions who are most severely disadvantaged.

In the preceding pages, we have taken a somewhat restricted view of equality of survival. We have taken as given that only about 50% of an entering grade 1 cohort in Chile will finish an 8-year primary education. We have then asked to what extent the probability of children being eventually among those who survive 8 years of primary school is dependent upon the social status of their family of origin. This is a reasonable view to take when contemplating a society that, because it is poor, is not likely to be able for some time to provide a full education for all of its children (in which case, equality of survival ceases to be a problem). That is, assuming that a complete education is, and is likely for some time to continue to be, a scarce good, the salient question is whether its possession is monopolized by certain segments of the society, or whether the chances of any one child to acquire it are roughly the same as those of any other child.

In the traditional language of social mobility studies, the view taken to this point has been of *inflow* mobility, in which one looks at the people now in a particular stratum and asks where they came from. We will now turn to the complementary view, that of *outflow* mobility, in which one looks at the people who start in a given stratum and asks where they have ended up. The distinction between the two views of mobility is particularly important in societies such as Chile, where the distribution of status is pyramidal with a wide base and a narrow apex. In such societies, one frequently encounters both high inflow mobility into the upper class and low outflow mobility from the lower class. We now confront the following question: Of all those children from a given stratum who start grade 1 in Chile, what proportion are likely to finish grade 8?

To deal with this question, we must estimate retroactively the grade 1

composition of our original grade 8 student sample. Knowing that 50% of an entering grade 1 cohort, on average, complete grade 8, we assume that our original grade 8 sample represented a starting cohort of twice that size in grade 1. We assume that these grade 1 students were distributed across the social strata according to the proportion of adult males in the work force in each stratum.[3] We can then estimate the number of children in the grade 1 cohort in each occupational or educational group, and estimate survival rates by comparing that original number to the observed numbers.

If one looks first at father's occupation, 100% of children of the highest-status fathers complete primary schooling, while only 18% of the children of the lowest-status fathers do so (Table 16). As the selectivity indices would suggest, the survival rate of children of urban and industrial workers is very close to the average survival rate for the entire cohort (50%). The differences between the extremes on the distribution of father's education are even more notable, with only 10% of the children of illiterate fathers completing primary school. A father's having achieved some secondary education — in an era when such education was a scarcer commodity — is not a guarantee that his child will complete primary schooling. Almost 30% of children in this category do not do so.

When viewed from the standpoint of outflow rather than inflow equality, the social selectivity of the Chilean educational system appears to be even more severe, especially for children whose fathers are illiterate or agricultural workers. This observation must be balanced against several other considerations, however.

First, the survival potential of children of urban and industrial workers — the urban poor — is surprisingly high. The primary-level survival potential of children from this more modern sector of the Chilean economy is almost three times as high as that of children of rural working-class families. The difference almost certainly reflects, among other things, variations in the availability of schools in urban as opposed to rural areas. We do not know at what point below grade 8 most of the children from the most disenfranchised groups left school. It is, however, probable that many children of rural working-class families left after grade 6. In spite of the conversion, as part of the 1965–1970 educational reform, from a 6-year primary to an 8-year primary system, there were

Table 16. Estimated survival rates of a cohort of students, grades 1–8.

	Percentage surviving
Father's occupation	
Professionals and managers	100
Other white-collar middle-class (office and sales personnel)	71
Urban and industrial workers (conductors, artisans, labourers and personal services)	48
Primary resource exploitation workers (farmers, herders, miners and quarrymen)	18
Father's education	
Higher	100
Secondary	72
Primary	43
Illiterate	10

still, in 1970, a number of 6-year primary schools in rural areas, with grades 7 and 8 — though following the new curricula — still physically located in secondary schools, which were predominantly in more urban areas. Thus, many rural children could not possibly have completed a full primary education locally. A continuing shift of grade 7 and 8 classes from secondary schools to primary schools since 1970 may have partially solved the problem. There are still, however, large geographic zones in Chile where the population is so small and dispersed that it is difficult to provide anything beyond the most rudimentary formal education.

When considering primary-level survival rates, one must also bear in mind that, in comparison with many other developing nations, Chile's 8-year cycle is *long*. Moreover, when considering the relative disadvantage of the rural poor, clearly the most disenfranchised group, one should remember that the Chilean economy has long been more industrial and urban than agricultural, and that the movement away from rural areas has continued.

Finally, the figures for 1970 represent a marked improvement in primary-survival potentials, for at least some children of the poor, compared to earlier periods. Using school records, Hamuy published in 1961 estimates of survival rates by social class during the period 1943–1953. Comparisons with our data are not precise. First, Hamuy's estimates are for survival to grade 6, which was then the last year of primary, and to 1st year of secondary, equivalent to the current grade 7. Second, his socioeconomic categories do not precisely match ours, based on father's occupation; his are derived from the school principal's estimate of the student SES (see Table 17).

One first notes in the earlier period the strong sorting effect of the transition from primary to secondary. Among the relatively few children of the poor who completed grade 6, fewer than half entered 1st year of secondary — the screening being especially marked among the rural poor. For middle-class children, the transition also represented a substantial screening point. As data to be presented later will indicate, the transition from primary to secondary (grade 8–9) no longer is a major barrier.

Second, the group that appears to have benefited most during the 20 years between the two sets of data (and we assume this to be to a large extent a result of the 1965–1970 reform) is the children of the urban poor.

Table 17. Comparison of survival potentials by social stratum at the primary level over a 20-year period.

Group	1943–1953[a] Percentage surviving to grade 6	1943–1953[a] Percentage surviving to grade 7	1970 Percentage surviving to grade 8
Rural poor (primary resource exploitation)	15.3	5.6	18
Urban poor (urban industrial)	27.8	13.9	48
Middle class (white-collar middle class)	48.1	32.1	71
High class (professionals and managers)	79.8	73.3	100

[a] Source: Eduardo Hamuy, El problema educacional del pueblo de Chile (Santiago, Editorial del Pacífico, 1961)

The percentage of this group completing an 8-year primary education in 1970 is almost twice the percentage completing 6 years, 20 years earlier, and more than three times the percentage completing 7 years. As one would naturally predict, the middle and upper classes have also benefited substantially. The group that has benefited least is the rural poor.

When considering these data as a reflection of the workings of the Chilean social system, we can perhaps best adopt the model of a queuing order. As the system expands, the children of the most advantaged families are served first. Since these children do not exhaust all the new openings, the remaining opportunities are distributed among children of less advantaged families. Clearly, the rural poor are last in line.

Selectivity by Type of School

Having considered the primary system in Chile as a whole, we must now examine which specific social groups are most discriminated against by the system and the role played by different types of schools (see Myers et al. 1973). In the Chilean context, there are two categorizations that are of particular interest and upon which we have focused our attention: the difference between private and public schools; and the difference between grade 8 classes in regular primary schools and those attached to liceos.

In Chile, as in many parts of the world, private schools are generally perceived as giving a somehow "better" education than do public schools, whether by having better facilities and teachers or by enrolling only upper-class students. Private schools in Chile vary widely in quality, however, ranging from some of the best known and most prestigious institutions in the country to small non-fee-paying rural schools run by religious orders in some of the poorest and most remote parts of the nation. In 1970, roughly a third of the grade 8 population attended private schools.

The general picture that emerges from the selectivity indices for categories of father's occupation (Table 18) and education (Table 19), calculated separately for public and private school populations, is hardly surprising. The traditional elite and middle-class occupations are well served by the private system (in none of the occupational groups does the proportion of children in public schools fall below 40%). Those occupational groups that are adequately served by the educational system, in the sense of being neither under- nor overrepresented, are mainly served by public schools. If children of the nonurban nonindustrial work force survive to the end of grade 8, they are far more likely to be in a public than a private school. When we consider father's education, the extent to which private schools are more discriminatory than public schools in their selection patterns is even more evident.

Turning from equality of survival to equality of output, we note a small difference in mean test scores between students in private schools (55.6) and public schools (52.5). When an analysis of covariance is performed controlling for level of father's education as a measure of social class, this small difference in test performance completely disappears. (See Table 20.)

Table 18. Selectivity indices of public and private schools, and liceos and primary schools, by father's occupation.

Father's occupation	Public schools	Private schools	Liceos	Primary schools
Professionals, technicians, and related occupations	1.90	4.59	4.84	1.53
Managers, administrators, and other directive personnel	2.24	6.29	6.85	1.67
Office workers and related occupations	1.62	2.28	2.70	1.28
Sales personnel and related occupations	1.29	1.76	1.92	2.17
Farmers, herders, fishermen, and related occupations	0.47	0.31	0.23	0.63
Miners, quarrymen, and related occupations	0.83	0.33	0.20	0.97
Conductors of transportation and related occupations	1.98	1.50	1.52	1.79
Artisans and skilled tradesmen	1.18	0.80	0.70	1.19
Laborers not otherwise classified	1.11	0.48	0.46	1.13
Personal services and related occupations	1.38	0.78	0.82	1.39
Not otherwise classified, not identifiable, or no response	0.52	0.49	0.33	0.33

An important aspect of the Chilean educational reform was the change in the structure of the system: from 6 years of primary followed by 6 years of secondary to 8 years of primary followed by 4 years of secondary. As indicated, physically relocating grades 7 and 8, moving them from secondary to primary schools, took some time, such that in 1970 there were still many students in grade 8 classes attached to secondary schools, especially liceos. Of our sample, 45% were in classes attached to secondary schools, and 86% of these were in liceos.

The selectivity indices for categories of father's occupation (Table 18) and education (Table 19), calculated separately for the two types of schools, indicate that there are clear differences in family background. Those occupational groups that were most overrepresented in the total sample (especially professionals, technicians, managers, and administrators) were concentrated in liceos, where the selectivity indices are extremely high. The children of urban and industrial workers, who were adequately served overall, tended to be concentrated in primary schools.

Differences in educational characteristics of students' fathers between the two school populations parallel the occupational differences. Liceos were extremely discriminatory against children of fathers with low

Table 19. Selectivity indices of public and private schools, and liceos and primary schools, by father's education.

Father's education	Public schools	Private schools	Liceos	Primary schools
Illiterate	0.25	0.13	0.07	0.46
1–4 years, primary	0.73	0.33	0.22	0.93
5–6 years, primary	1.54	0.92	1.02	1.71
1–3 years, secondary	0.96	0.82	1.42	0.85
4–6 years, secondary	1.74	2.35	3.64	0.99
1–2 years, university	3.50	5.33	5.00	1.17
3+ years, university	2.11	9.68	3.32	0.58

Table 20. Analysis of covariance: type of school — public or private, liceo or primary — related to total score on national test, covarying on father's education.

Type of school	Unadjusted mean total score	Adjusted mean after covarying father's education
Public (N = 2147)		
Mean	52.5	54.1
SD	15.01	14.79
Private (N = 1115)		
Mean	55.6	54.1
SD	15.20	14.29
F value	30.90	0.01
Significance (p)	<0.001	n.s.
Liceo (N = 1175)		
Mean	56.4	55.2
SD	14.26	13.85
Primary (N = 1357)		
Mean	51.8	52.1
SD	13.52	13.60
F value	15.91	11.75
Significance (p)	<0.01	<0.01

education or no education, and highly overrepresented the upper educational levels.

Turning again to equality of output, we find a small difference in mean national test scores between students in liceos (56.4) and primary schools (51.8). (See Table 20.) Although the adjusted mean scores are closer together than the unadjusted mean scores, the convergence is far from complete. Indeed, the adjusted difference between primary schools and liceos is almost as large as the unadjusted difference between public and private schools, and is statistically significant.

These data appear to lend support to the suspicion that the continued existence of upper primary grades in prestigious liceos was providing an additional educational advantage to students who, because of their social class, were already highly advantaged. This problem may well have been substantially solved in the years since 1970.

Notes

1. Portions of the data in this chapter have been previously reported in Schiefelbein and Farrell (1978a).

2. Although the last group also has a low index (0.52), it is such a mixed category that little of substance can be said about it.

3. These indices, of course, assume equal fertility rates across social strata — a somewhat troublesome assumption. There is some evidence that fertility rates among lower classes in Chile are higher than among upper classes. To the extent that this is the case, the calculated survival rates for higher classes are underestimates and those for lower classes overestimates. The fertility differences among classes are not so large, however, as to distort seriously the patterns revealed.

Part III

Secondary Schooling and Transition to University

Chapter 6

Equality of Access at the Secondary Level and General Data Patterns

In the following chapters, we examine in disaggregated detail the various stages in the process of selectivity and survival at the secondary level. As background for those analyses, we present in this chapter a variety of data regarding: the transition from primary to secondary; the general flow pattern of our student sample through the school system; the basic distributions of several key school-related variables; and some additional aspects of the family background.

Educational Aspirations

Before examining what actually happened to these students after they left primary school, we can consider the level of education to which they aspired while still in grade 8. The students in the original sample were asked what level of education they wished to attain. The available answers ranged from completing grade 8 to completing university.[1] A very substantial majority aspired to complete university (67.5%). Even among those least likely to reach university — those with very low grade 8 national test scores or from the poorest families — well over 50% aspired to university.

Although such high aspiration levels were in many cases "unrealistic" (since in the early 1970s, only about 40% of a cohort entering secondary school were likely to finish, and only a modest proportion of those would continue on to university), it was nonetheless assumed that the aspiration represented an underlying motivational pattern that could influence later educational performance. An interesting question, then, is the extent to which educational factors, vis-à-vis family and community background characteristics, influence level of educational aspirations. The distribution on educational aspirations suggested that it should be dichotomized (aspiring to complete university vs not so aspiring), and after extensive preliminary screening of potential predictors a five-variable WNPD analysis was undertaken (Table 21).

Overall, the most powerful independent predictor of aspiration level is father's education, followed closely by textbook availability. One would expect children of fathers with relatively high levels of education to have high aspirations themselves. The relatively strong influence of textbook

Table 21. WNPD on aspirations to complete university education or not.

Variable	Total sample	Community size		
		Small	Medium	Large
Father's education	7.37	9.03	5.24	7.34
Textbook availability	5.79	1.45	6.89	7.57
National test score, grade 8	3.94	9.83	2.43	2.12
Population of community	-3.34	–	–	–
Sex	1.74	1.70	0.01	2.52

availability (an educational policy variable) is interesting, particularly since this variable is also an important predictor of academic achievement in grade 8, which is itself the third most powerful predictor of educational aspirations. Provision of an adequate supply of didactic aids such as textbooks may have both a direct and indirect effect (through influence on achievement) on educational motivation. The variable "sex" indicates that girls had slightly higher aspirations than did boys. The community size variable is somewhat puzzling, as its negative sign indicates that children from smaller communities had higher aspirations than those from larger cities, although rural children are the most educationally disadvantaged in Chile (as noted in the previous chapter). To explore this relationship further, the overall analysis is specified by community size (Table 21). The differences between medium-sized and large communities are not great, except for the effect of sex, which is much stronger in large cities. The pattern in small — essentially rural — communities is notably different. Both father's education and grade 8 national test score are (almost equally) powerful predictors of aspiration levels. This result may suggest that those few rural children who survive to the end of primary are likely to aspire to university only if their fathers are relatively well educated or if they have themselves done well academically in primary school. We have not been able to determine satisfactorily whether these two factors operate jointly (both being necessary) or whether academic achievement operates as a substitute for relatively favourable family circumstances.

Equality of Access to Secondary Schooling

In Chile, almost all students who complete primary continue on to secondary. The pattern was true for our original sample, fewer than 5% of whom did not enter 1st year of secondary. For this group at this stage, then, the salient equality question was the *type* of secondary school to which they had access: whether they entered a university-preparatory, academically oriented liceo or one of a variety of vocationally oriented technical/professional schools. (Although it is theoretically possible for students from the latter type of school to enter university — at least in some faculties, relatively few do so.)

In 1974, about 35% of all primary leavers in Chile who continued schooling entered technical/professional schools, and the remainder the liceos. The corresponding percentages in our sample reflect the national pattern with great precision (34% vs 66%). To determine which factors operating at the grade 8 level best predict the type of school to which a

primary leaver would have access, discriminant analysis was carried out (Table 22).[2]

The most powerful single independent predictor of secondary destination is family SES. As one would expect, students from more favoured social circumstances are more likely to enter a liceo. Sex is the next strongest predictor, with technical/professional schools attracting a higher proportion of males. The middle-level technical occupations for which vocational schools prepare students are generally considered to be socially more appropriate for men than for women, with the exception of secretarial jobs. The third most significant factor is the pedagogical excellence of the grade 8 school, which again favoured the probability of entering liceos. Given that students in technical/professional schools are unlikely to continue on to university, it is not surprising that students with high educational aspirations tend to enter liceos. The fourth most important variable, average national test score of the grade 8 class, reflects that peer group effect discussed earlier. Curiously, students in liceos come from grade 8 classes with slightly lower average marks, although the difference from those in technical/professional schools is very small. Students in liceos also had grade 8 teachers with slightly less experience (i.e., somewhat younger) but with higher levels of pre-service training. They also tended to spend more hours/week in free reading.

To assess whether the factors that affect the transition of lower status students differ from those that affect higher-status students, an analysis of these results was performed controlling for SES (Table 23). As one would expect given the high predictive power of family SES, more than

Table 22. Discriminant analysis: entered liceo in 1974 vs entered other type of school.

Variable[a]	Discriminant weights	Averages	
		Other schools	Liceos
Family SES	0.33	-0.54	0.07
Sex	0.27	1.57	1.64
Pedagogical excellence, grade 8 school	0.25	-0.89	-0.21
Educational aspirations	0.23	3.91	4.39
National test score, grade 8, class average	0.22	51.28	55.54
Grade 8 mark, class average	0.22	4.59	4.56
Teachers' professional experience, grade 8	0.22	9.47	8.90
Teachers' pre-service training, grade 8	0.21	2.83	3.39
Hours/week in free reading	0.20	2.68	2.91
Family SES, class average	0.15	-0.44	0.04
Family SES, class *SD*	0.14	0.51	0.57
Textbook availability, class average	0.12	0.0033	0.0001
Population of community	0.09	5.01	5.51
Teachers' fathers' education, grade 8	0.09	4.96	5.49
Textbook availability	0.09	2.58	2.90
Verbal part score, class *SD*	0.01	6.87	6.72
National test score, grade 8	0.00	50.18	53.06
Number of cases		145	279
Significance	0.000		
Percentage correctly classified	69.6		

[a] Variables are in order of discriminant weight.

three-quarters (77%) of the higher-status students enter liceos, whereas almost half (44%) of the lower-status students enter technical/professional schools. If we compare the results for the two social groupings, there are some notable differences. Pedagogical excellence of the grade 8 school becomes the most powerful predictor among the lower-status group, but it has little independent discriminatory power among higher-status students. The sex variable shows a pattern indicating a tendency for higher-status females to opt for the vocational type of school — perhaps commercial schools where they can prepare themselves for secretarial positions. The lower-status males would probably opt for industrial or technical schools to prepare themselves for early entry into the labour force. Another variable that has a high discriminant weight for the lower-status students and a much lower weight for the other group is average mark of the grade 8 class. This is the second most powerful predictor of secondary school type among lower-status students. Surprisingly, however, higher average class marks are associated with those who go to technical/professional schools (the converse is true for higher-status students); and yet lower-status students in liceos come from grade 8 classes with higher scores on the grade 8 national test (even though the latter is not a powerful predictor among lower-status students). Perhaps grading standards are lower, and it

Table 23. Discriminant analysis: entered liceo in 1971 vs entered other type of school, by SES.

Variable[a]	Discriminant weights		Averages			
			Low SES		High SES	
	Low SES	High SES	Other schools	Liceos	Other schools	Liceos
Family SES	0.23	0.31	-0.75	-0.55	-0.01	0.61
Sex	0.34	0.18	1.56	1.70	1.59	1.58
Pedagogical excellence, grade 8 school	0.59	0.12	-0.07	0.70	-0.50	-0.19
Educational aspirations	0.11	0.11	3.96	4.13	3.90	4.61
National test score, grade 8, class average	0.07	0.49	50.64	53.54	52.59	57.48
Grade 8 mark, class average	0.40	0.17	4.63	4.19	4.54	4.61
Teachers' professional experience, grade 8	0.34	0.01	9.23	8.51	10.27	9.40
Teachers' pre-service training, grade 8	0.12	0.34	2.79	3.10	3.02	3.68
Hours/week in free reading	0.20	0.19	2.74	2.86	2.52	2.96
Family SES, class average	0.06	0.07	-0.57	-0.37	-0.12	0.40
Family SES, class *SD*	0.27	0.09	0.48	0.56	0.56	0.58
Textbook availability, class average	0.29	0.19	-0.004	-0.003	-0.001	0.002
Population of community	0.36	0.06	4.74	5.30	5.76	5.80
Teachers' fathers' education, grade 8	0.13	0.06	4.91	5.40	5.24	5.57
Textbook availability	0.19	0.28	2.57	2.67	2.59	3.08
Verbal part score, class *SD*	0.07	0.19	7.05	6.85	6.36	6.64
National test score, grade 8	0.21	0.22	48.86	51.50	53.26	54.83
Number of cases			101	126	42	143
Significance	0.001	0.001				
Percentage correctly classified	65.6	76.2				

[a] Variables are in order of discriminant weight for total sample.

is easier to attain a high mark, in classes whose general performance level is relatively low. In any event, we have no satisfactory explanation for the high discriminant weight and "negative" direction of effect for this variable among lower-status students. The population of the community in 1970 is also a very powerful variable among lower-status students (third-highest discriminant weight) but has little discriminant power among higher-status students.

Perhaps the most important conclusions to be drawn from this analysis of differential access to secondary schooling are the following. Overall, family SES is the most important predictor of access to liceos rather than technical/professional schools. If we consider only lower-status students, the most powerful predictor is an educational policy variable, pedagogical excellence of the grade 8 school. Again, we have discovered an education-related variable that has its strongest effect among those students who are educationally most disadvantaged.

Student Flows through the Secondary System and Some School-Related Variables

For subjects in the 1977 follow-up sample, the detailed data collected regarding their educational and occupational experiences in each year from 1974 onward permit us to develop a quite precise picture of their flow through and out of the educational system after they completed primary schooling, which will serve as a benchmark for interpreting all of the analyses presented in the following chapters.

In 1974, 95.4% of the sample were in school: 92.5% in secondary school and 2.9% repeating grade 8 (Fig. 2). By 1974, 78.4% were still studying, with 55.4% in 4th-year secondary (which is where they should have been if they did not repeat a grade); 16.4% were 1 year behind (in 3rd-year secondary); 5.5% were 2 years behind (in 2nd-year secondary); and 0.7% 3 years behind (in 1st-year secondary). The greatest drop-off in school attendance occurred between 1974 and 1975, the year of transition from secondary to university for those who completed secondary on time. Although 55.5% were in 4th-year secondary in 1974 and therefore theoretically eligible to enter university in 1975 (except for those who failed the year — about 10%), only 20.2% were in university in 1975. When we add to this group those who were in *practica* in 1975 (a type of practical internship following 4 successful years of technical-vocational education), we estimate that roughly half of those who successfully completed the 4 years of secondary in 1974 did not continue studying in 1975. Since most students who complete secondary school apply to enter university, this drop suggests that the transition from secondary to university in Chile operates as a strong screening device.

Student loss after primary schooling in Chile appears to be the product of two distinct, *and almost equally important*, patterns. First, there is the gradual year-by-year attrition of those who drop out before completing secondary, often after having failed at least 1 year (by 1974, about 22% of the sample are no longer in school). Second, there is the massive outflow at one point in time of those who complete secondary but cannot continue (in the 1974–1975 transition, about 25% of the sample).

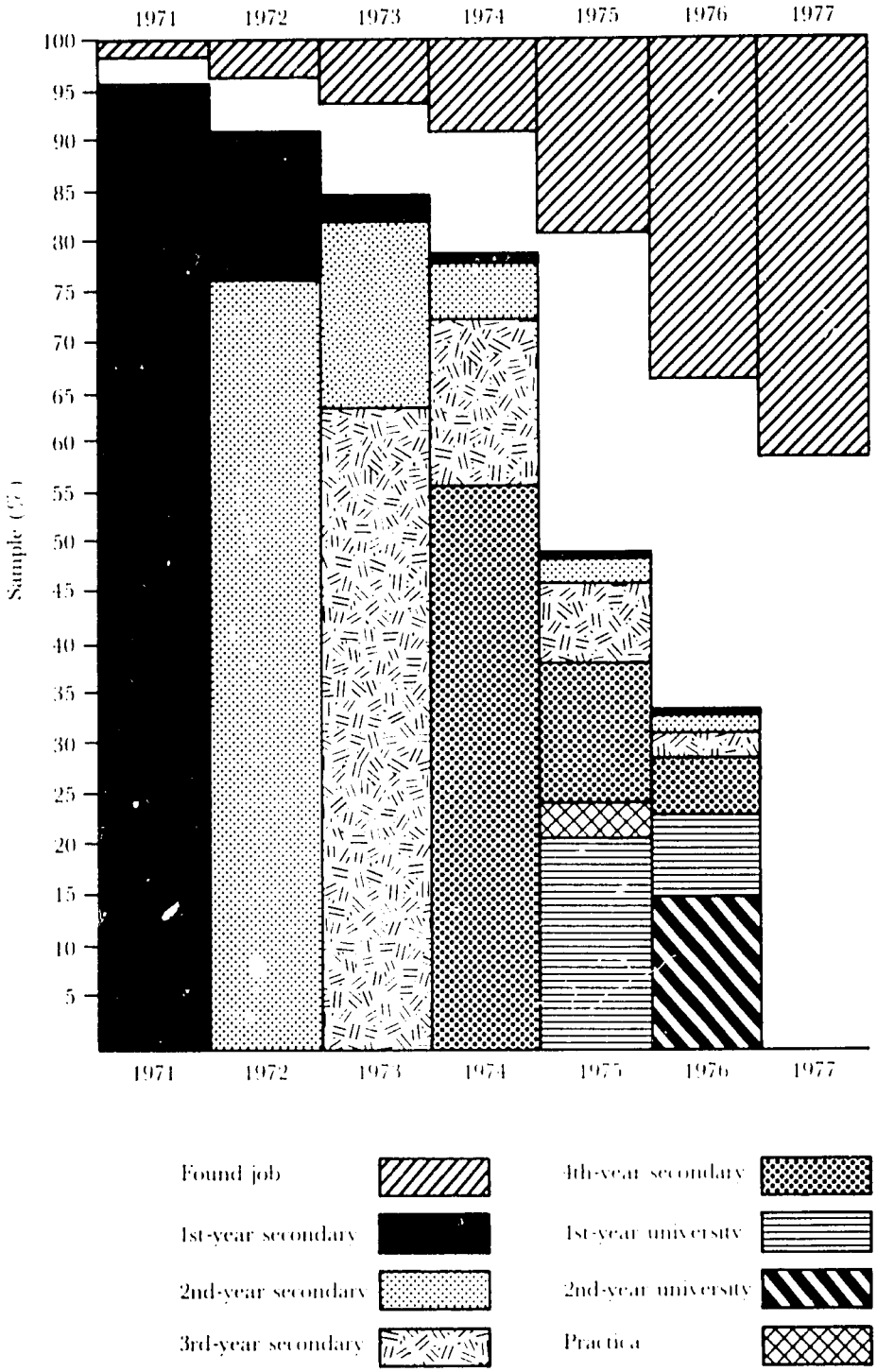

Fig. 2. Schooling and work history, 1971–1977.

Equally interesting are the repetition patterns themselves, which suggest a high degree of persistence among many unsuccessful students. The percentage of repeaters increases regularly with each calendar year (Table 24). Very few students repeat grade 8; but, by the last 2 years, 1975 and 1976, more than half of those still in school have been delayed at least 1 year. As evidence of the persistence of these students, fully half of those still in school have been delayed at least 2 years in 1975; in 1976, 31% have been delayed at least 2 years. There are many cases in which one or even two or more failures are not sufficient to move a student out of the formal schooling system.

Most students who drop out appear to do so at the end of a school year rather than during the course of the year. The percentages of those who started school each year and subsequently reported having left before the end of the year are generally fairly low (3.5–8.3% in the period 1971–1976). The figure for 1975 is higher (13.6%), and probably includes students who started university that year but did not finish. (The less structured pattern of university classes may make it easier for a student to drift away from the system.)

Eventually, 66.6% of the sample completed secondary schooling (those who completed secondary plus those who entered university). (See Table 25.) Of these, 39.7% went on to university. Of those who did not complete secondary education, 23.8% completed at least 3 years (those who completed 3rd-year secondary plus those who entered but did not pass 4th-year secondary); 29.9% completed at least 2 years; 19.8% completed at least 1 year; and 26.5% (4.6% of the complete sample) stopped their schooling after having failed or completed the last year of primary education. Put another way, only 18.6% of the sample stopped studying before 1974.

As evidence of the high repetition rates in the system and the remarkable persistence of many students, almost half of the students (47.3%) finished their schooling at least 1 year behind time — excluding those who entered university (since we do not know when they have or will have finished their studies). As one example, of those who left school after having completed 3rd-year secondary, 8 did so on time (in 1973); 6 were delayed by 1 year; 7 by 2 years; and 27 by 3 years (Table 25). Of those who stopped their schooling at the end of secondary, 248 were on time, 125 were delayed by 1 year, and 76 were 2 years behind. (It is of course possible that some of those who completed 3rd-year secondary in 1976, the last year from which we have data, were in the final year of secondary in 1977.)

Table 24. Percentages of those still in school and delayed at least 1 year in their studies.

	Extent of delay				
Year	1 year (%)	2 years (%)	3 years (%)	4 years (%)	Total (%)
1971	3.0				3.0
1972	16.0				16.0
1973	22.0	3.1			25.1
1974	21.0	7.0	0.8		28.8
1975	28.8	15.9	5.6	0.4	50.7
1976	24.5	16.9	10.1	4.0	55.5

Table 25. Last school year entered or completed by last calendar year of school attendance.

Last grade level	1970	1971	1972	1973	1974	1975	1976	Total N	Total %
Grade 8									
entered	43	4						47	4.2
completed		2						2	0.2
1st-year secondary									
entered		31	13	4	1	1		50	4.5
completed		10	2	2	2	1	2	19	1.7
2nd-year secondary									
entered			22	15	8	8	2	55	4.9
completed			27	3	3	2	11	46	4.1
3rd-year secondary									
entered				23	16	17	10	66	5.9
completed				8	6	7	27	48	4.3
4th-year secondary									
entered					22	7	12	41	3.7
completed					248	125	76	449	40.1
University						32	264	296	26.5
Total: N	43	47	64	55	306	200	404	1119	
%	3.8	4.2	5.7	4.9	27.3	17.9	36.1		

Note: Entries to the left of the rule represent grade entry and completion on time (i.e., 1st-year secondary in 1971, 4th-year secondary in 1974). Entries to the right represent delays through repetitions.

These data indicate that a larger proportion of Chilean students stay in school longer, and with greater persistence, than we anticipated. We had expected, for example, that most of those who encountered failure in secondary school would fairly quickly thereafter drop out. This is not the case. While the pattern may be testimony to the holding power of Chilean schools and the desire of these students to complete their secondary studies, it has also created some potential difficulties in the analysis of labour-market entry patterns. That is, fewer of the original sample have entered the labour market, and they have entered it later, than had been predicted when the follow-up sample was designed. The implications are discussed in detail in the chapters on labour market entry. To understand better the various analyses that follow, the general flow pattern can be usefully disaggregated in several ways.

In 1971, 73.2% of the students attended public schools, and 26.8% were in private schools. By 1974, 74.5% were in public schools. These figures are similar to the national statistics for these years, when roughly three-quarters of the total secondary school population were in public schools. An examination of year-to-year changes indicates that there was a small but steady flow from private to public schooling (e.g., of those who were in private schools in 1971, 11% were in public schools in 1972, whereas only 1% of those who started in public schools were in private schools the following year); that dropout rates are markedly higher in public than in private schools; and that the percentage of students who complete secondary without repeating a year is markedly higher in private schools. The analyses reported above suggest, however, that these

differences in results are likely to be accounted for almost completely by the differing social-class backgrounds of students.

Throughout the period 1971–1974, just over 40% of the sample were in coeducational schools. Examination of year-by-year flows indicates that single-sex schools have lower dropout and higher completion rates than do coeducational schools. The difference is most probably due, however, to the fact that private secondary schools tend to be single-sex, as do many prestigious public liceos.

Table 26 presents the proportion of the sample still in school who attended liceos and technical professional schools for each year from 1971–1976, with the proportion attending university in the last 2 years. The proportion in liceos increases slightly but regularly each year up to 1974, and decreases thereafter. Since there is very little transfer between school types (the highest change being 3% of liceo students in 1971 transferring to technical professional schools in 1972), this increase indicates, as one would expect, that dropout rates and repetition rates are higher in technical professional schools than in liceos. The 1974 enrollment in liceos represents 84.1% of the 1971 enrollment, while the corresponding figure for technical professional schools is 75.4%. Put the other way around, 16% of the starting cohort in liceos have been lost by 1974, and 25% of the starting cohort in technical professional schools. In 1975 and 1976, students should have been in secondary only if they had repeated one or more years. Here, the percentages are markedly higher among those in technical professional schools.

Turning to some factors which might influence the academic performance of the students, we note that almost none (3.7%) worked for pay while attending school; the part-time job pattern among students is not common in Chile. Since Chile does not have a neighbourhood school tradition, particularly at the secondary level, simply getting to and from school could be a serious problem. However, the data on the time required by the students to get to school each day suggest that distance is not a major difficulty: over 76% of the students could travel to school in 30 minutes or less, and only 10% needed 45 minutes or more. Although a variety of programs are available in Chile to provide financial assistance to students from low-income families, only 9.1% received such aid.

Table 26. Distribution of students by type of school, 1971–1976.

	Liceo		Technical professional		University	
Year	N	%	N	%	N	%
1971	749	75.4	248	24.9		
1972	712	75.4	233	24.7		
1973	671	76.2	210	23.8		
1974	630	77.1	187	22.9		
1975	194	38.7	96	33.1	211	42.4
1976	80	21.9	50	13.7	236	64.5
Enrollment in 1974–1976 as a percentage of enrollment in 1971						
1974		84.1		75.4		
1975		25.9		38.7		
1976		10.7		20.2		

Throughout this study, textbook availability has been a consistently important predictor of educational success. There are many reasons why students at the secondary level in Chile may not have texts, only some of which are related to family SES. Thus, students were asked to indicate, for each year they were in school, whether they had a text for their personal use in each of the main academic subjects in the curriculum. If they did not have a text, they were asked to indicate why. The results from 1971 are found in Table 27. The results from other years are very similar.

Some interesting patterns emerge. First, texts are almost universally used in teaching languages. Only 8% of the students report that their teachers of Spanish and English did not ask for a text. On the other hand, about a third report that their social science teachers did not require texts, and about half indicate that texts were not used in their natural science and mathematics classes. We must be careful in interpreting what the presence or absence of text means: a student who does not have a text is not necessarily at a disadvantage relative to classmates who do have one (which we assumed to be the case in elementary grades, where texts are commonly used). Rather, the student might be in a class where the teacher did not use textbooks. In such cases, textbook availability may be best thought of as a proxy measure of the instructor's teaching methodology.

Second, very few students report that the reason they did not have a text was that they could not afford to buy one (we assume that the response "I could not buy a text" refers to lack of money, as textbooks are available for purchase almost everywhere in Chile where secondary schools are found). In no case does the proportion giving this response reach 5%. The table also presents students who could not buy texts as a percentage of all those in classes where the teacher used texts. This figure never rises above 10%, and is lowest in Spanish and English classes, where texts are most commonly used. Possibly families with limited resources invest first in language texts for their children, texts being "socially defined" as most important for these subjects. Thus, at the secondary level, simple financial inability to buy texts is a relatively rare occurrence in Chile. At the same time, since textbooks are expensive and Chilean families typically have three, four, or more children, it may be that many families were making

Table 27. Textbook availability, 1971.

Response	Spanish	Math	Natural science	Social science	English
Yes, I had a text	827 (83.6)[a]	336 (34.1)	406 (41.3)	554 (56.6)	829 (84.2)
No, the teacher did not require a text	82 (8.3)	552 (56.0)	486 (49.5)	322 (32.9)	79 (8.0)
No, I borrowed a book or used the library	44 (4.4)	34 (3.4)	35 (3.6)	39 (4.0)	39 (4.0)
No, for other reasons	9 (0.9)	25 (2.5)	18 (1.8)	18 (1.8)	8 (0.8)
No, I could not buy a text	27 (2.7)	42 (4.3)	37 (3.8)	45 (4.6)	30 (3.0)
"Could not buy a text" as a percentage of cases where textbooks were used	3.0	9.7	7.5	6.9	3.3

[a] Column percentages are in parentheses.

considerable financial sacrifices to ensure that their children had adequate materials for school. One outcome of these considerations is that when constructing the textbook availability variable at the secondary level, which is an average over all subjects studied during all years studied, and which is employed in many of the analyses to follow, we have eliminated those cases where the teacher did not ask for a text. In this way, the variable focuses on students who had no texts in classes where the teacher requested a text.

Some Additional Aspects of Family Background

Throughout this study a consistent concern has been to use family SES both to explain and to specify educational results. Father's education and occupation, and an index of family SES in which these two variables play a predominant role, are the indicators we regularly use. While father's education and occupation are traditional and powerful indicators of family SES, they do not capture all that is important. Families have different kinds of economic needs, depending upon the size of the family, its geographic location, health problems, etc., and there are different levels of income within the same occupational category. Therefore, another question was asked on the 1977 follow-up, relating family income to family needs, as perceived by the subject (see Table 28). About one-quarter of the students report that their parents' family income is either always or often insufficient, and just over half report that family income is sufficient or more than sufficient. (The small size of the "more than sufficient" category undoubtedly reflects the common phenomenon that perceived family needs increase regularly with family income.) In any case, we do have substantial representation of families who have, at least in the perception of their children, economic resources insufficient for their requirements — that is, they are poor.

Another important aspect of family background relates to what Kifer (1977) has called process variables, which attempt to capture the "texture" of parent–child interactions in the home, especially the extent to which parents support school achievement and motivate children to perform well. While this texture is difficult to capture in a questionnaire, several questions were asked regarding parental behaviour and the hours spent by subjects in reading for pleasure. (See Table 29.) The general impression is that these children came from homes in which a great deal of stimulus to academic performance was provided.

A set of cross-tabulations indicates that there is a modest relationship

Table 28. Family situation with respect to income and needs.

"One knows that families have different needs, and different levels of income to meet those needs. Which of the following alternatives best describes the situation of your parents?"	N	%
Family income is always insufficient	120	11.6
Family income is often insufficient	125	12.1
Family income is scarcely sufficient	259	25.1
Family income is sufficient	473	45.9
Family income is more than sufficient	53	5.2

Table 29. Some process variables.

	N	%
Which of the following phrases best describes the interest that your parents took in your studies?		
They didn't want to be bothered about my studies	4	0.4
They didn't show much interest (they were indifferent)	41	4.3
They didn't have time to talk about my studies	28	2.9
They stimulated me, but without going into details	337	35.1
They talked to me about themes related to my studies	453	47.2
They helped me with my homework	96	10.0
When you talked with your parents in the house:		
They let you talk as you wanted	198	20.6
Sometimes they insisted that you speak correctly	347	36.0
They always, or almost always, insisted that you speak correctly	418	43.4
When you were in the house with your parents, did they worry whether you read in your free time? (not including comic books)		
They didn't worry if I read or not	222	23.0
Sometimes they suggested that I read	372	38.6
They stimulated me to read as much as possible	370	38.4
During the past week, about how many hours did you spend reading for pleasure? (not including comic books)		
I haven't read	247	24.1
<1 hour	132	12.9
1–2 hours	251	24.4
2–3 hours	145	14.1
3–5 hours	93	9.1
>5 hours	159	15.5

between these variables and father's education: that is, slightly higher scores are associated with higher levels of father's education. (See Table 30.) What is perhaps most interesting is that the relationship is not stronger. The school-related stimulation provided at home and the propensity of students to read for pleasure do not differ markedly between higher- and lower-status families.

The data appear to support Kifer's observation, reported in chapter 4, that such process variables vary less between poor and rich families in less developed nations than they do in wealthy nations. It must also be remembered, however, that the students in this sample from lower-status families represent a rather special group in relation to the total population of poor youngsters. They have all completed primary school.

The available data cannot indicate how the lower-class students in this sample differ from the majority of their peers who did not complete primary education. It may be that one of the factors influencing the survival potential is precisely the stimulation provided in the home environment, as indicated by these process variables, operating in the early school years.[3]

Two other indicators of family situation are the number of persons who make up the family unit (subjects were asked how many people normally lived in their home) and the number of rooms in the home (including bathrooms and kitchens if they were in separate rooms within the house). Table 31 presents a cross-tabulation of these two variables. Most of the subjects do not come from unusually large family units —

fewer than 20% report that more than eight people normally live in their home — or from very small homes — about 12% report that their home contains four or fewer rooms (Table 31). Most of the family units are composed of parents and children, with the occasional grandparent or other relative. (Subjects were also asked to specify the relationships.) The nuclear family appears to be the modal pattern among this group. Another indicator of family size is total number of children in the family, including the respondent. Almost half of the respondents (47.8%) report four or fewer children, and three-quarters report six or fewer. The mode is three or four children (35.5%), close to the Chilean average. In general, then, these young people do not come from either very large or severely overcrowded families. It may, of course, be that children from large and crowded families are less likely to survive to the end of primary school and thus would not be included in this sample. It may also be that children from large, overcrowded families move out early. As many as 18.8% of the students report that they are no longer living with their parents and most

Table 30. Interaction between some process variables and father's education.

	Father's education		
	Primary	Secondary	University
Which of the following phrases best describes the interest that your parents took in your studies?			
They didn't want to be bothered about my studies	2 (0.5)[a]	2 (0.5)	0 (0.0)
They didn't show much interest (they were indifferent)	25 (5.6)	10 (2.4)	6 (4.2)
They didn't have time to talk about my studies	15 (3.4)	12 (2.9)	4 (2.8)
They stimulated me, but without going into details	161 (36.0)	143 (35.0)	46 (31.9)
They talked to me about themes related to my studies	206 (46.1)	193 (47.2)	75 (52.1)
They helped me with my homework	38 (8.5)	49 (12.0)	13 (9.0)
When you talked with your parents in the house,			
They let you talk as your wanted	93 (20.7)	86 (20.9)	28 (19.4)
Sometimes they insisted that you speak correctly	176 (39.2)	136 (33.1)	50 (34.7)
They always, or almost always, insisted that you speak correctly	180 (40.1)	189 (46.0)	66 (45.8)
When you were in the house with your parents, did they worry whether you read in your free time? (not including comic books)			
They didn't worry if I read or not	110 (24.5)	100 (24.3)	21 (14.6)
Sometimes they suggested that I read	175 (39.0)	152 (37.0)	58 (40.3)
They stimulated me to read as much as possible	165 (36.7)	159 (38.7)	65 (45.1)
During the past week, about how many hours did you spend reading for pleasure? (not including comic books)			
I haven't read	138 (27.1)	87 (20.5)	25 (17.4)
< 1 hour	64 (12.6)	58 (13.6)	17 (11.8)
1 – 2 hours	132 (25.9)	97 (22.8)	32 (22.2)
2 – 3 hours	74 (14.5)	54 (12.7)	21 (14.6)
3 – 5 hours	41 (8.1)	48 (11.3)	18 (12.5)
> 5 hours	60 (11.8)	81 (19.1)	31 (21.5)

[a] Column percentages are in parentheses.

Table 31. Cross-tabulation: number of persons by number of rooms in home.

Number of persons in home	Number of rooms in home						Total	
	1–2	3–4	5–6	7–8	9–10	11+	*N*	%
1–2	8	12	9	2	2	0	33	3.2
3–4	16	27	102	55	18	9	227	22.1
5–6	2	24	120	105	40	24	315	30.7
7–8	2	15	80	96	37	30	260	25.3
9–10	0	3	39	39	26	17	124	12.1
11–12	0	5	11	14	6	6	42	4.1
13+	0	1	4	11	6	4	26	2.5
Total: *N*	28	87	365	322	135	90		
%	2.7	8.5	35.5	31.3	13.1	8.8		

of them (17.8%) indicate that they are living with a spouse. The majority have left their parents' home within the past few years — only 26.8% did so in 1972 or earlier. These data seem to correspond to the general Chilean pattern wherein young people tend to live at home until they are married, when they leave to establish their own family unit.

Notes

1. At this stage, students were not asked to report their occupational aspirations. It was assumed that they were too young to have acquired a reasonable understanding of the labour market, and were still likely to have rather "romantic" notions. (We found that in 1970, shortly after the first manned moon landing, many grade 8 pupils wanted to be astronauts when they grew up.)

2. The data for this analysis are taken from the 1977 follow-up. Similar transition data were collected in the 1971 follow-up, but that sample underrepresented students in technical/professional schools (as noted in chapter 1). The 1977 follow-up sample includes fewer students with complete sets of grade 8 data; however because it almost perfectly represents the national distribution between the two types of schools, we had more confidence in the results of this sample.

3. Some years ago, Adams and Farrell suggested that a key to school success for poor children in developing societies was finding a way to provide them with the functional equivalent of middle-class parents (Adams and Farrell 1967, chapter 3). These data support that observation.

Chapter 7

Equality of Survival at the Secondary Level

In this chapter, we consider the factors that affect the probabilities of students' completing secondary education. As in most societies, a complete secondary education is not only indispensable for university entrance but a prerequisite for many types of jobs. Students who have completed secondary schooling have put themselves on the path to a much different set of life chances than are available to students who have dropped out of school at some point during their secondary years.

We concentrate here on those students who completed secondary on time (that is, in 1974, without having repeated a year). Data reported above indicate that many students completed secondary at least 1 year late. From a policy standpoint, the distinction between completion on time and completion late is very important. High repetition rates, such as characterize secondary education in Chile, represent not only a human cost to the students involved but a significant financial cost to the educational system and the society.

The data for the analysis of completion on time are taken from the 1974 follow-up.[1] Although extensive data regarding secondary-level school and teacher characteristics were collected in the 1974 effort, coding problems and lack of funds made it impossible to analyze the data set fully. One consequence has been that the analysis of survival using this set of data employs as predictors only those variables operating at the grade 8 level. In 1974, we located effectively all of the original group who were in 4th-year secondary, and thus the sample is quite complete and large enough to permit a number of rather detailed analyses.

Adding in the secondary-level educational variables available in the smaller 1977 sample makes little difference in the overall patterning of results, except that secondary-level educational variables become more important than equivalent primary-level educational variables.

The Influence of SES and Other Variables

Generally, as one would expect, those who completed secondary education late had lower academic achievement than those who completed on time, came from schools with lower pedagogical excellence scores, had fewer texts, had teachers with lower levels of pre-service training, and had lower family SES scores.

The Effect of SES

We take first an inflow view of survival. The selectivity indices are calculated for the 4th year of secondary for both father's occupation and education (Table 32). The selectivity patterns at the extremes of the occupational and educational hierarchies observed at the primary level are even more pronounced at the secondary level.[2] Among the four highest and most prestigious occupational groups (i.e., managerial and professional as well as white-collar middle-class), the indices at the secondary level are all higher than at the primary level. The systematic discrimination against children of agricultural workers observed at the primary level is even more pronounced at the secondary level, where the selectivity index is almost exactly half that at the primary level.

Although there are more pronounced differences among the specific categories, the selectivity index for children of urban and industrial workers, who were served equitably at the primary level, is 1.1 at the secondary level. The figure suggests that this group's survival potential at the end of secondary — that is, the probability that they will be among the roughly 40% who survive — is again not significantly different from chance.[3]

The selectivity indices by level of father's education at the end of

Table 32. Selectivity indices at 4th-year secondary.

	Percentage of fathers	Percentage of econ. active males 1960[a]	Selectivity index	Percentage of grade 8 survivors
Father's occupation				
Professionals, technicians, and related occupations	13.1	3.2	4.1	67
Managers, administrators, and other directive personnel	7.6	2.1	3.6	46
Office workers and related occupations	19.9	6.1	3.3	80
Sales personnel and related occupations	11.5	6.6	1.7	55
	52.1	18.2	2.9	
Farmers, herders, fishermen, and related occupations	7.5	34.2	0.22	25
Conductors of transportation and related occupations	8.7	4.2	2.1	52
Artisans and skilled tradesmen	17.3	23.0	0.75	33
Labourers not otherwise classified	10.8	5.6	1.9	98
Personal services and related occupations	3.5	5.1	0.68	27
	40.3	37.9	1.1	
Father's education				
Illiterate	3.1	15.7	0.20	30
Primary	37.2	54.6	0.68	28
Secondary	43.4	24.3	1.79	44
University	16.3	2.5	6.52	100

[a] Source: XIII censo de población, serie A, resumen del país (Santiago, Dirección de Estadísticas y Censos, n.d.), table 7, p. 113.

secondary exhibit the same general pattern of increasing differences at the extremes of the distribution, although in a less pronounced fashion. In general, then, whether one uses occupation or education as an indicator of status, the patterns of selectivity in the Chilean educational system that are evident at the primary level are equally evident, albeit in a more marked form at the extremes, at the secondary level.

As with the primary-level analysis in chapter 4, we can use historical data to consider how equality of survival at the secondary level has changed over time in Chile. In 1929, Salas undertook a study of the socioeconomic composition of Chilean secondary school students, comparing the percentage of students from various occupational backgrounds in the 1st year and last year of secondary with the occupational distribution for economically active males in the 1920 census (Salas 1930). We have used the 1929 data to calculate selectivity indices and to compare them with our results (Table 33). The data for grade 8 in 1970 are included, because this level corresponds roughly to the 1st year of secondary in the 1929 educational system. The occupational groupings in the current study have been aggregated to correspond as closely as possible to those in the Salas study. Ratios of the selectivity indices of the highest to the lowest occupational groups provide a basis for comparison over time.

Although the lowest strata of society remain educationally disadvantaged in the 1970s, their position relative to that of the higher strata has improved markedly during the past 40 years. The composition of the economically active population has also changed dramatically since 1920. In the earlier period, the three highest occupational groups accounted for only 16% of the population; by 1960, 45% were in these groups. This again reflects Chile's growth as a middle-class society, with many individuals from the lowest strata using education to gain access to the higher-level positions opening up as the private economy and the public sector expanded. At the same time as the lower class has decreased as a proportion of the total population, from 84% to just over half, their ability to stay in school and complete secondary education has increased dramatically. In the earlier period, they represented only 4% of the final-year secondary school students; in 1974, they represented more than 20%. This comparison disguises, however, an important aspect of the Chilean reality, because we have had to combine urban and rural workers in the same group to make current data comparable with those from 1929. Analyses reported above indicate that there is a considerable difference in the educational fate of children of urban and of rural workers, the latter being the severely disadvantaged segment of the population.

In terms of outflow mobility, one can calculate directly from these data the percentage of the original grade 8 cohort from each social group who have survived to the end of secondary schooling on time. Combining these figures with the estimates of primary-level survival reported above, we can determine the proportion of an original grade 1 cohort from each social group who reach the end of secondary education. (See Table 34 — the grade 8 data are repeated for reference.) Here too, the selectivity seen at the grade 8 level is even more pronounced at the secondary level. Thus, for example, of the 18% of children of workers in primary resource

Table 33. Evolution of secondary selectivity, 1929–1974.

Occupational group	Perc. of econ. active males 1920	Perc. of fathers 1929		Selectivity index 1929		Perc. of econ. active males 1960	Perc. of fathers 1970, 1974		Selectivity index 1970, 1974	
		1st-year secondary	Last-year secondary	1st-year secondary	Last-year secondary		Grade 8 1970	4th-year sec. 1974	Grade 8 1970	4th-year sec. 1974
Professionals, owners of large firms, and high executives	0.7	5.9	19.1	8.43	27.29	5.3	16.5	20.7	3.11	3.91
Merchants, administrative employees, and small business-men	2.6	24.9	38.7	9.57	14.88	12.7	21.4	31.4	1.69	2.47
Artisans, skilled tradesmen, transportation workers, and self-employed	12.6	45.7	38.1	3.63	3.02	27.2	30.8	26.0	1.13	0.96
Labourers, agricultural workers, and personal services	84.1	23.5	4.1	0.28	0.05	54.8	31.3	21.8	0.57	0.40
Professionals/labourers				30.1:1	545.8:1				5.5:1	9.8:1

Table 34. Estimated survival rates of a cohort of students, grades 1–12.

	Grades 1–8 (%)	Grades 8–12 (%)	Grades 1–12 (%)
Father's occupation			
Professionals and managers	100	77	77
Other white-collar middle-class (office and sales personnel)	70	66	49
Urban and industrial workers (conductors, artisans, labourers and personal services)	48	44	21
Primary resource exploitation workers (farmers, herders, miners and quarrymen)	18	22	4
Father's education			
Higher	100	100	100
Secondary	72	44	32
Primary	43	28	12
Illiterate	10	30	3

exploitation who complete primary schooling, only 22% will complete secondary — that is, only 4% of an original grade 1 cohort of children from this group will complete a 12-year education. By contrast, more than three-quarters of the children from the highest occupational groups finish secondary schooling. A high-status parental occupation is not, however, a guarantee of a full education: more than 20% of the children of high-status fathers did not complete secondary on time. Although a father's having a university education virtually guarantees his child's completing secondary school without repetition, his having some secondary education does not.

Other Individual Predictors

Clearly, social status is an important determinant of the probability of survival to the end of secondary schooling. A number of other variables of potential significance in this relationship have been considered individually. The percentage of the original grade 8 sample who were in 4th-year secondary in 1974 is noted for each category on those variables (Table 35). Table 36 shows mean comparisons between survivors and non-survivors for several continuous variables.

First, we consider personal characteristics of the student other than social status (although possibly related to social status). Sex of the student has little to do with survival potential; the percentage of boys completing secondary is essentially identical to the percentage of girls. In contrast to many developing societies, Chile has a relatively long history of equal educational provision and educational success for women. Having a television set in the home does appear to make a difference: 46.4% of students who have TV survive to the 4th year of secondary, as compared to 31.3% of those who do not. TV in the home is, not surprisingly, related to SES, and may in this case simply act as a proxy for SES. When academic performance at the grade 8 level among these students was analyzed, as noted in chapter 4, it was found, however, that having TV had a significant effect independent of SES. The time a student spent in free reading — reading for pleasure outside of school assignments, and excluding comic books — during grade 8 is also a differentiating variable. A difference in

survival potential appears only for students who spent at least 3 hours/week in free reading, however. This variable was also an important predictor of academic achievement at the grade 8 level. We cannot tell, however, which way the causality runs. Students may do well in school because they read a lot; they may read a lot because they do well in school; or they may both read a lot and do well in school because they have in general an aptitude for and interest in things academic.

The educational aspirations a student had at the grade 8 level are also clearly related to survival potential in secondary school. At the extremes,

Table 35. Percentage of students surviving to 4th-year secondary on time, by several variables.

Variable	%	N	Total N
Sex			
boys	34.9	538	1540
girls	34.5	611	1769
TV in home			
available	46.4	688	1483
not available	31.3	605	1932
Hours/week in free reading			
0	38.4	101	265
1–3	36.3	970	2669
3+	46.1	223	484
Educational aspirations			
finish primary	22.2	22	99
incomplete secondary	25.7	54	210
complete secondary	24.6	157	639
incomplete university	31.9	59	185
complete university	43.9	996	2269
Area in which student would like to live after schooling			
country	40.5	79	195
small city	33.4	136	407
provincial capital	37.9	498	1313
Santiago	38.2	580	1517
Total grade repetitions in primary school			
0	45.7	1054	2308
1	26.8	246	917
2	21.0	53	252
3+	30.2	16	53
Type of grade 8 school			
primary school	32.5	632	1943
secondary vocational	28.8	83	288
secondary liceo	50.3	654	1229
Type of 1st-year secondary school			
liceo	47.4	685	1445
technical professional	26.6	55	207
Population of community			
<1000	29.3	44	150
1001–10 000	33.7	138	410
10 001–50 000	36.9	218	590
50 001–100 000	40.7	187	460
>100 000	41.0	685	1670

Table 36. Mean comparisons between survivors and non-survivors to 4th-year secondary on time (1974).[a]

Variable	Survivors (%)	Non-survivors (%)
National test score, grade 8	57.92	51.34
Grade 8 mark, average	5.04	4.55
Textbook availability, secondary	3.09	2.80
Liking for academic subjects	3.16	3.11
Teachers' pre-service training, grade 8	3.67	3.26
Textbook availability, grade 8, class average	0.14	-0.11
Pedagogical excellence, grade 8 school	0.10	-0.49
Educational aspirations, class average	4.45	4.15
Family SES, class average	0.27	-0.17

[a] For all differences, $p < 0.01$.

22.2% of those who wished only to finish primary schooling have finished secondary schooling, whereas 43.9% of those who aspired to a university degree have completed 4 years of secondary education.

The highest survival rate is found among those few students who, in grade 8, wished eventually to live in the countryside. This preference contradicts the general opinion regarding patterns of rural-to-urban migration, and also deviates from the regular pattern of the other results on the same variable, in which survival potential increases with the size of the centre in which the student wishes to live. The deviant cases may represent students from rural families who wished to gain some type of qualification and then return to their home area. They may reflect a type of political influence, for the original data were collected in the midst of the 1970 election campaign, in which rapid land reform and rural development were key planks in the Popular Unity platform. They may also represent children of urban families who perceived the countryside as an agreeable place where they had spent pleasant vacations.

The number of grade repetitions in primary school is one predictor of secondary survival (Table 35). Not surprisingly, children who have repeated a grade at least once have a markedly reduced probability of completing secondary schooling. Children who do poorly in school at the early stages (whether because of limited innate ability or family circumstances) typically continue to do poorly. Those who survived to the end of secondary schooling on time had higher scores on the grade 8 national test and higher average grade 8 marks, had more texts available to them, and were more inclined to express a liking for academic subjects (see Table 36). Nevertheless, it is surprising that about a fourth of those who had repeated at least one primary grade completed their 4 years of secondary schooling on time.

Children who attended grade 8 classes attached to liceos were much more likely to complete secondary schooling than their peers in regular primary schools or in grade 8 classes attached to vocational secondary schools (Table 35). Moreover, children who started secondary education in a liceo have a much higher survival potential than those who started in a vocational school.[4] In both cases, school type may be serving as a proxy for

SES. In a previous chapter, we demonstrated that differences in academic achievement levels among the school types are entirely explained by SES differences. SES is also the most important predictor of whether a grade 8 student will start secondary schooling in an academic or a vocational school.

Several other aspects of school quality are also clearly related to survival potential in secondary school. Students who survived to the end of secondary had more highly trained grade 8 teachers, were in schools that scored higher on pedagogical excellence, attended grade 8 classes where texts were generally available, and had classmates with, on average, higher family SES and higher educational aspirations (Table 36).

Finally, community size is clearly related to survival potential. With every increase in community size, there is an increase in the probability of students completing secondary schooling. SES differences among students in different localities likely account in part for the relationship. The upper strata of Chilean society are predominantly urbanized, whereas those who live in the countryside are generally the poorest sector of the society. (However, there is also a large group of urbanized poor.) On the other hand, it may also simply reflect differences in the availability of secondary schools among localities of differing sizes.[5]

Multivariate Analysis

The data discussed above have revealed several variables that individually affect the probability of a student's finishing secondary schooling on time. The questions we now must obviously turn to are: Which of these variables (as well as others not considered individually) are the most important predictors of survival? How do key variables interact, and especially how do important school-related predictors interact with family SES? Since we are again dealing with a dichotomous educational result (students were either in the 4th year of secondary in 1974 or they were not), we will use discriminant analysis and the WNPD technique for the necessary multivariate analysis.

Discriminant analysis was carried out first for the sample as a whole and then separately for high- and low-SES students (Table 37). Again, the predictors included are those that have survived a series of preliminary screenings. High SES refers to students whose fathers had secondary education or more, and low SES to students whose fathers had primary education or less.

When we consider only the 11 most heavily weighted predictors (after which the weights start dropping off very rapidly), we can identify the following as important predictors of secondary survival: two measures of academic achievement at the end of primary school (grade 8 mark and total score on the grade 8 national test); family SES, measured both for the class as a whole and for the individual student; educational aspirations, again measured at both the class and the individual level; the pedagogical excellence of the school; the availability of textbooks, both for the class as a whole and for the individual; television in the home; and the level of pre-service training of the grade 8 teachers.

As the univariate analyses suggest, sex is not a predictor of survival.

Table 37. Discriminant analysis: survivors and non-survivors to 4th-year secondary on time (1974), for total sample and by family SES.

Variable[a]	Discriminant weights		
	Total sample	Low SES	High SES
Grade 8 mark	0.78	0.75	0.80
Family SES, class average	0.66	0.53	0.47
Family SES	0.58	0.41	0.25
Pedagogical excellence, grade 8 school	0.56	0.39	0.47
Educational aspirations, class average	0.55	0.45	0.43
Textbook availability, class average	0.53	0.38	0.35
TV in home, class average	0.47	0.30	0.26
Educational aspirations	0.45	0.37	0.25
Textbook availability	0.45	0.38	0.21
Teachers' pre-service training, grade 8	0.45	0.29	0.34
National test score, grade 8	0.44	0.33	0.41
National test score, grade 8, class average	0.31	0.15	0.25
Family SES, class *SD*	0.23	0.30	0.05
Teachers' fathers' education, grade 8	0.18	0.06	0.13
Teachers' consumption scale, grade 8	0.16	0.13	0.05
Population of community	0.16	0.03	0.03
Liking for academic subjects	0.11	0.14	0.09
Hours/week in free reading	0.11	0.14	0.03
Family value environment	0.09	0.19	0.02
Direct stimulus from parents	0.05	0.12	0.01
School size	0.05	0.07	0.15
Sex	0.01	0.03	0.01
Teachers' professional experience, grade 8	0.01	0.07	0.07
Modernity of community	0.01	0.04	0.07
Verbal part score, class *SD*	0.01	0.01	0.05
Significance	0.000	0.000	0.000
Number in 4th-year secondary	1369	629	618
Number not in 4th-year secondary	2161	1666	617
Percentage correctly classified	74.6	71.8	75.3

[a] Variables are in order of discriminant weight for total sample. All variables are measured at grade 8 level.

Neither community size nor amount of free reading have heavy weights, in spite of their apparently strong relationships with survival in univariate analysis. Our earlier suggestion that these variables might be partial proxies for SES may be correct.

For the most powerful predictors, several patterns are noteworthy. While SES is an important predictor of survival, it is not *the* most important. That spot is reserved for a measure of previous academic achievement — grade 8 mark. Children who do well in school at the primary level are highly likely to continue to do well at the secondary level, *independent of* the effect of SES. In every case where a variable is measured at both the class and individual level, it has a higher weight at the class level. Finally, among the most powerful predictors, there are several that are directly manipulable educational policy variables: pedagogical excellence, text availability, and level of pre-service training.

A major use of discriminant analysis, as noted earlier, is to suggest which variables might most usefully be included in a WNPD analysis, where one must work with a restricted number of variables. The variable selection

for WNPD cannot be entirely mechanical: judgment related to the purposes of the investigation must enter. The discriminant analysis results provide a useful guide to that judgment. For the WNPD analysis, we have selected the following variables from among those most highly weighted in the discriminant analysis.

Of the two measures of academic performance in grade 8, we have chosen the one with the markedly higher discriminant weight: grade 8 mark. Of the two SES measures (whose discriminant weights are very similar), we have used the variable measured at the level of the individual student. This choice permits us more easily to draw comprehensible policy suggestions from the analysis. Of the two measures of educational aspirations, we have taken the class average. It has the higher discriminant weight, there seemed no reason not to use it, and including it gives us at least one indicator of the peer group effect. Of the two text-availability measures (whose discriminant weights are quite similar), we have chosen that at the level of the individual student. Again, this choice permits us to draw clearer policy conclusions. Finally, we have included pedagogical excellence of the grade 8 school.

For use in the analysis, each variable has been dichotomized, the five variables cross-tabulated, and a survival percentage calculated for each subcell (Table 38). For example, there are 33 students from the original sample who had high SES, were in schools scoring high on pedagogical excellence, were in classes with high educational aspirations, had few textbooks, and obtained a low grade 8 mark. Of these 33 students, 27.3% were in the 4th year of secondary in 1974. There were 89 students who were the same in all other respects but had a high grade 8 mark. Of these, 69.7% were in the 4th year of secondary in 1974.

The WNPDs have been calculated from the data for the total sample, as well as separately for students with high and low SES and high and low grade 8 mark (Table 39). When we consider the results for the total sample, high academic performance in grade 8 is the best predictor of secondary survival. All else being equal, 20.6% more students with high marks than low marks survive to 4th-year secondary. The relative positioning of the five predictors parallels the outcome of the discriminant

Table 38. Percentage of original grade 8 sample in 4th-year secondary in 1974, by several variables.

		Grade 8 mark	High				Low			
		Textbooks	High		Low		High		Low	
SES	Pedagogical excellence	Aspirations								
High	High	High	66.3%	(395)	69.7%	(89)	23.3%	(86)	27.3%	(33)
		Low	56.8%	(37)	30.8%	(13)	30.8%	(26)	8.3%	(12)
	Low	High	55.4%	(56)	51.6%	(91)	15.8%	(19)	12.8%	(39)
		Low	42.2%	(45)	39.4%	(69)	14.3%	(21)	12.5%	(32)
Low	High	High	64.1%	(103)	18.4%	(27)	36.4%	(36)	36.0%	(25)
		Low	47.8%	(69)	27.7%	(83)	19.2%	(52)	10.5%	(57)
	Low	High	42.7%	(75)	41.5%	(195)	7.5%	(40)	14.1%	(128)
		Low	30.0%	(140)	27.7%	(520)	12.7%	(71)	14.1%	(68)

Table 39. WNPD: survivors to 4th-year secondary vs non-survivors, by various variables.

Variable	SES High (%)	SES Low (%)	Grade 8 mark High (%)	Grade 8 mark Low (%)	Total sample (%)
Grade 8 mark	38.2	9.6	–	–	20.6
Textbook availability	1.1	1.5	3.7	-5.2	1.3
Educational aspirations, class average	17.5	8.7	14.5	5.8	12.1
Pedagogical excellence, grade 8 school	10.5	6.6	8.8	6.1	8.1
Family SES	–	–	9.2	-5.4	5.2

analysis with one exception: SES drops from second to fourth most powerful. The drop in position is most probably due to the difference in the sets of variables used in the two analyses and the differences in the mathematical treatment of the variables. When we compare high- and low-SES students, we observe that the order of importance of the other four predictors is the same in both cases; however, the degree to which they discriminate survivors and non-survivors is much more powerful among high-SES students, particularly in the effect of grade 8 marks. The contrasts in results between high and low grade 8 marks are more striking, particularly the difference in the effect of SES. Among students with high grade 8 marks, SES is the second most powerful predictor of survival. Among students with low marks, it is the least powerful predictor, indeed assuming a negative value. The negative value indicates that among students with low marks, those of higher status are *less likely* to complete secondary than those of lower status.

Low-status students who, in spite of their many disadvantages, have not only survived to the end of primary school but achieved above-average marks while doing so, are most likely "winners" — individuals who are exceptionally able or very highly motivated or both. Having struggled and survived 8 years of schooling, they are likely to continue to overcome obstacles, taking maximum advantage of every opportunity offered them. On the other hand, high-status students who, in spite of their many advantages, achieve below-average marks in primary school are most probably either not very bright or very poorly motivated. If they cannot get into a "good" public academic secondary school, their parents' money can buy them a place at a private school. (Academic performance in grade 8 was in the early 1970s the prime criterion for selecting students for secondary schools whose reputations produced more applicants than they could admit.) At some point in their secondary studies, however, their lack of ability or motivation would begin to take effect in spite of their advantages, and they would begin to repeat grades and perhaps eventually drop out completely. Reinforcing this line of argument is the point that dropping out of secondary school is less costly for high-status students, in terms of their subsequent life chances, for their family position would provide an economic cushion unavailable to the offspring of a lower-status family.

To explore this line of argument further, SES and grade 8 marks have been cross-tabulated, WNPDs calculated in each subcell for the other three

predictors, and overall survival rate for students in the subcell noted (Table 40). We observe that high-status students with high achievement are most likely to survive (almost 60% do so) and low-status students with low achievement are least likely to survive (only 20% do so). In relation to the argument just advanced, however, low-status students with high achievement are much more likely to survive than high-status students with low achievement. Moreover, the effect of pedagogical excellence is about the same in the latter two subcells, but both educational aspirations and text availability have more effect upon the survival potential of low-status/high-achieving students than upon high-status/low-achieving students. The data also indicate that the peculiarly low or even negative WNPDs observed in the previous table among students with low grade 8 marks actually pertain only to students who are *both* low achievers and have a low SES. These students present the most serious policy problem. Not only is their survival potential low, but none of the variables considered in the analysis is likely to increase it a great deal.

The importance, for lower-status students, of doing well in primary school if they are going to finish secondary school is clearly demonstrated. Low-SES students with high achievement still have a much lower survival potential, however, than do high-SES students with high achievement. This observation leads us to ask which, if any, of the variables considered here, singly or in combination, may help to close the gap.

To deal with the question more directly, and in a way in which the results are likely to have the greatest degree of immediate intuitive meaning, we have calculated the overall survival rate for low-SES students, and then the survival rates when students score high on the other predictors considered one at a time, two at a time, three at a time, and all four together (Table 41). The improvement upon the overall low-SES survival rate is also provided under each condition.

The differences between the improvements in survival potential produced by high scores on any particular one of the four other predictors, or any particular two-way or three-way combination, are not great. However, adding a high score on any one variable, or any two, or any three progressively improves the survival potential of the low-SES students significantly. The survival potential of low-SES students who score high on all four variables (64.1%) is similar to that of high-SES students who score high on all four variables (66.3%).

Table 40 WNPD: survivors to 4th-year secondary vs non-survivors, by three predictors in a cross-tabulation of SES and grade 8 mark.

	Grade 8 mark			
SES	High		Low	
High	Textbook availability	0.7%	Textbook availability	2.3%
	Educational aspirations	14.3%	Educational aspirations	0.3%
	Pedagogical excellence	10.9%	Pedagogical excellence	8.9%
	Overall survivors	59.5%	Overall survivors	19.8%
Low	Textbook availability	5.8%	Textbook availability	-9.5%
	Educational aspirations	14.5%	Educational aspirations	-6.0%
	Pedagogical excellence	7.4%	Pedagogical excellence	4.4%
	Overall survivors	35.8%	Overall survivors	20.5%

Table 41. Improvements in survival potentials of low-SES students when high scores on other predictors are added.

Condition	Survival rate (%)	Improvement (%)
All low-SES students	31.5	
High grade 8 mark	35.8	4.1
High pedagogical excellence	38.2	6.7
High aspirations	37.4	5.9
High textbook availability	34.4	2.9
High pedagogical excellence and high aspirations	52.8	21.3
High pedagogical excellence and high textbook availability	46.9	15.4
High pedagogical excellence and high grade 8 mark	47.9	16.4
High aspirations and high textbook availability	44.9	13.4
High aspirations and high grade 8 mark	48.0	16.5
High pedagogical excellence, high aspirations, and high textbook availability	56.8	25.3
High pedagogical excellence, high aspirations, and high grade 8 mark	60.8	29.3
High aspirations, high textbook availability, and high grade 8 mark	55.1	23.6
High score on all four variables	64.1	32.6

Thus, it is possible to equalize the probabilities of survival in secondary school among low- and high-status students in Chile. This conclusion is particularly salient because of the policy relevance of the variables that have been used in this analysis. Textbook availability and pedagogical excellence are directly manipulable educational policy variables. Educational aspirations measured as a class average are less directly manipulable, but it is possible for educational policymakers to consciously alter the mix of students in classrooms. High academic achievement at the grade 8 level, which the analyses reported here suggest may be a necessary though not a sufficient condition for equalizing secondary-level survival potentials, is least directly manipulable by educational policy. However — and herein lies the special advantage of a longitudinal study — we have identified earlier those factors that most affect grade 8 academic achievement, several of which are educational policy variables.

Notes

1. Some of the data reported in this chapter have been published previously in Schiefelbein and Farrell (1978a and 1978b).

2. Two occupational groups reported at the primary level are not found at the secondary level: miners and quarrymen, and the miscellaneous category. None of the former group and two in the latter were found in the 1974 follow-up. Although the survival potential of children in these groups at the secondary level is almost certainly low, their nearly complete absence probably reflects late completion.

3. A study conducted by Buckman 5 years prior to 1974, using a random sample of 3rd- and 4th-year secondary students in Chile, found a selectivity pattern similar to that reported here (Buckman 1971).

4. The data on school types are taken from the 1974 follow-up. As noted earlier,

this follow-up produced an underrepresentation of students from technical/professional schools, and so the comparison here must be treated with some caution. Nonetheless, as reported in an earlier chapter, making the same comparison using data from the 1977 follow-up, which has a smaller total *N* for this analysis but a more representative balance between school types, produces the same pattern. Those in liceos are more likely to survive.

5. Another way to look at the relationship is to compare the proportion of 4th-year students in our sample with the proportion of the total population in each community size:

Size of community	1970 population	4th-year secondary population
< 1000	27.5%	3.5%
1000–10 000	9.8%	10.8%
10 000–50 000	11.8%	17.1%
50 000–100 000	19.9%	14.7%
> 100 000	39.9%	53.8%

Children from very small communities are substantially underrepresented, and those from larger communities overrepresented, in the 4th-year secondary population.

Chapter 8

Equality of Output at the Secondary Level and Transition to University

As Chilean students reach the end of secondary schooling, assuming they are among the fortunate few who make it that far, three critical events face them:

- They must decide whether to sit for the Academic Aptitude Test (AAT), a national test administered by the university system, a high score on which is a prerequisite for university entrance.
- If they decide to register for the test, they must then prepare for it and take it.
- If their test performance is adequate, they must then decide whether they wish to and are financially able to accept the offer of university admission.

These three events occur within a span of less than 6 months. Collectively, they have a powerful effect upon an individual's life chances. Because they are a closely interrelated set, we consider them together in this chapter. Because each represents a critical social sorting point, we analyze them separately.

Decision to Sit for the AAT

In the mid-1970s, about 80% of those completing 4th year of secondary decided to sit for the AAT (Schiefelbein and Farrow 1978). In the 1977 follow-up, we did not, unfortunately, ask the subjects directly whether they had taken the test; rather, we asked them to report their scores, assuming that those who did not report scores would not have taken it. Some 70% (rather than 80%) reported scores, and were therefore coded as having taken the test. The 10% difference could represent a sampling error, or it could be due to some students' taking the test late (possible if one has failed a subject and had to repeat it during summer school or in a following year). It most likely reflects, however, some students' forgetting their AAT score or choosing not to report it. Although it is not so large as to have an important effect upon the results reported here, it needs to be noted.

The decision to sit for the AAT ought to be the result of a rational personal choice on the part of the student, although there are undoubtedly

some who simply decide to "take a flyer." Ordinarily, it would make sense to invest the effort required to prepare for and take the test only if one wanted to enter university (which analyses reported above indicate is the aspiration of most students even at the grade 8 level), if one believed oneself to have a reasonable chance of scoring high enough to enter the field of study selected (the cutting points for entry vary among university departments), and if one expected to be able to absorb both the direct costs of university study and the income forgone while studying. In other words, the decision to sit for the test ought to be a product of an assessment by the students of their interests, abilities, and financial means.

A discriminant analysis was carried out to distinguish students who did and did not take the AAT (Table 42). Generally, the results support the behaviour model outlined above. The most powerful discriminator is school type in 1971, with those in liceos more likely than those in technical/professional schools to take the test. As suggested earlier, the task of liceos is to prepare students for university entrance. The second-strongest predictor is grade 8 textbook availability. Again, we find an early educational variable having an effect upon an educational result several years later. The precise mechanisms of the long-term effect cannot be

Table 42. Discriminant analysis: those who took the AAT vs those who did not.

Variable[a]	Discriminant weights	Averages	
		Took AAT	Did not
School type in 1971	0.47	2.82	2.32
Textbook availability, grade 8	0.46	3.13	2.63
Educational aspirations	0.31	4.58	4.19
Teachers' professional experience, grade 8	0.31	9.66	8.89
Age	0.29	21.34	21.88
Liking for academic subjects	0.29	3.48	3.34
Occupational aspirations	0.28	4.53	4.14
Verbal part score, class *SD*	0.20	6.76	8.82
National test score, grade 8	0.18	55.36	50.30
Total number of nonformal courses	0.17	0.61	0.39
Hours/week in free reading, secondary	0.13	3.46	3.09
Pedagogical excellence, grade 8 school	0.12	0.36	-0.37
Textbook availability, secondary	0.09	1.85	1.76
Average class size, secondary	0.09	34.32	29.52
Lived in city or country when young	0.09	1.07	1.10
Father's education	0.08	4.26	3.34
Personal estimation of academic success	0.08	2.25	2.18
National test score, grade 8, class average	0.08	57.25	53.03
Hours/week in free reading, grade 8	0.06	3.02	2.87
Level of urbanization of current province	0.06	2.22	2.06
Lives with spouse	0.06	1.08	1.14
Family SES, grade 8, class *SD*	0.04	0.59	0.56
Teachers' pre-service training, grade 8	0.01	3.73	3.28
Sex	0.00	1.54	1.59
Number of cases		121	84
Significance	0.000		
Percentage correctly classified	74.6		

[a] Variables are in order of discriminant weight.

identified in a survey study such as this, but the effect is clear. We have earlier observed that textbook availability is associated with educational aspirations, the third most powerful discriminator. Those who indicated in grade 8 their wish to enter university are more likely to take the AAT than those who did not. By the time the students would have sat for the test, however, one would expect that for some, their own appreciation of their abilities and financial situation had tempered those early aspirations.

The fourth-strongest predictor, experience of grade 8 teachers, is also an education-related variable whose effect we can observe but not explain. Only careful observational or life-history studies are likely to reveal what it is that more experienced teachers do in the primary grades that produces educational results many years later.

The effect of one of the next most important variables, age, suggests that those who arrived in 4th-year secondary on time are more likely to try for university admission than those who arrived at least 1 year late. It is most likely the case that those who have encountered problems in secondary and had to repeat grades will tend to consider the probability of successfully completing university to be rather low, even though they are theoretically eligible to try for university admission.

The sixth and seventh most powerful predictors fit well with the model above. One is more likely to try for university admission if one enjoys academic work and has high occupational aspirations that require a university degree.

The remaining variables have much lower discriminant weights (Table 42). They all operate, however, in the expected direction: that is, those who decided to sit for the AAT have "better" scores on the table than those who did not. However, family SES, as indexed by father's education, is a very weak independent predictor. The social status of a student has long since had its effect, for family SES is a powerful predictor of two of the three most important discriminators: school type in 1971 and educational aspirations.

This observation suggests again the utility of breaking down the results by the social status of the student (see Table 43). Among lower-status students, school type in 1971 and textbook availability maintain their power in the AAT decision. The third-strongest discriminator, educational aspirations, has no predictive strength whatsoever for lower-status students, although it has for higher-status students. By contrast, liking for academic subjects increases substantially in discriminant weight among lower-status students and loses power for higher-status students. It may be that educational aspirations reflect a well-fixed family desire and expectation among higher-status students and are not altered easily by educational success or failure, whereas such aspirations represent for lower-status students a dream that can only be realized if they enter the right type of secondary school (itself the product of earlier good fortune), are provided with adequate didactic materials (textbooks), and come to enjoy academic work. It is also noteworthy that relatively small differences in father's education have a relatively strong effect upon lower-status students, and that having been raised in a relatively urban environment has more effect upon them than upon higher-status students.

Table 43. Discriminant analysis: those who took the AAT vs those who did not, by SES.

Variable[a]	Discriminant weights		Averages			
			Low SES		High SES	
	Low SES	High SES	Took AAT	Did not	Took AAT	Did not
School type in 1971	0.54	0.31	2.63	1.98	2.90	2.66
Textbook availability, grade 8	0.36	0.54	2.78	2.48	3.27	2.86
Educational aspiration	0.00	0.40	4.21	4.34	4.74	4.06
Teachers' professional experience, grade 8	0.19	0.35	9.01	8.67	10.01	9.28
Age	0.34	0.22	22.31	22.06	20.98	21.16
Liking for academic subjects	0.38	0.13	3.56	3.33	3.46	3.40
Occupational aspirations	0.30	0.12	4.54	4.14	4.56	4.33
Verbal part score, class *SD*	0.04	0.37	6.94	7.06	6.70	6.56
National test score, grade 8	0.17	0.31	54.03	47.42	56.36	54.50
Total number of nonformal courses	0.21	0.03	0.59	0.30	0.63	0.49
Hours/week in free reading, secondary	0.04	0.14	3.37	3.09	3.57	3.34
Pedagogical excellence, grade 8 school	0.10	0.08	-0.24	-0.70	0.61	-0.06
Textbook availability, secondary	0.11	0.05	1.79	1.67	1.89	1.87
Average class size, secondary	0.12	0.10	31.28	28.53	35.60	30.99
Lived in city or country when young	0.30	0.11	1.12	1.18	1.04	1.02
Father's education	0.32	0.13	2.51	2.34	5.15	4.77
Personal estimation of academic success	0.25	0.36	2.27	2.23	2.25	2.15
National test score, grade 8, class average	0.22	0.15	53.90	50.42	58.76	55.44
Hours/week in free reading, grade 8	0.13	0.03	2.92	2.92	3.08	2.81
Level of urbanization of current province	0.17	0.17	2.10	1.92	2.27	2.25
Lives with spouse	0.00	0.14	1.13	1.15	1.07	1.11
Family SES, grade 8, class *SD*	0.18	0.07	0.58	0.53	0.59	0.58
Teachers' pre-service training, grade 8	0.06	0.08	3.31	2.99	3.90	3.59
Sex	0.01	0.07	1.61	1.57	1.51	1.62
Number of cases			38	50	77	32
Significance	0.012	0.05				
Percentage correctly classified	84.1	78.0				

[a] Variables are in order of discriminant weight for total sample.

Equality of Secondary Output — Scores on the AAT

In chapter 4, we have reported an analysis of factors affecting academic achievement at the end of primary. An important limitation of that analysis, and indeed of almost all extant large-scale studies of educational achievement (or educational production function studies), is that they are cross-sectional, dealing with only one achievement measure taken at a single point in time. From such analyses, one can get little indication of the long-term effects of schooling input factors, although we assume that knowledge acquisition and the effect of school upon it are continuous and cumulative. Moreover, one cannot get an estimation of the effect of school factors on changes in achievement levels.

The present section, drawing upon data from a longitudinal study, attempts to address this gap in the literature. The specific question considered here is: What factors effect a *change* in achievement level among

Chilean students between the end of primary and the end of secondary schooling? Any answer can be seen as a first step toward developing a "value added" model of the schooling process. Taking achievement levels at the end of primary schooling as given, we ask what variables have influenced changes in those levels by the end of secondary.

In interpreting these data, some basic features of the Chilean educational system reported above must be kept in mind. Before first contact was made with these subjects at the end of grade 8, just over 80% of the children of agricultural workers and about half of the children of urban industrial workers had already dropped out of school. Survival of the remainder through secondary is less strongly associated with social-class background; but it is strongly linked to previous academic performance and a number of educational "quality" variables. Since only those who took the AAT are considered in this analysis, we are looking at changes in achievement among the roughly 20% of the starting grade 1 cohort who have survived a rigorous social and academic screening process to reach 4th year of secondary.

Originally, we had considered using the grade 8 national test scores and the AAT scores to construct an index of achievement change for each individual. Several serious problems were encountered, however. First, the two tests differed in both their matrix and their substance. They differed in number of questions asked, substantive areas tapped by questions, level of difficulty (by definition), method of forming final scores, and nature of the populations on which they had been normed. We concluded that although it might be statistically possible to adjust the two sets of scores to a common matrix, the implied degree of similarity between the two instruments would be greater than we could justify. Moreover, any such index of change would necessarily be influenced by the starting scores of each student, whether we used absolute or percentage changes or any of several methods of calculating deviations from predicted scores from regression analysis. (See Adams and Farrell 1967, chapter 8, for an extended discussion of these problems.) Consequently, we abandoned this approach and attacked the problem from a different direction.

There is, as one would expect, a positive and fairly strong correlation between the two test scores ($r = 0.43$). The correlation indicates that a large portion of the variance in final test scores cannot be explained by initial test scores. We can think of this unexplained portion of the variance in final test scores as representing changes from the relative position on the first test, changes that must be accounted for by other explanatory variables. Thus, we have entered the grade 8 test score, and a number of other predictors, in regression analyses on the final test scores. The question we ask, then, is: Given the effect of previous achievement on later achievement, what is the predictive effect of other classes of variables? As before, our particular interest is in the relative effect upon achievement changes of educational quality variables that can be manipulated by policy. The results are first presented for the entire sample, and then separately for high- and low-SES students, to stress factors that may be particularly important for achievement levels of that relatively small proportion of poor students who stay in school until the end of secondary.

Regression analysis was carried out for the entire sample (Table 44).

Table 44. Regression analysis on AAT scores: total sample (r^2 = 0.624).

Variable	Beta
Average class size, secondary	0.379**
National test score, grade 8	0.288**
Textbook availability, grade 8	0.234**
Height	0.177**
Personal estimation of academic success	0.156**
Sex	-0.140**
Lived in city or country when young	0.123**
TV in home	0.099*
Age	0.088*
Level of urbanization of current province	-0.088*
Hours/week in free reading, grade 8	0.082*
Father's education	0.065
Occupational aspirations	0.051
Personal estimation of academic ability	0.045
Hours/week in free reading, secondary	0.026
Teachers' fathers' education, grade 8	-0.024
Pedagogical excellence, grade 8 school	-0.019
Direct stimulus from parents	-0.010
Teachers' pre-service training, grade 8	0.001

* $p < 0.05$ ** $p < 0.01$ p (total equation) < 0.01

The total r^2 is relatively high for this type of analysis, probably because of the presence of the earlier score. Together, the 19 predictor variables explain almost two-thirds of the variance in AAT scores. The most powerful single predictor is average size of secondary class. The positive value of the regression coefficient indicates that students from larger classes tended to outperform those from smaller classes. This result is consistent with previous findings in this study: for example, average class size at the grade 8 level was found to have a low but positive correlation with grade 8 national test scores (r = 0.07). What is surprising here is not the direction but the strength of the association. By comparison, the positive correlation for the grade 8 scores was not strong enough to survive preliminary screening for regression analysis. It is possible that class size is actually a proxy measure of overall school quality: that is to say, because more students try to attend schools with a reputation for high quality, such schools may tend to have larger classes. The detailed test of this explanation for the grade 8 finding indicated, however, that the positive association between class size and achievement could not be explained by differences in school quality.

Not surprisingly, given the correlation noted above, grade 8 national test score is a powerful predictor of later achievement. Textbook availability in grade 8 is the next strongest predictor. This variable is particularly interesting because it refers to availability *in grade 8*, 4 years before the AAT is taken. It reflects the cumulative long-term impact of the provision of adequate supplies of learning materials at the primary level. Indeed, textbook availability at the grade 8 level is a relatively more powerful predictor of achievement at the end of secondary than it is of scores on the grade 8 national test itself. Secondary-level textbook availability (which is moderately correlated with grade 8 textbook availability — r = 0.23) did not survive the preliminary screening process

and is therefore not even in this equation. Height, used here as a proxy indicator of quality of nutrition, is height in grade 8. Much has been written about the detrimental effect of early childhood malnutrition on school performance in the early primary years. The strength of that variable in this equation suggests a significant long-term effect on learning, even among those who have survived in school to the end of secondary. The student's own estimation of academic success is the next most powerful predictor. Students who perceive themselves to be doing well in secondary tend to obtain high scores on the AAT. Sex is also an important predictor: males tend to score higher than females. Elsewhere, we have developed a detailed explanation for this phenomenon in the Chilean situation (Schiefelbein and Farrell 1980).

Of even greater interest for present purposes are the results of the commonality analysis in which the unique effects of grade 8 national test score and of each of three other variable sets (personal characteristics of the student, family and community characteristics, and school quality variables) are identified as well as the joint effects of each possible combination of variable sets (see Table 15).

Several patterns are noteworthy. First, grade 8 national test score, in spite of its relatively high regression weight, accounts for only about 10% of the explained variance independent of the effect of other variables. Even when one adds in all of the joint effects in which this variable enters, less than one-third of the explained variance is attributable to the direct or indirect effects of achievement in grade 8. That is, most of the variance in

Table 45. Commonality analysis on AAT scores: total sample.

	Percentage of total variance (total r^2 = 0.624)	Percentage of explained variance
Unique effects[a]		
A. Personal characteristics of student	0.066	10.6
B. Family and community characteristics	0.065	10.4
C. Grade 8 national test score	0.066	10.6
D. School quality variables	0.150	24.0
Joint effects		
AB	0.024	3.8
AC	0.042	6.7
AD	0.052	8.3
BC	0.010	1.6
BD	0.033	5.3
CD	0.000	–
ABC	0.007	1.1
ABD	0.048	7.7
BCD	0.021	3.4
ACD	0.003	0.5
ABCD	0.037	5.9

[a] Personal characteristics of student: age; personal estimation of academic success; sex; hours/week in free reading, grade 8; hours week in free reading, secondary; and occupational aspirations. Family and community characteristics: father's education; TV in home; height (proxy for nutrition); direct stimulus from parents, level of urbanization of current province; and lived in city or country when young. Grade 8 national test score. School quality variables: textbook availability, grade 8; pedagogical excellence, grade 8 school; teachers' pre-service training, grade 8; teachers' fathers' education, grade 8; average class size, secondary, and personal estimation of academic success.

AAT scores represents changes from the relative level of achievement 4 years earlier, changes that must be explained by other predictors.

Turning then to the unique effect of family and community characteristics, we note that it is also relatively modest. The regression weights suggest that such effect as this variable set has is primarily attributable to the level of urbanization of the student's community rather than to the family SES (as indexed by father's education). We conclude that changes in level of academic achievement during secondary schooling among this student sample cannot be accounted for to any significant degree by the latter and only to a limited extent by the former. This finding may relate to the nature of this student sample. As noted above, we are dealing here only with the academically most successful students. Those lower-status students who have survived the long and rigorous screening process to the stage of the AAT have long since overcome disadvantages that have by now removed most of their peers from the schooling system.

The most important finding is the relatively powerful effect of school quality variables. This variable set alone accounts for almost a quarter of the explained variance, far more than any of the other unique effects. When one adds in all of the joint effects in which this variable set is included, one finds that school quality variables directly or indirectly account for 55.4% of the explained variance in achievement at the end of secondary. We conclude, then, that among this sample of successful students, changes in achievement level during secondary schooling can be explained primarily by the quality of their educational experience.

To identify possibly distinct patterns of effect between lower- and higher-SES students, the sample has been dichotomized on father's education. Splitting the sample in halves reduced the N for the regression analysis (Table 16) and the commonality analysis (Table 17), to the point that statistically significant regression equations could not be produced for all 19 of the predictor variables. After some experimentation, 8 predictors were selected that produced statistically significant equations for both groups.

The differences are quite remarkable. The unique effect of the grade 8 national test score is much stronger among lower-status students, accounting for 31.7% of the explained variance (vs 12.0% for higher-status students). For more disadvantaged youngsters, establishing a pattern of

Table 16. Regression analysis on AAT scores: high- and low SES students.

Variable	High SES		Low SES	
	Beta	Rank	Beta	Rank
Average class size, secondary	0.386**	1	0.330**	3
Textbook availability, grade 8	0.323**	2	0.124	5
National test score, grade 8	0.274**	3	0.464**	1
Personal estimation of academic success	0.217**	4	-0.001	8
Height	0.124	5	0.376**	2
Sex	-0.071	6	-0.195*	4
Father's education	0.066	7	-0.087	6
Lived in city or country when young	-0.009	8	-0.063	7

*$p < 0.05$ **$p < 0.01$ p (both total equations) < 0.01

Table 47. Commonality analysis on AAT scores: high- and low-SES students.

	High SES			Low SES		
	Percentage of total variance (r^2 = 0.557)	Percentage of explained variance[a]		Percentage of total variance (r^2 = 0.615)	Percentage of explained variance[a]	
Unique effects[b]						
A. Personal characteristics of student	0.046	8.3	(9.4)	0.036	5.8	(8.5)
B. Family and community characteristics	0.020	3.6	(4.1)	0.147	23.9	(35.0)
C. Grade 8 national test score	0.067	12.0		0.195	31.7	
D. School quality variables	0.182	32.7	(37.1)	0.111	18.0	(26.5)
Joint effects						
AB	0.005	0.9		0.043	7.0	
AC	0.041	7.4		0.010	1.6	
AD	0.050	16.2		0.011	1.8	
BC	0.009	1.6		0.000	–	
BD	0.022	3.9		0.019	3.1	
CD	0.000	–		0.031	5.0	
ABC	0.008	1.4		0.000	–	
ABD	0.019	3.4		0.001	0.1	
ACD	0.025	4.5		0.000	–	
BCD	0.000	–		0.014	2.3	
ABCD	0.023	4.1		0.000	–	

[a] The figure in parentheses is the percentage of the portion of the explained variance that is *not* accounted for by grade 8 national test score.

[b] Personal characteristics of student: personal estimation of academic success; sex. Family and community characteristics: father's education; height; lived in city or country when young. Grade 8 national test score. School quality variables: average class size, secondary; textbook availability, grade 8.

academic success in primary school is quite important for future performance. There are also apparently few or less marked changes in achievement levels among lower-status students during secondary schooling. That is, once one considers the effect of grade 8 achievement, there is less variance in ultimate secondary achievement "left over" for the other variable sets to explain (Table 47).

Family and community characteristics are also much more important among lower- than higher-status students. Nutrition is the primary factor operating here (Table 46). This finding reinforces a point made above. Even among the most academically successful survivors from the lower classes, early malnutrition has a powerful and long-lasting effect.

Conversely, the unique effect of school quality variables is greater among higher-status students, though certainly not negligible among the lower-status group. To understand the meaning of this finding fully, we must refer to results from earlier stages of the study — and here the importance of a longitudinal study comes fully into play. In the initial phase of the study, we found that the grade 8 national test score — the most powerful independent predictor among lower-status students — is itself strongly influenced among lower-status students by school quality variables, particularly textbook availability, operating at the grade 8 level and before.

The two findings that point to the lasting impact of early malnutrition

and school quality suggest that early intervention in both areas is essential to promoting the long-term educational success of even the highest achievers among the offspring of lower-status families in Chile.

Entrance to University

In any given year during the mid-1970s, only about half of those who applied for university admission were accepted (Schiefelbein and Grossi 1978). The primary determinant of university admission is the score on the AAT, although secondary school marks are also taken into account, and in some fields a student must have an acceptable score on specialized knowledge tests. Thus, it is not surprising that the results of a discriminant analysis (Table 48) show AAT score to be by far the most powerful predictor, with a very large difference between the average score of those who entered university (621.13) and those who did not (507.42).

The second most powerful discriminator is secondary class size. Again, we find the association to be positive, those who enter university having been in *larger* classes. What is most notable here, as with the effect of this predictor on AAT scores themselves, is the power of the effect. University entrants were in secondary school classes that were on average 40% larger than those of non-entrants. The consistent association of positive educational results with larger class sizes remains puzzling. We have

Table 48. Discriminant analysis: those who entered university vs those who did not.

Variable[a]	Discriminant weights	Averages: Entered university	Averages: Did not
Score on AAT	0.41	621.13	507.42
Average class size, secondary	0.36	39.93	28.41
Textbook availability, secondary	0.27	1.81	1.90
Personal estimation of academic success	0.21	2.37	2.12
National test score, grade 8, class average	0.17	60.08	54.18
Level of urbanization of current province	0.17	2.26	2.17
Total number of nonformal courses	0.13	0.46	0.76
Pedagogical excellence, grade 8 school	0.12	0.69	0.01
Occupational aspirations	0.10	4.72	4.32
Father's education	0.09	4.67	3.83
Hours/week in free reading, secondary	0.09	3.87	3.02
School type in 1971	0.08	2.87	2.77
Lives with spouse	0.08	1.04	1.13
Sex	0.05	1.44	1.64
Family SES, grade 8, class *SD*	0.05	0.58	0.59
Teachers' professional experience, grade 8	0.04	9.73	9.55
Verbal part score, class *SD*	0.03	6.66	6.88
Lived in city or country when young	0.03	1.03	1.09
Age	0.01	20.7	22.2
Teachers' pre-service training, grade 8	0.01	3.90	3.55
Liking for academic subjects, secondary	0.01	3.49	3.45
Number of cases		211	201
Significance	0.000		
Percentage correctly classified	85.4		

[a] Variables are in order of discriminant weight.

already discarded the explanation that class size serves as a proxy for school quality. Given the strong influence of school type on the decision to sit for the AAT, another possible explanation could be that technical/professional schools have many small classes in which students are given practical workshop experience. The association between school type and class size is not, however, statistically significant. Urban schools tend to have larger classes than rural schools ($\eta = 0.17$ between class size and level of urbanization of the province). That relationship is not strong enough, however, to explain the very powerful effect of class size (Table 48). Moreover, neither of the two direct measures of urbanization (urbanization of current province or lived in city or country as child) is a very strong predictor of university entrance. The correct interpretation of this consistent class-size effect remains a challenge. We have not been able to "explain it away," but neither have we been able to explain it satisfactorily. Here may be a subject for a very careful ethnographic classroom study.

The third most powerful predictor is secondary-level textbook availability. Here too, we have a puzzle. The direction of effect is *negative*: those who enter university had fewer texts than those who do not. The relationship is particularly strange, because grade 8 text availability is a powerful and positively associated predictor of AAT score, and secondary-level text availability, though not a strong predictor, is positively associated with AAT score. We have not been able to develop a satisfactory explanation for the relationship and can only point to an additional challenge for future research. (The doctoral research of a student working with one of the authors, which is based upon a detailed observation of teaching behaviour and textbook use in Chilean classrooms, will perhaps shed some light on the problem.)

The next strongest discriminator is personal estimate of academic success. Students who perceive themselves as doing well academically in secondary school are likely to be admitted to university — that is, their self-perceptions would appear to be accurate. After this point, the discriminant weights begin to fall off quite rapidly. The relatively low predictive power of father's education is notable; throughout this chapter, we have found family SES to have little direct effect on educational results.

In Table 49, the original analysis of determinants of university entrance is specified by family SES. Here, we note some large differences. The results for the higher-status students closely paralled those for the total 4th-year secondary sample, probably because the total sample is predominantly composed of such students. For the low-SES minority, the pattern of predictors changes substantially. AAT score and secondary class size are the only two very strong discriminators; their influence is decisive for these students and much weaker (comparing discriminant weight values) among higher-SES students. The third-strongest predictor among low-SES subjects, occupational aspirations, is much weaker than the first two predictors; and the influence of a relatively subjective factor, personal estimate of academic success, practically disappears. In short, for those few low-SES students who survive to the end of secondary, it is a high level of academic achievement that is critical to their transition to university. We have found (as noted in the preceding section) that the most powerful predictor of AAT scores among lower-status students is academic

Table 49. Discriminant analysis: those who entered university vs those who did not, by SES.

Variable[a]	Discriminant weights		Averages			
			Low SES		High SES	
	Low SES	High SES	Entered university	Did not	Entered university	Did not
Score on AAT	0.51	0.34	597.60	492.47	629.59	516.25
Average class size, secondary	0.45	0.35	36.51	28.48	40.84	28.38
Textbook availability, secondary	0.17	0.29	1.67	1.85	1.85	1.94
Personal estimation of academic success	0.04	0.29	2.36	2.22	2.38	2.06
National test score, grade 8, class average	0.03	0.26	56.55	52.49	61.10	55.41
Level of urbanization of current province	0.04	0.19	2.20	2.05	2.29	2.25
Total number of nonformal courses	0.06	0.14	0.31	0.74	0.51	0.79
Pedagogical excellence, grade 8 school	0.05	0.17	0.02	-0.37	0.88	0.21
Occupational aspirations	0.18	0.07	4.91	4.33	4.68	4.40
Father's education	0.12	0.04	2.50	2.51	5.34	4.88
Hours/week in free reading, secondary	0.02	0.08	3.70	3.19	3.97	3.01
School type in 1971	0.06	0.04	2.57	2.65	2.94	2.84
Lives with spouse	0.01	0.10	1.06	1.17	1.04	1.12
Sex	0.09	0.12	1.35	1.74	1.45	0.59
Family SES, grade 8, class *SD*	0.02	0.09	0.63	0.56	0.57	0.62
Teachers' professional experience, grade 8	0.01	0.05	9.41	8.80	9.91	10.17
Verbal part score, class *SD*	0.01	0.01	6.95	6.94	6.60	6.85
Lived in city or country when young	0.02	0.02	1.04	1.17	1.03	1.05
Age	0.08	0.03	20.67	23.20	20.72	21.33
Teachers' pre-service training, grade 8	0.12	0.04	3.53	3.19	3.99	3.77
Liking for academic subjects, secondary	0.07	0.01	3.39	3.65	3.52	3.38
Number of cases			41	77	163	114
Significance	0.000	0.000				
Percentage correctly classified	87.7	87.7				

[a] Variables are in order of discriminant weights for total sample.

achievement at the grade 8 level. Hence, for the less advantaged sector of the population, early intervention to enhance educational quality is essential.

Chapter 9

Equality throughout the Educational System: Some Concluding Observations

In the preceding chapters in parts II and III, several detailed analyses of individual educational sorting points have been presented. Before we move to an examination of labour market entry, it is useful to reassemble the data and look at the overall educational survival patterns.

Educational Survival Patterns

Using data from several chapters above, and some new information, we can estimate the probabilities of survival from grade 1 through university entrance for children born into different socioeconomic situations in Chile.

The overall estimated survival proportions of a starting grade 1 cohort are graphed by level of father's occupation (Fig. 3) and by level of father's education (Fig. 4). When viewed in this fashion, the survival differences between occupational and educational groups are quite substantial. With regard to father's occupation, 100% of children of the highest-status fathers complete primary schooling, but only 18% of the children of the lowest-status fathers. Just over half of the children of the highest-level fathers enter university (51%), but only 3% of the children of primary resource exploitation workers. The differences between the extremes of the distribution for father's education are even more pronounced. All of the children of fathers with university education complete secondary schooling, and 59% enter university. Among the children of illiterate fathers, only 10% complete eight grades of primary school, 3% finish secondary education, and fewer than 1% enter university.

The figures indicate that high parental status is not automatically transferable to children. A university education is very nearly a prerequisite for entry to managerial or professional occupations. Yet, 49% of the children of fathers with such jobs had not entered university. Similarly, 41% of the children of university-educated fathers did not themselves enter university. Moreover, a father's having some secondary education is not a guarantee that his child will complete secondary (even including late completers, only 55% do so) and is not even a guarantee that his child will complete primary schooling (almost 30% do not).

(Between grades 8 and 12, (b) denotes those who finished secondary schooling on time in 1974, and (a) includes those who finished late.)

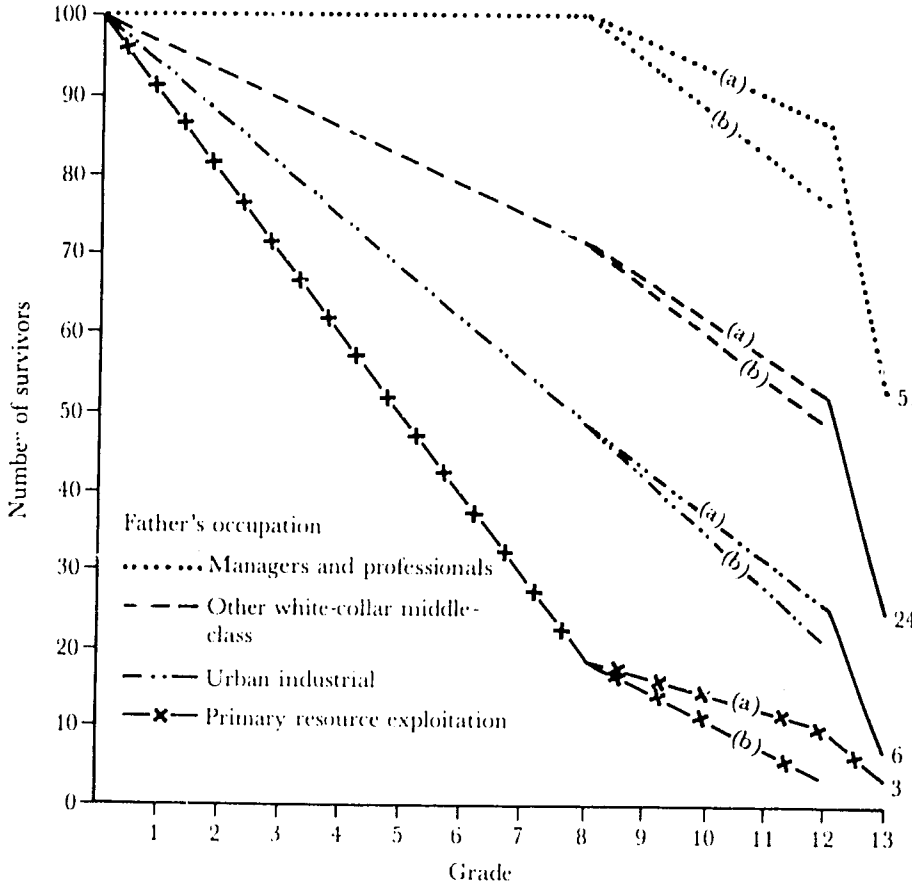

Fig. 3. Estimated survivals of a cohort of 100 students, grades 1–13 (primary 1–8, secondary 8–12, university 12–13), by father's occupation

The figures present an outflow view of equality. To correctly understand their social meaning and take into account the overall proportion of the population of Chile included in the various social categories, we must now take an inflow point of view. The contrast between the outflow and inflow views of equality can be seen perhaps most clearly with respect to the children of the urban industrial work force, upon whom we have focused attention before. This group represents 38% of the total work force and 40% of the 4th-year secondary student population (among those who finished secondary in 1974). Yet because the 4th-year population is in total very restricted, whereas the occupational group is quite large, those 40% are only one-fifth of all children of the occupational group who started school 12 years earlier.

The social groupings between which the differences are most extreme represent a relatively small proportion of the Chilean population. In 1960, the highest occupational groups (managers and professionals) represented about 5% of the economically active male population (see Table 32). The

(Between grades 8 and 12, (b) denotes those who finished secondary schooling on time in 1974, and (a) includes those who finished late.)

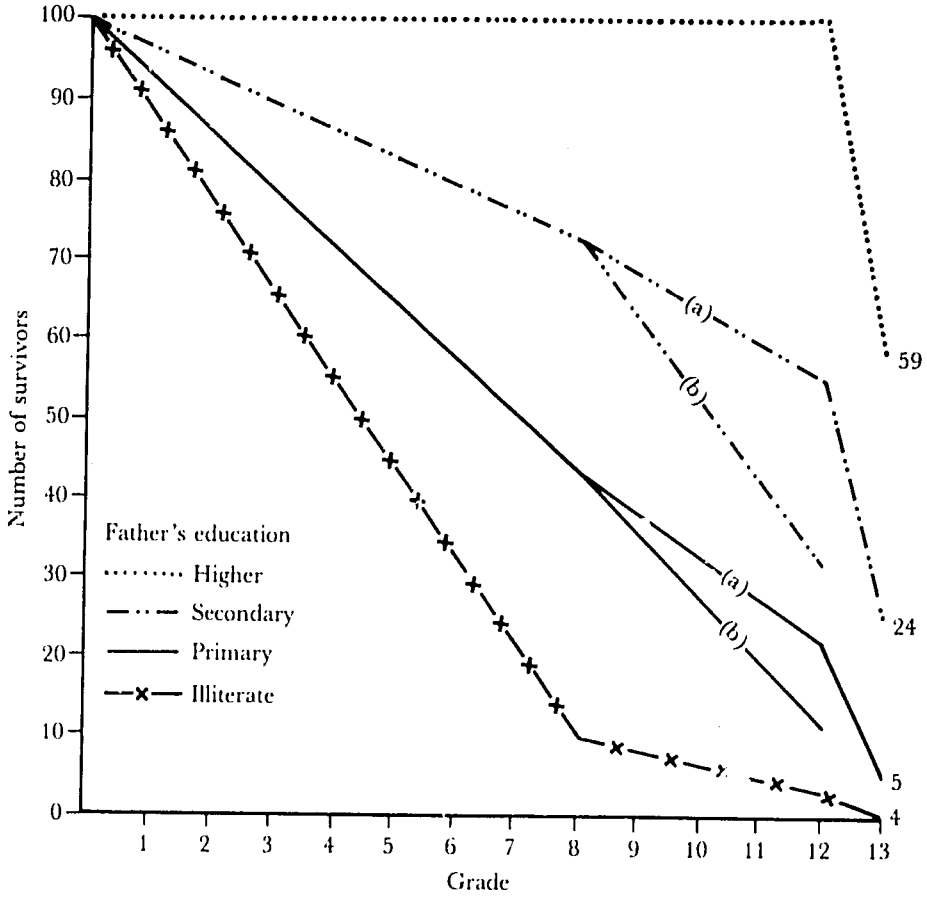

Fig. 4. Estimated survivals of a cohort of 100 students, grades 1–13 (primary 1–8, secondary 8–12, university 12–13), by father's education.

lowest occupational group, agricultural workers, comprised about a third of the population, a figure that has declined sharply in the last 2 decades. As to education, 15.7% of the active male population were illiterate and only 2.5% had university training.

With respect to the "middle" groups, two points are particularly worth noting. First, children of families where the father has secondary education appear to encounter considerable difficulty in their own secondary schooling, but to be highly motivated to finish: over half (55%) eventually complete secondary education, but only 32% do so on time. Second, the educational survival potential of the children of the largest occupational group in the society, those workers who are in the more modern — urban or industrial — sectors of the economy, is almost identical to the national average, and is about four times higher than that of rural working-class families. Inkeles and his colleagues may be correct regarding the modernizing effect of working in an urban industrial environment (Inkeles 1969).

Predictors of Final Educational Attainment

Given all that has been said in the paragraphs above, and all of the detailed analyses reported in previous chapters, it is clear that the ultimate educational destiny of these Chilean young people is not wholly predictable from their family status of origin. Comparatively, both the very rich and the desperately poor are small proportions of the total population. Some children of the poorest segments go far educationally, in spite of their initial severe disadvantage; some children of the most advantaged families do not. What, then, are the factors that best predict the ultimate level of education finally attained?

To consider this question, we have treated final educational attainment as a continuous variable and carried out regression and commonality analyses for the complete follow-up sample, ranging from those few who did not complete grade 8 to those who finally entered university (Table 50).[1] The most striking observation is the extremely powerful independent effect of educational quality variables in the commonality analysis. This variable set alone accounts for more than half of the explained variance, whereas all the other unique effects are quite small. The regression weights suggest that the four most powerful variables in this set are textbook availability at the secondary level, grade 8 marks, pre-service training of grade 8 teachers, and the pedagogical excellence of grade 8 school. Father's education is the fifth-strongest individual predictor. Even though the unique effect of family and community characteristics is very small, there is a quite strong interaction effect between this variable set and the educational quality variables (the joint effect accounts for 20.5% of the explained variance). This interaction suggests that at the postprimary level the effect of family SES on educational attainment is mainly indirect, through its effect on access to high-quality schooling in the early years. Since in addition three of the four strongest education-related variables correspond to the grade 8 level, the importance of early educational intervention is reinforced yet again.

We must remember that even these very complex statistical analyses do not capture everything that affects the educational or occupational destiny of young people. The regression equation just discussed accounts for only 40% of the total variance in educational attainment. The remainder may be variously attributed. Some potentially measurable factors are absent from this study (an important example is that we have no measure of "intelligence" available); absent also are factors that we assume to be important but that cannot be measured well, if at all, and that in many cases are not even well defined (teaching quality is an example).

Also important, people's lives are often affected by idiosyncratic events that are not easily picked up in a large-scale study. In an attempt to get at least some sense of the effect of very specific events upon educational success, students were invited, for each year in which they were in school, to note any particular "extraordinary" factors that may have negatively or positively influenced their academic results. A wide array of problems or negative factors was reported, such as personal illness or accident, illness in the family, death of a close relative, a change in family residence, difficulties with a particular teacher, disputes with parents, and the like.

Table 50. Regression, with commonality analysis, on level of education attained.

I. Commonality Analysis

	Percentage of total variance (total r^2 = 0.404)	Percentage of explained variance
Unique effects[a]		
A. Personal characteristics	0.019	4.7
B. Family and community characteristics	0.013	3.2
C. Peer group characteristics	0.003	0.7
D. Educational quality characteristics	0.216	53.5
Joint effects		
AB	0.001	0.2
AC	0.000	–
AD	0.017	4.2
BC	0.000	–
BD	0.083	20.5
CD	0.002	0.5
ABC	0.000	–
ABD	0.011	2.7
ACD	0.003	0.7
BCD	0.031	7.6
ABCD	0.005	1.2

II. Regression Analysis

Variable[b]	Beta
Textbook availability, secondary	0.358**
Grade 8 mark	0.262**
Teachers' pre-service training, grade 8	0.132**
Pedagogical excellence, grade 8 school	0.128**
Father's education	0.122**
Hours/week in free reading, secondary	0.080**
TV in home	-0.069*
Sex	-0.058
Teachers' fathers' education, grade 8	0.062*
National test score, grade 8, class average	-0.057
Liking for academic subjects, secondary	0.054
Hours/week in free reading, grade 8	0.047
Class size, grade 8	0.046
School type in 1971	0.030
Teachers' professional experience, grade 8	0.020
Lived in city or country when young	-0.017
Family SES, grade 8, class *SD*	0.015
Textbook availability, grade 8	0.008

[a] Personal characteristics: liking for academic subjects, secondary; hours/week in free reading, grade 8; sex. Family and community characteristics: father's education; TV in home; lived in city or country when young. Peer group characteristics: national test score, grade 8, class average; family SES, grade 8, class *SD*. Educational quality characteristics: textbook availability, secondary; grade 8 mark; teachers' pre-service training, grade 8; pedagogical excellence, grade 8 school; teachers' fathers' education, grade 8; class size, grade 8; school type in 1971; teachers' professional experience, grade 8; textbook availability, grade 8.

[b] Predictor variables are in order of regression weight.

* $p < 0.05$ ** $p < 0.01$ p (total equation) < 0.01

Personal illness and death of a parent were the only problems that occurred with sufficient frequency to permit separate treatment. We have related the incidence of such individual problems to school success during

Table 51. Influence of specific problems on academic success.

Existence and type of problem	Educational results			
	Left during year (%)	Failed (%)	Promoted (%)	*N*
1971				
Without problems	–	4	96	720(69%)
Had problems	3	36	61	319(31%)
personal illness	6	30	64	53
death of a parent	–	29	71	17
other[a]	2	38	60	249
1972				
Without problems	–	3	97	694(70%)
Had problem(s)	2	36	62	291(30%)
personal illness	6	36	57	47
death of a parent	–	37	63	16
other	1	36	63	228
1973				
Without problems	–	3	96	634(71%)
Had problem(s)	2	29	69	262(29%)
personal illness	5	29	67	42
death of a parent	–	18	82	17
other	1	30	69	203
1974				
Without problems	1	4	95	595(72%)
Had problem(s)	–	38	62	237(28%)
personal illness	–	34	66	35
death of a parent	–	44	56	18
other	1	37	62	184

[a] For example, death of a relative or close friend, family problems, problems with a teacher, family moved, etc.

the year in which they occurred (Table 51). Comparison by type of problem encountered indicates that the two most common events, personal illness and death of a parent, do not have a consistently stronger or weaker relationship with educational failure than other types of problems.

Perhaps the major point to be drawn from the discussion in the preceding two paragraphs is that this type of large-scale survey needs to be complemented by other types of investigations if we are to understand more fully how and why children from different social origins succeed or fail in school. Particularly useful would be ethnographic studies of actual classroom behaviour and detailed life histories.

Notes

1. The assignment to all university students, in whatever years of study, of the same top score reduces somewhat the range of variability. Examination of the detailed histories of individual university students revealed such a bewildering array of patterns — students combining full- and part-time studies, students repeating courses they had failed, students dropping out for a term or a year and then reentering, students changing fields and effectively starting over again after at least 1 year of studies, etc. — that we could develop no satisfactory consistent scheme for coding years of university study.

Part IV

Equality of Outcome: Labour Market Entrance

EQUALITY OF OUTCOME: LABOUR MARKET ENTRANCE

In the opening chapter, we defined equality of outcome as the probabilities that children from various social groupings will live relatively similar lives subsequent to and as a consequence of schooling. The focus of this aspect of educational equality is on the ways in which education is used in later life. Although formal schooling is presumed to produce a wide variety of outcomes in the lives individuals lead thereafter, the particular concern here is the effect of schooling on a young person's entry into the labour market.

There have been several studies of this linkage in developing nations reported in recent years (see, for example, Education Development Center 1975; Holsinger 1975; Liu and Yauger 1975; Currie 1977; PREALC 1978; Schiefelbein 1978). Most of the available research, especially that in which an attempt is made to develop complex multivariate models of the job attainment process, pertains to developed nations, however. (See, for example, Fagerlind 1975; Sewell and Hauser 1975.) Recent reviews of studies in this area can be found in Bowman (1976) and Woodhall (1981). As well, previous studies of the education/labour-market linkage have dealt almost exclusively with males, have been based with very rare exceptions (see Sewell and Hauser 1975) on cross-sectional analysis, and have ordinarily considered only two quantitative educational indices: *educational attainment*, measured as years of schooling or highest schooling level completed, and *educational achievement*, measured as scores on a test or grades assigned by classroom teachers. More qualitative dimensions of the educational experience are typically ignored (exceptions are Currie's 1974 study of Uganda; Heyneman's 1980 study of Malawi; and, of course, Jenck's 1979 study of the U.S.).

Moreover, education has typically been related to only one indicator or aspect of occupational attainment (e.g., employed vs unemployed; occupational prestige or status; current or projected lifetime earnings). With the information available from the study reported here, we have been able to include both males and females, separately, in the analyses, and to bring longitudinal data to bear on the relationship between education (considered in both qualitative and quantitative terms) and several distinct aspects of the process of labour market entry. In chapter 10, we consider the job search process and differences between those who obtain work and those who do not. This analysis is followed by discussion of the characteristics of the jobs acquired and the determinants of occupational status. Finally, brief attention is given to patterns of job loss.

Some general limitations should be noted. First, as discussed earlier, the fact that the young people in this sample stayed in school longer than

expected has meant that we have found fewer cases in the occupational system than anticipated, and those with jobs had been working for a relatively short period of time.[a] Although we have more than 450 cases of individuals who found work, which is a number sufficient to carry out most planned analyses, we have not been able to undertake all anticipated complex cross-tabulations because of problems of small cell size, especially when dividing the sample by sex.[b] Second, because most of the subjects have been in the labour market for a shorter period than anticipated, we have been unable to consider systematically patterns of job change and within-career mobility. Rather, we have had to concentrate on labour market entry, considering only the *first* job obtained. However, this may not be a serious limitation. Raczynski's work (1974) suggests that mobility within careers in Chile is rather limited.

To interpret the data presented below, we must consider a few features of the Chilean labour market during the time these young people began to search for jobs. First, the Chilean economy is primarily industrial and urban based. In the 1960 census, only about one-third of all economically active males were reported employed as agricultural labourers, and the figure had dropped to one-quarter by the early 1970s (Steenland 1974:129), as we have noted earlier.

Second, female participation in the labour force, particularly at the middle and upper levels, is unusually high in Chile. Moreover, data taken from those countries that participated in the most recent International Educational Achievement studies indicate that the proportion of females in semiprofessional and higher-level occupations in Chile (32%) exceeded that in Australia (31%), Japan (28%), New Zealand (23%), Hungary (21%), Belgium (20%), the United States (20%), France (19%), the Netherlands (7%), and Iran (3%). Only two nations, Finland and Israel, reported rates that slightly exceeded that of Chile (Passow et al. 1976:182).

Third, throughout the 1970s, Chile experienced severe economic difficulties. Those of our sample who left school early, before 1974, entered the labour market at a time of great economic (as well as political and social) turmoil. The public sector expanded very rapidly owing to extensive nationalizations, the private sector stagnated, work stoppages were endemic, a vast illicit market flourished, and inflation reached record annual rates of about 1000%. Whatever one may argue regarding the causes of these conditions, a consequence was a chaotic employment market. Those who left school after 1974 came into the employment market at a time when the economic policies of the military government were producing a severe economic depression and very high unemployment rates, especially among young people. The Office of National Planning (ODEPLAN) has estimated that in 1975 the open unemployment rate among Chileans aged 15–24 was 33.9%. Among young people with at least 3 years of secondary, the figure was 31.4%; among those with at least 4 years of secondary, the rate was 24.8% (Acevedo et al. 1977:17).

[a] Sewell and Hauser (1975) encountered a similar difficulty.

[b] In several instances, even with relatively simple tables, statistical significance has not been achieved because of the small number of cases. Levels of statistical significance are reported in all cases.

Chapter 10

Education and Employment: Who Get Jobs and How Do They Do It?

It is generally recognized that high rates of unemployment constitute one of the most troublesome socioeconomic problems in developing nations. Sabolo's (1975) predictions to 1990 indicate that unemployment rates will continue to increase in developing areas through the next decade. After noting the possible sources of error in such predictions, Sabolo (1975:411) concludes:

> "One thing, however, is sure: the rate of unemployment rose sharply between 1960 and 1973 . . . and the data indicate a growing gap between the gravity of the problem and the measures adopted to combat it. If no remedy is found the situation will become critical by 1990 and probably sooner than that."

In most societies, the problem is particularly serious among young people. It is becoming increasingly difficult for young entrants to the labour market to find a job and, once having found it, to keep it. In terms of both theory and policy, it is extremely important for us to understand the process by which young people in developing nations obtain their first job and the factors that increase their chances. Our particular concern in this chapter will be the linkage between education and the job attainment process.

The evidence available to date from developing nations indicates that generally there is a curvilinear relationship between level of education attained and rate of unemployment. Unemployment rates tend to increase with increments in years of education, up to the postsecondary level, where the rates begin to decline. Even at the university level, the rates are higher than those for illiterates. (See Turnham 1971; Blaug 1973; Callaway 1976; Standing 1978.) Simmons (1980:32–34) has suggested that much of this unemployment among relatively well educated young people is voluntary — that is, highly educated and economically well-off youngsters may wait for a socially appropriate job to come along.

In this chapter, we intend to advance beyond previously reported studies of the education/labour-market linkage in several important respects.

- The data are taken from a longitudinal study that has followed the same young people from the time they were completing primary school.

- The available data permit us to consider a wide array of educational quality variables in addition to the simple datum of years (or level) of education attained.
- With the available data, we not only can examine the factors that best predict the probability of obtaining a first job, but can consider the actual job location process.
- Females as well as males have been included, and data regarding them are separately analyzed.

With increasing rates of female labour force participation in many societies, this information is particularly important, especially given Standing's (1976:286) observation that "empirical research has so far not adequately demonstrated any consistent association between education and female labour force participation."

So that these data may be interpreted correctly, it should be emphasized once again that this study includes only young people who have completed at least an 8-year primary education. As indicated earlier, although almost all children in Chile enter primary school, and most complete at least 5 years of schooling, about 50% of an entering grade 1 cohort cannot be expected to complete grade 8. This study deals only with the surviving half of the youth population. Two implications flow from this. First, the data say nothing about that half of the children who do not complete the primary cycle. (Since the cross-national evidence cited above indicates that those not included are those least likely to have encountered employment problems, the limitation is probably not serious.) Second, the findings reported here are not automatically generalizable to societies that do not share Chile's educational survival pattern. We are referring here to a society in the mid-range of educational and economic development.

This chapter deals only with the characteristics of labour market entrants and the relationship of those characteristics to success in job acquisition. We have nothing to say here about policies designed to increase the supply of available jobs. We do not assume that educational policy can necessarily do anything to increase overall employment rates in a society, except insofar as increased levels of education overall may in the long run contribute to employment-generating economic growth — itself a proposition frequently challenged these days. As Simmons (1980:35) has suggested, at least in the short term, "recent observers have determined that education cannot make a major contribution to reducing unemployment."

The question that can be addressed with these data is the following. Given that the supply of jobs available to young people with at least primary schooling is less than that required for full employment, what are the factors that distinguish between those who do and do not find employment? We are dealing with a system for rationing two scarce goods — education and employment — and particularly with the effect of the former upon the latter in a class-stratified society.

The Job Search Process

Relatively little is known about the functioning of the labour market in Latin America.[1] The question to be dealt with here is how young people

who enter the labour market actually find a job. The data available from this study permit us to examine the job search process in considerable detail. One can conceive of this process as involving two key dimensions: the number of separate *steps* required to find a job (number of firms contacted and number of interviews); and the *time* required. A third important aspect of the process is the information sources young people use. The data at hand allow us to examine all three aspects as well as two subsequent questions: On what basis do employers decide to offer a job to a young aspirant? On what basis do young people decide to accept a job?

A significant limitation of these data is that job search information was collected only from those who had found a job — those who were successful. Thus, we cannot compare the job search behaviour of successful and unsuccessful job seekers.[2]

A striking initial finding is that many of the successful job seekers do not appear to have had a difficult time in finding employment, even in a generally tight and very turbulent labour market. (Here one must bear in mind again that virtually all of these subjects have completed at least primary schooling.) Almost one-third contacted only one firm before finding a job; more than 70% contacted not more than three firms. Just over 40% were hired after one interview; another 38% needed only two or three interviews; less than one-fifth required four or more interviews. Of all those who found employment, one-third located their position within 1 week of the initiation of the job search; one-quarter required 2–4 weeks of search; the remaining 40% needed at least 5 weeks.

Although females are less likely than males to be working, there is only a small tendency for those females who have found work to have had more difficulty than males in locating the first job. With respect to length of the job search, there is no appreciable difference: 65% of the males and 63% of the females found a job within 1 month. There is some tendency for females to have applied to more firms and to have had more interviews than males before getting the first job: 34% of males and 29% of females got a job in the first firm they contacted. Almost half of the males (48%), but only 38% of the females, got a job after the first interview.

As one would expect, there is a positive association between time taken to find a first job and the number of steps involved. Gammas between number of firms contacted and time taken are, for males and females respectively, 0.25 and 0.43. Between number of interviews and time taken, the gammas for males and females are 0.11 and 0.32.[3] It is most interesting that these associations are not stronger. For example, of all those males who had only one job interview, 42% required more than 1 month to find a job. Of those males who took more than 25 weeks to find a job, 28% had one interview and 28% had four or more interviews. Similar patterns obtain for females. Thus, there is considerable slippage in this relationship: some people contact a number of potential employers very quickly, while others spend a great deal of time and locate few potential employers and are invited for few interviews. It is worthwhile, therefore, to consider separately some of the steps involved and time required to find a first job.[4]

The number of firms visited (Table 52), the number of interviews (Table 53), and the time required to locate the first job (Table 54) are related to father's education (as a measure of social status). Here we

observe a very clear relationship, although not always at the level of statistical significance. The higher the education of the father, the smaller the number of firms visited, the fewer the number of interviews necessary to obtain a position, and the higher the proportion of individuals who found employment within 1 month. With reference to the number of steps involved in the job search process (number of firms and number of interviews), the pattern is very strong and consistent for males and somewhat curvilinear (falling off among those whose fathers had university education) among females. The relationship between time spent and social status is about the same for both sexes: 53% of both the sons and daughters of fathers with primary education or less found a job within 4 weeks, whereas 73% of the sons and 79% of the daughters of fathers with university education found employment within the same time period.

This relationship could be due to characteristics of the more socially advantaged young people themselves (i.e., they understand the labour market better, look more efficiently for work, are more able to sell themselves to prospective employers, or can exploit family connections) or to the nature of the jobs they typically seek (it may be easier to locate a job in the white-collar occupations to which they typically aspire). To test this latter possibility, the number of firms visited (Table 55) and the time

Table 52. Number of firms contacted, by father's education and by sex.

Sex	Number of firms	Father's education: Primary or less	Secondary	Higher	Total
Males	1	15 (25%)	11 (41%)	6 (50%)	32
	2–3	26 (44%)	8 (30%)	4 (33%)	38
	4+	18 (31%)	8 (30%)	2 (17%)	28
Total		59	27	12	98
Females	1	17 (26%)	9 (31%)	1 (8%)	27
	2–3	22 (33%)	13 (45%)	11 (92%)	46
	4+	27 (41%)	7 (24%)		34
Total		66	29	12	107

Note: The correlation for males is not significant; for females $p < 0.005$.

Table 53. Number of interviews, by father's education and by sex.

Sex	Number of interviews	Father's education: Primary or less	Secondary	Higher	Total
Males	1	29 (36%)	17 (52%)	13 (76%)	59
	2–3	32 (40%)	12 (36%)	3 (18%)	47
	4+	19 (24%)	4 (12%)	1 (6%)	24
Total		80	33	17	130
Females	1	25 (28%)	22 (51%)	6 (38%)	53
	2–3	40 (45%)	17 (40%)	7 (44%)	64
	4+	23 (26%)	9 (21%)	3 (19%)	35
Total		88	48	16	152

Note: For males, $p < 0.05$; for females the correlation is not significant.

Table 54. Time required to find first job, by father's education and by sex.

Sex	Time required (weeks)	Father's education: Primary or less	Secondary	Higher	Total
Males	<1	24 (24%)	13 (24%)	4 (18%)	41
	1–4	29 (29%)	18 (33%)	12 (55%)	59
	5–24	33 (33%)	15 (27%)	4 (18%)	52
	>25	13 (13%)	9 (16%)	2 (9%)	24
Total		99	55	22	176
Females	<1	12 (13%)	17 (28%)	5 (22%)	34
	1–4	36 (40%)	23 (38%)	13 (57%)	72
	5–24	28 (31%)	12 (20%)	1 (4%)	41
	>25	13 (15%)	8 (13%)	2 (9%)	23
Total		89	60	21	170

Note: The correlation is not significant for males; for females, $p < 0.05$.

required to find the first job (Table 56) are related to type of employment, dichotomized as manual vs non-manual. Among females, there is a slight tendency to require less time to locate a non-manual position. All the other differences by occupational type are not significant. In addition, the three measures of job search process have been related to the economic sector of the first job (commerce, services, industry, agriculture, etc.). Generally, the differences between economic sectors are small and not statistically significant. These data suggest that differences in levels or segments of the labour market do not account for the relationship between ease of job acquisition and father's education. The relationship maps to class-linked differences in the job-seeking behaviour of individuals themselves.[5]

Since students from more educated families tend to stay in school longer than those from less educated families, one would expect, from the evidence above, an association between the year a student left school and ease in locating a job. However, the economic convulsions experienced in Chile during the middle and late 1970s could easily confound such a relationship. To examine the relationship, the number of firms visited (Table 57), the number of interviews (Table 58), and the length of search

Table 55. Number of firms contacted, by type of employment and by sex.

Sex	Number of firms	Type of employment: Non-manual	Manual	Total
Males	1	10 (31%)	22 (35%)	32
	2–3	12 (38%)	24 (39%)	36
	4+	10 (31%)	16 (26%)	26
Total		32	62	94
Females	1	16 (29%)	7 (28%)	23
	2–3	24 (43%)	10 (40%)	34
	4+	16 (29%)	8 (25%)	24
Total		56	25	81

Note: For neither sex is the correlation significant.

Table 56. Time required, by type of employment and by sex.

Sex	Time required (weeks)	Type of employment: Non-manual	Manual	Total
Males	<1	44 (78.6%)	56 (73.7%)	100
	1–4	6 (10.7%)	8 (10.5%)	14
	5–24	2 (3.6%)	10 (13.1%)	12
	>25	4 (7.1%)	2 (2.6%)	6
Total		56	76	132
Females	<1	47 (75.8%)	10 (52.6%)	57
	1–4	10 (16.1%)	3 (15.8%)	13
	5–24	5 (8.0%)	3 (15.8%)	8
	>25	0	3 (15.8%)	3
Total		62	19	81

Note: For males, the correlation is not significant; for females, $p < 0.01$.

(Table 59) are related to the year in which subjects left school definitively. The associations with firms visited and interviews are not statistically significant. The association with length of search is significant. For males, the later the year in which they left school, the smaller the proportion who found a job in a relatively short period of time. Among females, the pattern is curvilinear, with the worst year being 1974. The job search process seems to have become more difficult as economic conditions worsened in the mid-1970s, with 1974 being the worst year.

We must now consider the sources of information used in searching for employment. The data suggest that the Chilean labour market is not well organized and is not generally a "public" market. It is highly personalistic, depending largely on contacts with relatives and friends.[6] Respondents with jobs were asked to indicate all sources of information they had used in searching for a position and which source was most useful (Table 60). Most respondents appear to have used more than one information source. Personal contacts are by far the most important sources of information: parents, friends, and relatives are much more

Table 57. Number of firms contacted, by year in which left school and by sex.

Sex	Number of firms	Year left school: 1971–1973	1974	1975+	Total
Males	1	6 (55%)	7 (29%)	11 (35%)	24
	2–3	3 (27%)	10 (42%)	9 (29%)	22
	4+	2 (18%)	7 (29%)	11 (35%)	20
Total		11	24	31	66
Females	1	5 (33%)	11 (21%)	9 (31%)	25
	2–3	6 (40%)	20 (38%)	14 (48%)	40
	4+	4 (27%)	21 (40%)	6 (21%)	31
Total		15	52	29	96

Note: For neither sex is the correlation significant.

Table 58. Number of interviews, by year in which left school and by sex.

Sex	Number of interviews	Year left school 1971–1973	1974	1975+	Total
Males	1	7 (47%)	10 (34%)	19 (46%)	36
	2–3	5 (33%)	11 (38%)	17 (41%)	33
	4+	3 (20%)	8 (28%)	5 (12%)	16
Total		15	29	41	85
Females	1	8 (38%)	25 (38%)	11 (27%)	44
	2–3	8 (38%)	23 (35%)	24 (59%)	55
	4+	5 (24%)	20 (30%)	6 (15%)	31
Total		21	68	41	130

Note: For neither sex is the correlation significant.

Table 59. Time required, by year in which left school and by sex.

Sex	Time required (weeks)	Year left school 1971–1973	1974	1975+	Total
Males	<1	13 (42%)	4 (13%)	12 (23%)	29
	1–4	11 (36%)	12 (38%)	15 (29%)	38
	5–24	6 (19%)	8 (25%)	22 (42%)	36
	>25	1 (3%)	8 (25%)	3 (6%)	12
Total		31	32	52	115
Females	<1	4 (18%)	13 (21%)	10 (18%)	27
	1–4	12 (55%)	18 (29%)	29 (52%)	59
	5–24	6 (27%)	15 (24%)	13 (23%)	34
	>25	–	17 (27%)	4 (7%)	21
Total		22	63	56	141

Note: For m. < 0.005; for females, $p < 0.01$.

commonly mentioned than public information sources such as newspapers and other mass media.

We next attempted to associate the source of information considered most useful with a series of other variables related to the job search process. Information sources were categorized as parents, relatives, friends, and others (i.e., newspapers, posters, magazines, radio and TV, and the former school). (See Table 61.) This last category is about as efficient as parents, relatives, and friends, in the sense that those who considered these public sources most useful found work as quickly as those who considered the personal contacts most useful. The finding is true for males and females, but the relationship is not statistically significant for the latter. When we compare the two sexes, males are more likely than females to consider parents the most useful source of job information. On the other hand, a substantially higher proportion of females than males consider friends the most useful source of job information.[7]

Up to this point we have considered the process of locating a job from the point of view of the prospective employee — number of firms

Table 60. Sources of information used in searching for first job and their utility.

Information source	Source used	Most useful source	
	N	*N*	%
Parents	144	72	17.8
Relatives	140	76	18.8
Friends	258	166	41.0
Newspapers and magazines	100	18	4.4
Radio and TV	28	7	1.7
Posters and notices	48	12	3.0
Former school or teacher	42	20	5.0
Other	47	34	8.4

contacted, number of interviews, time required, sources of information used. A separate question is how the potential job, once located, was actually obtained: that is, on what basis did the employer seem to award the job? While we recognize that job seekers have imperfect knowledge of the employer's decision-making process, and can report only what they have observed or perceived to be happening, we asked respondents to indicate how they got their job (Table 62). Here again, the personalistic nature of the job market can be seen. In just over half the cases, the job was awarded on the decision of the person doing the hiring.

Finally, we can turn to the question of the reasons for accepting a job once it has been offered. Respondents were asked why they accepted the job they had taken. The alternatives supplied were: it was the best job available; it was the first job I encountered, and I liked it; it was the only job available. Only 16.8% chose the first response, which is the only one that suggests the possibility of choosing among opportunities. Clearly, upon entering the labour market, most of these young people searched until they found the first available job and then accepted it. In a society with a substantial youth unemployment problem, their action is not surprising. This interpretation does, however, counter one possible alternative interpretation of some of the data presented above. We have assumed that larger numbers of firms contacted or interviews indicate greater difficulty

Table 61. Most useful information source for first job, by time required and by sex.

Sex	Most useful information source	Time required (weeks)				
		<1	1–4	5–24	>25	Total
Males	Parents	14 (31%)	16 (36%)	10 (22%)	5 (11%)	45 (26.2%)
	Relatives	2 (6%)	13 (39%)	10 (30%)	8 (24%)	33 (19.2%)
	Friends	12 (20%)	19 (32%)	18 (31%)	10 (17%)	59 (34.3%)
	Others	14 (40%)	8 (23%)	11 (31%)	2 (6%)	35 (20.3%)
Total		42	56	49	25	172
Females	Parents	3 (17%)	8 (44%)	4 (22%)	3 (17%)	18 (10.8%)
	Relatives	6 (19%)	17 (55%)	5 (16%)	3 (10%)	31 (18.7%)
	Friends	14 (18%)	29 (38%)	19 (25%)	15 (19%)	77 (46.4%)
	Others	11 (28%)	16 (40%)	12 (30%)	1 (3%)	40 (24.1%)
Total		34	70	40	22	166

Note: For males, $p < 0.05$; for females the correlation is not significant.

Table 62. Distribution of responses: how first job was obtained.

Method	%
Public competition	4.8
Competition within the firm	5.3
References and background documents	30.6
Decision of the person doing the hiring	51.8
"I work on my own," or "I own the enterprise"	3.4
Other	4.3

in finding a job. A different interpretation would be that those who contacted several firms or had several interviews were searching selectively, looking for the best job they could find, and not accepting an offer until they located a job they liked. Such a pattern would imply a sellers' market for employment, rather than the buyers' market we have assumed. The data just presented suggest, however, that our original understanding of the market is correct. Choice among options is not a predominant characteristic of the labour market for these Chilean youth.

Who Gets a Job

From the information just provided, it is evident that simply finding a job — any job — has been a very difficult problem immediately confronting these young school leavers in Chile. In an attempt to understand the job location process better, we will first, in this section, examine the effect of a number of variables on the probability of locating any employment.

If we examine the percentages of male and female school leavers who obtained a first job, categorized by several potentially important predictor variables (Table 63), we find that the overall percentages do not differ greatly from the national percentages of the corresponding age groups who are working. In the census of 1970, 84.8% of males aged 20–24 and 31.8% of females of that age were working. The national figures for those with at least secondary schooling are 74.1% and 28.6%, respectively. In our sample, a smaller percentage of males (69.1%) and a greater percentage of females (43.4%) had found work. The differences most likely reflect, for males, the poor employment situation in the 1975–1977 period and, for females, a growing female labour force participation rate since 1970 (which may itself be partially caused by a depressed economy).

We do not know why those who have left school but not found jobs are unemployed. Specifically, there is no way to distinguish between those who actively but unsuccessfully sought employment and those who voluntarily remained out of the active employment market. The case is clearest for lower-status males. Since they are least likely to have other means of support, we assume that members of this group who have left school but not found a job have been actively seeking work. The situation is somewhat less clear for higher-status males. At least some individuals without work in this group, especially among the sons of very well-to-do families, may be voluntarily unemployed, either enjoying the leisure of the idle rich or

Table 63. Percentage of school leavers who have found work, by several variables.

Variable	Males		Females	
	%	N	%	N
Overall	69.1	259	43.4	429
Father's education				
illiterate	90.9	11	56.3	16
primary	70.4	142	42.7	225
secondary	65.8	79	40.4	161
university	63.0	27	59.3	27
Living with spouse				
yes	82.4	51	27.3	128
no	65.5	221	49.2	319
Level of education				
primary	91.3	22	26.9	26
incomplete secondary	68.5	89	34.1	143
complete secondary	65.6	160	49.2	274
Secondary school type[a]				
technical/professional	68.8	80	46.8	47
commercial	72.2	18	38.0	50
liceo	64.7	153	44.8	317
National test score, grade 8				
low	65.1	172	38.4	268
high	75.0	160	49.7	175
Last year in school				
1970–1971	77.8	36	29.6	54
1972	79.2	24	35.0	40
1973	80.0	20	40.0	35
1974	62.7	110	50.0	196
1975	67.1	82	40.7	118
Province of residence				
rural	73.3	105	41.5	142
Valparaíso–Concepción	58.3	60	30.7	114
Santiago	70.1	107	51.3	187

Note: Analysis includes only those who had left school in 1975 or earlier, and were therefore definitively available for the labour market.

[a] These comparisons are not statistically significant. All others are significant at the 0.05 level.

passively waiting until a socially appropriate position becomes available. In the Chilean context, it is probable, however, that most of the more advantaged young men who have left school have tried to find work. Thus, we can assume that most males who are neither studying nor working are unemployed in the standard sense of the term.

This assumption cannot be made for women. Although female labour force participation rates in Chile are relatively high, one must assume that a significant, though unknown, proportion of the young women who are neither in school nor at work have chosen not to seek employment. Therefore, the meaning of the analyses reported below for females is less clear in relation to the classical definition of unemployment.

If we then examine the specific predictors, we find a clear relationship between level of father's education and probability of having found a first job (Table 63). For both sexes, the lower the level of father's education, the

higher the percentage who have found a position. The inverse relationship could reflect the interaction between social status and length of schooling. Lower-status young people tend to leave school sooner, and the greater length of time they have been in the labour market increases the probability that they will have found a position. Higher-status students have been in the labour market for a shorter period of time and can also afford to hold out for a position for which their higher level of education qualifies them.

Living with a spouse was expected to have a considerable impact upon the probability of having obtained a job, but a different impact for males and females. For males, family responsibility would be a strong motivator for getting a job, whereas marriage would often remove females from the job market. The data support this hypothesis.

Level of education attained also operates differentially by sex. Among males, the higher the level of education, the lower the percentage having acquired a job. (These data reinforce the argument made above with respect to level of father's education.) In contrast, among females, the higher the level of education, the higher the percentage with a job. Those positions socially defined as most appropriate for women (e.g., teaching, nursing, sales, clerical) tend to require higher levels of education. Moreover, other studies have shown that women require higher levels of education than men in order to compete with them for the same types of jobs (Schiefelbein 1978). Thus, we suggest that women who have been unable to acquire the level of education necessary to qualify for "socially appropriate" occupational roles are less likely to seek work actively and will ordinarily do so only as a result of economic necessity. Moreover, they are more likely to have married and therefore in many cases, as we have argued above, to have withdrawn from the labour market. (For an expansion of this argument, see Schiefelbein and Farrell 1980.)

Many believe that specific vocational/technical training facilitates entry into the labour market, or that those who choose such training at the secondary level are oriented toward rapid entry into the work force. The debate regarding the relative utility of vocational schooling, starting with Foster's classic work (1965), has been long and inconclusive. For this sample, the small differences by school type in probability of employment, for males and females, are not statistically significant. Thus, attendance at a vocational school (although vocational school students tend to drop out and enter the labour market sooner) does not significantly increase the probability that a young person will find employment.

The level of academic achievement in school, as measured by scores on the grade 8 national test, is positively associated for both sexes with the probability of getting a job. This is an interesting pattern in light of the trend among young people of lower social status and those who have left school earlier to be more likely to find jobs, for those with higher grade 8 test scores are also more likely to stay in school longer. The explanation for this seeming contradiction may be that — whenever they leave school, and whatever their social status — those with higher intelligence and motivation, as reflected in higher levels of academic achievement, are more able to locate and exploit whatever opportunities exist in the labour market.

Throughout much of the preceding discussion, it has been suggested that young people who have left school earlier are more likely to have acquired a first job. Job acquisition rates by the last calendar year in school show this generally to be the case, although some of the year-to-year variations are rather difficult to interpret (Table 63). In the case of males, about 80% of those who left school in 1973 or earlier have worked, while those who left school after that year have a lower job acquisition rate (about 65%). The lower rate could reflect the depressed economy when the latter group left school, or the fact that they have been in the job market for a shorter time. Among women, on the other hand, the percentage having found a job increases steadily through 1974.

On the assumption that job opportunities may differ with the urbanization and industrialization of the locale, the provinces of Chile have been divided into three groups: Santiago, which constitutes the largest urban industrial centre; Valparaíso and Concepción, which contain the two next largest urban centres; and the rest of the provinces, which have been labeled rural (although they do contain some smaller cities and industrial centres). For males, the highest employment rates are found in the rural provinces (where there is a higher percentage of poorer children who leave school sooner) and in Santiago, the economic centre of the nation. Among females, Santiago is clearly the best place to be in terms of finding work. In the capital, with its high concentration of head offices of private firms, of major public enterprises (the national government, the major universities, the largest medical centres, etc.), and of international agencies, those occupations regarded as most acceptable for women (teaching, nursing, medicine, sales, clerical, civil service) are more readily available.

Who Gets a Job: Discriminant Analyses

In the previous paragraphs, we have indicated several potentially important predictors of job acquisition. Multivariate discriminant analysis can provide an indication of the relative independent predictive power of each predictor for finding a job. The variables included in the multivariate analyses have been selected, as previously, on the basis of a variety of preliminary screenings that indicate the set of potentially most powerful predictors. The results are considered separately for males and females. For both sexes, discriminant analyses for the full sample are reported first, followed by parallel analyses when the sample is dichotomized on father's education to specify the results by SES. Unfortunately, the discriminant weights for higher-status males were not statistically significant, and they are not reported. If we compare the significant discriminant weights for lower-status males with those for the entire sample, and examine the mean comparisons (which indicate direction of effect), we gain an idea of the distinctions between higher- and lower-status males. Among females, some statistically significant discriminant weights are available for both low- and high-status groups.

Males

For the full sample, we find that the most important predictor is the

grade 8 national test score, class average, followed by average size of secondary class, textbook availability in secondary, and lives with spouse (Table 64). The most striking pattern is the predominance of school-related factors and the very low independent discriminant power of father's education as a measure of social status. Taking into account both the discriminant weights and the directions of effect, we see that those who have obtained employment come from grade 8 classes with higher average national test scores, attended classes in secondary school that were smaller in size, and had higher individual grade 8 national test scores. However, they had fewer texts available to them during their secondary schooling, were taught by teachers with lower levels of professional training, liked academic subjects less, and had a lower personal estimate of their academic ability. They also tend to have studied in vocational schools rather than liceos, and to have left school with fewer years completed.

In the specification by SES, we find that the three most powerful predictors for the total sample are also very important among the lower-status group (Table 65). For the most powerful variable, grade 8 national test score, class average, the differences in averages are more pronounced among lower-status males (44.41 vs 52.56) and practically nonexistent among higher-status males (56.55 vs 56.35). A similar difference by SES pertains for grade 8 national test score. The full-sample discriminant weights for these two measures of academic performance appear to be the product of a strong effect among low-status males and a negligible effect among high-status males. Lives with spouse is less important among the lower-status group than in the total sample, but liking for academic subjects and personal estimate of academic ability are relatively stronger predictors. Although the last school year entered or completed is the sixth (out of eleven) most important predictor for the total sample, it is the least powerful variable among the lower-status subsample.

Table 64. Discriminant analysis: employed at least once vs never employed — males.

Variable[a]	Discriminant weights	Averages	
		Never employed	Employed
National test score, grade 8, class average	0.97	50.14	54.26
Average class size, secondary	0.55	31.69	27.[illegible]9
Textbook availability, secondary	0.34	1.71	1.57
Lives with spouse	0.27	1.11	1.22
National test score, grade 8	0.26	48.68	53.66
Last school year entered or completed	0.23	3.33	2.97
School type in 1971	0.18	2.32	2.02
Teachers' pre-service training, grade 8	0.18	3.41	3.10
Liking for academic subjects, secondary	0.09	3.25	2.90
Father's education	0.08	3.40	3.19
Personal estimation of academic ability	0.07	2.55	2.29
Significance	0.017		
Number never employed	40		
Number employed	79		
Percentage correctly classified	69.7		

Note: Includes only those who left school in 1975 or earlier and were therefore definitively available for the labour market.

[a] Variables are in order of discriminant weight.

Table 65. Discriminant analysis: employed at least once vs never employed — males, by SES.

Variable[a]	SES →	Discriminant weights Low	High[b]	Averages Never employed Low	Never employed High	Employed Low	Employed High
National test score, grade 8, class average		1.05		44.41	56.55	52.56	56.35
Average class size, secondary		0.42		32.41	31.09	27.00	29.13
Textbook availability, secondary		0.17		1.53	1.93	1.44	1.80
Lives with spouse		0.04		1.14	1.08	1.30	1.12
National test score, grade 8		0.19		44.00	56.86	52.81	55.08
Last school year entered or completed		0.01		2.88	3.84	2.54	3.49
School type in 1971		0.07		2.02	2.62	1.75	2.45
Teachers' pre-service training, grade 8		0.17		3.03	3.79	2.80	3.55
Liking for academic subjects, secondary		0.29		3.04	3.47	2.73	3.19
Father's education		0.07		2.30	5.14	2.39	4.83
Personal estimation of academic ability		0.27		2.44	2.67	2.17	2.50
Significance		0.005	0.86				
Number never employed		24	14				
Number employed		53	25				
Percentage correctly classified		76.6	71.8				

Note: Includes only those who left school in 1975 or earlier and were therefore definitively available for the labour market.

[a] Variables are in order of discriminant weight from Table 64.

[b] Discriminant weights for high-SES subjects are not significant and are not reported.

As we look at the mean comparisons, for all variables the direction of effect is similar among lower- and higher-status males. In sum, then, the variables that best predict the success of lower-status males in obtaining employment are the same as for the total sample, except that two personal attitude characteristics (liking for academic subjects and personal estimate of academic ability) are relatively more important.

In attempting to explain these rather complex results, one needs to consider lower- and higher-status young men separately. The averages on last school year entered or completed indicate that most of the lower-status men dropped out of school relatively early, well before the end of secondary education. Those who have found jobs, however, had higher grade 8 national test scores than those who have remained unemployed. Those lower-status men who, while themselves academically quite capable (as shown by their higher test scores), were in classes with relatively high average performance levels, who were in small classes, who had few textbooks available to them, and who had relatively poorly trained teachers may have tended to develop a perception of themselves as academically less capable (in spite of their good test scores) and thus to drop out of school relatively early. This tendency would be accentuated if they had been in vocational schools and if they had acquired family responsibilities. Once out of school and in the labour market, however, their relatively high competence as indicated by their test scores would give them a competitive advantage both in searching for job openings and being hired. The very low predictive power of length of schooling among this group may suggest that it takes considerably more than the relatively brief exposure that most have to secondary schooling to make any difference in their ability to acquire a job.

When considering higher-status young men, one must make a distinction between those who dropped out before completing secondary education (although typically with more years of schooling than their lower-status peers) and those who completed secondary but did not enter university. The first group represents a very atypical pattern. Since they have relatively high grade 8 national test scores, and their fathers have, on average, university education, one would predict from earlier analysis that they have a very high probability of completing secondary education. In spite of these advantages, as well as better scores than their lower-status peers on all the schooling quality measures (textbook availability, teacher training, liking for academic subjects, etc.), they have managed to drop out before completion. They may have left school because of unusual personal problems — prolonged illness, family disruption, motivational difficulties, psychological problems — and the same problems could also have a negative impact upon their ability or willingness to find employment. Those higher-status young men who have completed secondary education but are neither at university nor working may represent quite a different phenomenon. They may be members of the idle rich, as we have suggested above, who are not compelled to pursue any career; or they may be holding out for a job opening compatible with their ambitions, not compelled to take another job as a stopgap.

Females

Because the number of young women included in this sample is larger, more predictor variables could be entered in statistically significant equations than in the case of the young men. In spite of the somewhat different variable sets, the general pattern for women is the same as for men: school-related factors are more important than family SES, and the most powerful predictor is grade 8 national test score, class average (Table 66). For women, the individual grade 8 national test score, while higher for those who obtained employment, is a less important predictor, but personal estimation of academic ability during secondary assumes great importance, again favouring those who have worked. (This variable did not survive preliminary screening among males.) Secondary class size is considerably reduced in predictive importance among women, but is replaced by what may be a more direct measure of schooling quality, pedagogical excellence of the grade 8 school.

We noted above that the labour market for women in Chile is tighter, and we argued that women generally require higher educational qualifications than men for the same type of position and that jobs socially defined as appropriate for women are typically the sort that require relatively high qualifications. These phenomena may explain why for almost all of the important predictor variables those young women who found a job have scores that are higher, or in a more favourable direction, than those who have not found a job.

In the discriminant analysis for women specified by SES, we find that in almost all cases the direction of a variable's effect is the same for both lower- and higher-status groups (Table 67). The exceptions are average class size in secondary school and direct stimulus by parents. The relative

importance of the various predictors, as indicated by the discriminant weights, differs notably between the two status groups. Textbook availability in grade 8 is clearly a powerful predictor in both cases (strongest predictor among the lower-status group, and second most important among the other group). Average class size in secondary school is also quite important in both groups, although it operates differently. Among lower-status women, those who have worked come from slightly larger secondary classes than those who have not worked; among higher-status females the opposite is the case. Being married is equally important (the third-highest discriminant weight) for both groups. Pedagogical excellence of the grade 8 school is much more important, however, among higher- than lower-status women (first-ranked vs seventh-ranked predictor), as is liking for academic subjects. Conversely, among lower-status women, the class average score on the grade 8 national test, father's education, and length of schooling are relatively more important than they are for higher-status women. These differences between higher- and lower-status women are rather confusing, and we have not been able to develop an argument that consistently explains the entire set. The most that can be said at the moment is that although almost all of the predictor variables operate in the same direction for both status groups, their relative importance differs. Thus, any policy devised to increase the employment probabilities of women through manipulation of such variables cannot be expected to have the same effect across higher- and lower-status women.

Table 66. Discriminant analysis: employed at least once vs never employed — females.

Variable[a]	Discriminant weights	Averages	
		Never employed	Employed
National test score, grade 8, class average	0.77	51.87	54.85
Textbook availability, secondary	0.67	1.72	1.77
Personal estimation of academic success	0.49	1.87	2.06
Pedagogical excellence, grade 8 school	0.46	0.35	0.37
Lives with spouse	0.44	1.37	1.18
Verbal part score, class *SD*	0.35	6.66	6.71
Textbook availability, grade 8, class average	0.29	-0.0014	-0.0006
Level of urbanization of current province	0.26	2.03	2.19
Average class size, secondary	0.25	28.77	28.23
Father's education	0.25	3.23	3.43
National test score, grade 8	0.25	49.35	52.15
School type in 1971	0.20	2.42	2.56
Liking for academic subjects, secondary	0.20	2.96	3.25
Direct stimulus by parents	0.14	2.09	2.13
Family SES, class *SD*	0.13	0.56	0.55
Last school year entered or completed	0.11	2.98	3.41
Personal estimation of academic ability	0.11	2.35	2.47
Teachers' pre-service training, grade 8	0.03	3.13	3.27
Significance	0.015		
Number never employed	131		
Number employed	74		
Percentage correctly classified	68.3		

Note: Includes only those who left school in 1975 or earlier and were therefore definitively available for the labour market.

[a] Variables are in order of discriminant weight.

Table 67. Discriminant analysis: employed at least once vs never employed — females, by SES.

Variable	Discriminant weights		Averages			
			Never employed		Employed	
SES →	Low	High[a]	Low	High	Low	High
National test score, grade 8, class average	0.29	0.15	50.82	53.48	53.44	56.37
Textbook availability, secondary	0.28	0.19	1.59	1.91	1.65	1.91
Personal estimation of academic success	0.00	0.06	1.73	2.06	2.03	2.07
Pedagogical excellence, grade 8 school	0.26	0.60	0.72	0.08	0.71	0.00
Lives with spouse	0.40	0.53	1.37	1.36	1.28	1.07
Verbal part score, class *SD*	0.09	0.02	6.68	6.64	6.96	6.42
Textbook availability, grade 8, class average	0.65	0.58	0.00	0.00	0.00	0.00
Level of urbanization of current province	0.25	0.20	1.94	2.13	2.11	2.30
Average class size, secondary	0.53	0.41	27.66	30.39	28.37	28.09
Father's education	0.30	0.25	2.37	4.62	2.32	4.95
National test score, grade 8	0.19	–	52.44	48.00	53.30	51.34
School type in 1971	0.09	0.18	2.17	2.75	2.29	2.89
Liking for academic subjects, secondary	0.05	0.31	2.79	3.20	3.13	3.50
Direct stimulus by parents	0.17	0.07	1.92	2.32	2.05	2.29
Family SES, class *SD*	0.03	0.11	0.54	0.58	0.51	0.58
Last school year entered or completed	0.26	0.08	2.57	3.50	3.06	3.84
Personal estimation of academic ability	0.20	0.08	2.19	2.58	2.39	2.58
Teachers' pre-service training, grade 8	0.05	0.09	2.97	3.40	2.98	3.56
Significance	0.095	0.000				
Number never employed	45	81				
Number employed	26	69				
Percentage correctly classified	71.8	72.0				

Note: Includes only those who left school in 1975 or earlier and were therefore definitively available for the labour market.

[a] Significant discriminant weights were achieved for high-SES females only by using a follow-up sample somewhat differently matched to the original 1970 sample than that used for the other analyses reported here. For this follow-up sample individual grade 8 national test scores were not available. For a full discussion of the differences in these samples see chapter 1.

Conclusions

What conclusions may be drawn regarding influences on the probability that Chilean schoolleavers will find employment? First, the two variables most commonly used to predict employment success — SES and length of schooling — have, in a multivariate analysis, little to do with probability of finding a first job among this sample. Having been in a grade 8 class with a high level of academic achievement is very important, except among high-status males. This variable may be mapping a strong influence of peer-group effect. It may also be the case that SES does not operate directly on employment chances, but indirectly by constraining the status range of one's available classmates. Since this peer-group effect is more pronounced among lower-status young people of both sexes, we may have here another argument for reducing socioeconomic segregation in schooling. Personal characteristics (individual grade 8 achievement, living with a spouse) are also important predictors, as are school quality variables (text availability, teacher training). The latter set of variables, however, operate differently for males and females. There are also important

differences in the effects of several predictors between high- and low-status young people. We conclude that arguments regarding employment/unemployment that rest their case on SES or length of schooling greatly oversimplify a very complex reality, which includes an interplay between peer-group characteristics, individual characteristics, and school quality factors, each of which have different effects depending upon an individual's sex and social status.

Notes

1. The most thorough study has been carried out in the Dominican Republic (Education Development Center, 1975). A review of Latin American research on this topic is found in PREALC (1978).

2. To make this comparison, it would be necessary to distinguish, among those without jobs, between the young people who had sought employment without success (the unemployed in the classical sense) and those who had never sought employment. Several questions were designed to mark this distinction; but when the data were analyzed, they proved not to have been successful.

3. Not surprisingly, the association between number of firms contacted and number of interviews required is very high: gamma = 0.87 and 0.81 for males and females respectively. Gamma is a measure of strength of association between two ordinal variables. Its values are −1.00 to +1.00.

4. One difficulty in interpreting these data is that the pertinent item in the questionnaire asked for the total time elapsed between the initiation of the search for a job and the actual offer of employment. Thus, in those cases where a substantial time elapsed but only one or a few firms were visited and only one or a few interviews were held, we do not know if the delay occurred before or after the interview. It would be important to know if the individual was interviewed rather quickly and then had to wait a long time for the results of the interview, or if a great deal of time was spent reading advertisements, asking friends and relatives about job possibilities, etc., before making contact with a potential employer.

5. Unfortunately, we do not have reliable data regarding the type of job subjects were seeking when they first initiated the job search process, but only information concerning the type of job they finally acquired. Thus, we cannot trace the possible interaction between length and difficulty of job search and the need to adjust the original aspirations to the realities of the labour market.

6. This is not an uncommon pattern in developing societies (see King 1977). Data from a Census Bureau survey of those who had obtained jobs in the U.S. during 1972 show a very different pattern. Only 26.2% of the U.S. respondents used friends or relatives to find a job. Almost twice as many U.S. respondents as Chileans used public information sources (newspaper advertisements, school placement services, etc.). The most common job location process in the U.S., approaching an employer directly (walking in cold off the street), is extremely uncommon in Chile. (The exception would be among the very poor: for example, the itinerant gardener going from door to door looking for a few hours' work, who would ordinarily be below the entry level of education for our sample.) We therefore did not even include it as an alternative on the questionnaire. The U.S. data are not wholly comparable with those reported here, but the patterns are indicative of the large differences in the nature of the employment markets (see Wegman 1979).

7. The associations of most useful information source with numbers of firms contacted, number of interviews conducted, type of occupation, last year in school, and father's education were also examined. None is statistically significant.

Chapter 11

Education and Occupational Status: What Kinds of Jobs Do They Get?

The fundamental question addressed in this chapter is the role of education, both independent of and in interaction with other classes of variables, as a determinant of the kinds of occupations acquired by those young people who were successful in their job search.[1] Three aspects of education are examined: educational attainment — years of schooling completed; educational achievement — what students have learned; and educational quality — as measured, for example, by textbook availability, school facilities, teacher training, and class size. Two general questions have guided the analysis: What is the effect on occupational attainment of educational variables relative to family SES? What is the impact on occupational attainment of educational quality variables relative to the impact of the normally used quantitative educational indicators, attainment and achievement?

Unfortunately, earnings data could not be used as an indicator of "success" in entering the labour market. Because of the extraordinarily high inflation rates suffered in Chile during most of the 1970s (close to 1000% annually in 1973 and 1974, and still as high as 62% in 1977 even after draconian deflationary government economic policies), it was impossible to obtain reliable retroactive information about salaries. Respondents could not be depended upon to recall accurately their salaries of even a short time before the administration of the questionnaire, let alone of several years previously. Therefore, reliable data regarding relative wages was out of the question. Accurate coding of occupations, in order to fit them into a scale of occupational levels, thus became extremely important. To provide the most detailed description of each occupation, seven different questions were asked regarding the nature of each job. All of this information was considered in judging into which of the occupational categories used in the Chilean census a particular job best fit.

Type of First Job Found

Before examining predictors of occupational destinations among these young Chileans, we must consider the distribution of the first jobs they acquired (see Table 68). When we compare the distribution by job type in

Table 68. Comparison of first job types between the 1978 sample and the general population.

Type of occupation	1978 sample			Economically active population 1970	
	Males (%)	Females (%)	Total (%)	15–19 years old[a] (%)	With at least secondary education[b] (%)
Professional and technicians	5.6	3.4	2.9	0.6	15.5
Managers and administrators			1.3	0.0	3.6
Office workers	39.4	65.2	39.2	3.8	23.1
Sales personnel			13.2	6.8	9.3
Agricultural labourers			0.4	39.2	3.7
Transportation workers	55.0	31.3	1.1	1.5	4.4
Artisans and skilled tradesmen			13.9	20.5	14.5
Other labourers			19.7	8.8	5.9
Personal service workers			8.1	25.0	20.0

[a] Source: Características básicas de la población (Censo 1970) (Santiago, Instituto Nacional de Estadísticas, 1970), table 16.

[b] Source: Población, total país. Resultados definitivos del XIV censo de población 1970 (Santiago, Instituto Nacional de Estadísticas, 1978), table 32.

our sample to the corresponding distributions among the economically active population aged 15–19 years and among the population of all ages but with at least 1 year of secondary (from the census of 1970), we find that although almost 40% of youth aged 15–19 worked as agricultural labourers in 1970, the proportion of individuals of all ages but with more than primary education in such jobs was very low (3.7%). The proportion with agricultural labouring jobs among our sample — all of whom are young, have at least some secondary education, and entered the labour market after 1970 (predominantly in the mid-1970s or thereafter) — is even smaller (0.4%). Similarly, there is an underrepresentation in personal service positions, most of which tend to be low-pay, low-status jobs (e.g., domestic labour, barbering, hairdressing). Given that none of the people in our sample had completed university, it is reasonable that there would be an underrepresentation among professionals and technicians, positions which normally require some form of postsecondary education (2.9% vs 15.5% of the total population with more than primary education). Given that our sample are all young, it is similarly not surprising that there is an underrepresentation among managers and administrators (1.3% vs 3.6%). Conversely, there is a substantial overrepresentation in such lower-level white-collar jobs as sales and office work.

We also find a substantial differentiation by sex. A much higher proportion of women than men obtained first jobs in sales and office work, whereas a higher proportion of men obtained labouring jobs. Slightly more than half of the working women were in the service sector, compared to one-third of the men.[2]

As all individuals in this sample, however many years of education they may have completed since 1970, were in grade 8 in 1970, these figures reflect the outcome of having completed a primary education on the occupational destiny of young Chileans. Being among that half of an

entering grade 1 cohort who complete 8 years of primary schooling is a very important factor in determining how one will enter the labour market. It provides a floor under the level of the initial job (i.e., primary graduates rarely become agricultural labourers) and greatly increases the probability of obtaining a white-collar job.

This pattern of job distribution suggests one very important observation regarding how to understand the results reported here in a comparative perspective. Our focus throughout the analysis is on the type of first job acquired and on the relationship of education to different levels of labour market entry. A primary concern is the independent effect of educational variables on occupational *mobility*. This is a relevant focus because: given Chile's level of development and the nature of its economy, there are a wide variety of types and levels of occupations potentially open to any young person; and although educational survival and achievement levels are clearly class biased, several years of primary education are available to almost all children, and significant proportions of all but the poorest children in the society achieve relatively high levels of education.

In many developing nations, particularly the poorest, these conditions obviously do not obtain. In such nations, most children are the offspring of agricultural labourers (whether landless or land-owning) and will themselves become agricultural labourers. The 38 lowest-income nations in the world in 1980 had an average of 21% of their population in urban areas; among the 52 middle-income nations, only six exceeded Chile's degree of urbanization of the population (World Bank 1980: table 20). Moreover, a few years of very rudimentary primary schooling is the maximum that most children in the poorest nations will ever attain; many never enter a school. For such populations, the effect of education on job level or occupational mobility potential is not a relevant question. The economic question is rather whether a few years of education are likely to make them more efficient or productive farmers. Evidence that has recently been assembled suggests strongly that even a few years of primary schooling significantly increase the productivity and efficiency of poor farmers (Jamieson and Lau 1978: chapter 2; Schultz 1979).

What are particularly interesting in Chile, where almost 40% of the youth population who worked as agricultural labourers (and who are not in our sample) had at least 4–6 years of primary schooling, are two findings: 4–6 years of schooling seems to be a threshold level above which the effect of education on agricultural productivity is most pronounced; and education has a higher payoff for farmers in the more advanced, modernizing poor societies, such as Chile (Jamieson and Lau 1978: chapter 2). In this context, the problem dealt with in the present chapter may be phrased as follows: given that their 4–6 years of primary schooling probably has a positive economic effect on the young Chileans who remain agricultural labourers, what is the economic effect of education on those who have achieved higher levels of schooling and for whom occupational mobility is a real possibility? In considering this question, we will be examining the three distinct dimensions of education noted at the beginning of this chapter: educational attainment, educational achievement, and the quality of the schooling received.[3]

Some Individual Predictors

What factors, then, best predict the level of the first job obtained? To answer this question, several key predictor variables will be considered individually, and multivariate analyses will then follow.

Given that the size of our sample of individuals with first jobs is relatively small (referred to earlier), and that there is a very small representation in this sample of both the highest-level jobs (professionals, technicians, managers, and administrators) and the lowest-level jobs (agricultural labourers, personal service workers), in the cross-tabular analyses that follow, occupational level is dichotomized into high and low. High includes professionals and technicians, managers and administrators, office workers, and sales personnel. Low includes the remaining occupations.

We first consider two indicators of family SES. There is a strong relationship between father's occupation and the level of first job obtained by the child (gamma = 0.45). (See Table 69.) Nonetheless, there is a substantial amount of intergenerational mobility among these primary school graduates. Of those whose fathers have low-level jobs, fully 45.2% themselves acquired high-level jobs when they entered the labour force. There is also a suggestion of considerable downward mobility, in that almost one-third of children of fathers with high-level jobs had low-level first jobs. Some of these may reflect, however, the pattern of middle- or upper-class young people starting at a low-level first job in the family business, or a related enterprise, to gain experience before assuming their rightful position. Some could also represent temporary jobs taken to earn money for further studies or personal pleasure. At the same time, it may well be the case that the difficult economic circumstances within Chile during this period have meant that some children of middle- and upper-class families, especially (given the nature of this sample) those who have not been able to enter or complete university, have had to lower their aspirations and accept whatever jobs they could find.

Father's education is another key indicator of family SES. The relationship of this variable to level of first job is similar to that observed for father's occupation: 56.1% of the young people whose fathers had primary education or less got low-level first jobs, whereas almost three-quarters of those whose fathers had university education got high-level jobs (Table 70). For both of these SES variables, the relationship with occupational attainment is slightly stronger among females than among males, but the differences are not great (e.g., for father's education, gamma = 0.51 for females vs 0.42 for males).

Table 69. Level of respondent's first job by father's job level.

	Respondent's first job level			
	High		Low	
Father's job level	*N*	%	*N*	%
High	142	68.6	65	31.4
Low	117	45.2	142	54.8

Table 70. Level of respondent's first job by father's education.

	Respondent's first job level			
	High		Low	
Father's education	*N*	%	*N*	%
Primary	111	43.9	142	56.1
Secondary	108	67.9	51	32.1
University	41	73.2	15	26.8

We have already noted that having at least a complete 8-year primary education appears to have considerable effect upon the type of first job a young person gets. We will next consider the effect of education beyond the primary level. Two indicators will be used: duration of studies, as indexed by the calendar year in which an individual definitively left school; and level of schooling reached.

To analyze the relationship between duration of studies and first-job level, we divided the sample between those who left school in 1973 or earlier (and thus could not possibly have completed secondary schooling) and those who left in 1974 or thereafter (Table 71). For the total population, and for each sex, there is a strong relationship between duration of schooling and first-job level. In all cases, the probability of obtaining a high-level first job is substantially greater among those who stayed in school longer. The relationship is stronger among women than men (gamma = 0.36 vs 0.26). Among women who left in 1973 or earlier, 60% had low-level (i.e., manual) jobs, a figure which is only 9.4% lower than that for men with the same number of years of schooling, and higher than the overall figure for men (which is 55%). That is, a woman who drops out early in secondary has about as great a probability of becoming a manual worker as does a man who drops out early, and a greater probability than male graduates overall. This finding reinforces the suggestion made earlier that relatively higher levels of education are required for women to acquire those occupational roles socially defined as appropriate for them, and may help to explain a tendency for them to stay in school longer than men.[4]

The level of schooling acquired has been categorized as incomplete secondary, complete secondary, and incomplete university (Table 72).[5] For

Table 71. Level of first job by year in which respondent left school and by sex.

	Level of first job							
	Males[a]				Females[b]			
	High		Low		High		Low	
Year left school	*N*	%	*N*	%	*N*	%	*N*	%
1973 or before	11	30.6	25	69.4	14	40.0	21	60.0
1974 or later	60	49.6	61	50.4	108	73.5	39	26.5

[a] $p < 0.05$

[b] $p < 0.001$

both sexes, the probability of acquiring a high-level first job is considerably higher among those with complete secondary than among those with incomplete secondary. For neither sex does incomplete university provide an advantage over complete secondary. In both cases, we see the effect of certification — the importance of the degree itself as an entry ticket to higher levels of the employment market. Thus, entering university is likely to pay off only if the student completes the course of studies and receives the degree.[6]

We next consider the relationship between occupational aspirations for 1983 and first-job level (Table 73).[7] The relationship is very strong (gamma = 0.74). Although we assume here that aspirations precede employment, there is no way of telling conclusively which way the causation runs. Those in high-level jobs may get them because they have high aspirations, or they may have high aspirations because they are in high-level jobs and do not want to move down. Or, it may be that both aspiration level and job level are mutually reinforcing products of antecedent social or educational factors (aspiration level is associated with father's education: gamma = 0.38).

Given that technical/professional schools (as compared to academically oriented liceos) are destinations for the academically less successful students, and that they have higher dropout and repetition rates than liceos, we would expect to find a relationship between the kind of secondary school attended and the level of the first job. Such a relationship exists. More than two-thirds of those who attended liceos have high-level jobs, whereas fewer than half of those who attended technical/professional schools have high-level jobs (gamma = 0.42). This may be a spurious relationship, however, for family SES is an important predictor of the type of secondary school a student will enter.

Table 72. Level of first job by respondent's education and by sex.

	Level of first job							
	Males[a]				Females[a]			
	High		Low		High		Low	
Education	*N*	%	*N*	%	*N*	%	*N*	%
Incomplete secondary	29	28.4	73	71.6	33	45.8	39	54.2
Complete secondary	53	58.9	37	41.1	99	78.0	28	22.0
Incomplete university	22	61.1	14	38.9	22	78.6	6	21.4

[a] $p < 0.001$

Table 73. Level of first job by level of occupational aspirations.

	Level of first job			
	High		Low	
Level of occupational aspirations	*N*	%	*N*	%
High	228	64.0	127	35.8
Low	17	21.5	62	78.5

$p < 0.001$

Table 74. Level of first job by type of secondary school and by number of nonformal courses related to work.

Type of school	Nonformal courses	Level of first job: High N	High %	Low N	Low %
Liceo	0	94	63.5	54	36.5
	1+	64	78.1	18	21.9
Technical/professional	0	39	50.6	38	49.4
	1+	10	37.0	17	63.0

$p < 0.001$

We have collected detailed data regarding all nonformal education the respondents had undertaken (Table 74). On the basis of information provided regarding the nature of each nonformal course, and replies to a question regarding why a nonformal course was taken, the courses have been classified as being related to work or not so related. Our main interest here is those courses that were related to work. Since few respondents had taken more than one such course, they were dichotomized as not having taken a nonformal course or having taken one or more. There is a relationship between having taken a nonformal course related to work and level of first job (gamma = 0.19). This too could be a spurious relationship, if participation in nonformal courses is related to family SES. There is, however, no relationship between the educational level of the respondent's father and the propensity to take nonformal courses related to work (gamma = 0.02). There is, nonetheless, a relationship between secondary school type and participation in such courses (gamma = 0.22). Therefore, we have controlled the original relationship by school type. Among those who attended liceos, those who had work-related nonformal courses are more likely to be in high-level jobs. Among students who attended technical/professional schools, those who had such courses are more likely to be in low-level jobs. Indeed, the relationship between nonformal education and level of first job is positive among liceo students (gamma = 0.34) and almost equally strongly negative among technical/professional students (gamma = −0.27).

This finding suggests a very interesting hypothesis: that nonformal courses related to work reinforce already determined tendencies to end up in a given job type. Students select work-related nonformal courses in relation to the type of job they expect to acquire. Liceo students, expecting to get high-level jobs, take nonformal courses that enhance their chances for such jobs. Conversely, technical/professional students select nonformal courses that enhance their chances of getting the low-level jobs to which they have already been oriented.

Type of First Job Found: Multivariate Analysis

The simple relationships reported above demonstrate that several of the variables most commonly found to influence occupational attainment in industrial societies appear to be important in Chile, such as family SES,

educational attainment, and occupational aspirations. We have also observed a peculiar relationship between two more qualitative educational indicators: secondary school type and nonformal courses related to work. What is, of course, of greatest interest is to evaluate the relative strength of these various indicators, and others, as predictors of occupational attainment. Two questions are of particular interest comparatively.

First, what is the effect of education relative to family SES? As noted earlier, this question has been the focus of an enormous amount of debate during the past decade, and is very important in terms of both theory and policy, as it deals with the ability, in a situation of general structural inequality, to use educational policy measures to solve basic social distribution problems. Lin and Yauger's comparative study (1975), particularly as supplemented by Schiefelbein and Farrell (1978a), has greatly increased our understanding of this very complex relationship.

Second, what is the impact upon occupational attainment of qualitative educational factors relative to the normally used quantitative educational indicators — educational attainment and achievement? Much less is known with respect to this question, which is extremely important in policy terms. We do not invest directly in educational attainment or educational achievement. Rather, we invest in qualitative inputs to the educational process (building schools, training and then paying teachers and other functionaries, buying books and supplies, etc.), inputs that have a presumed relationship to such educational "results" as years of schooling attained and levels of learning, which in turn have an observed relationship with labour market entry. We have tended in the past to treat these more qualitative aspects of the educational system, which are the direct objects of educational investment, as within the black box referred to in the first chapter. A major objective of this study has been to open that box to the light of analysis by separating the effects of qualitative and quantitative indicators.

To deal with these questions, we use multiple regression analysis supplemented by commonality analysis. For the regression analyses, the occupational codings have been regrouped into five ordered categories: agricultural labourers; other workers, transportation workers, and personal service workers; artisans and skilled tradesmen; office workers and sales personnel; and professionals, technicians, managers, and administrators.[8] Given relatively small sample sizes for males and females separately, many of the variables in the regression equations do not have statistically significant individual regression weights, although the overall equations reported are statistically significant. As always, for both males and females the variables included in the equations have been selected on the basis of preliminary screening to identify the potentially most powerful predictors, and to eliminate predictors that are very highly intercorrelated with other predictors.

Males

The 10 best predictors of occupational attainment among males explain 36.8% of the total variance in level of first job acquired (Table 75). For the individual regression weights, the most powerful single predictor is

Table 75. Regression, with commonality analysis, on level of first job — males.

I. COMMONALITY ANALYSIS

	Percentage of total variance (total r^2 = 0.368)	Percentage of explained variance
Unique effects[a]		
A. Personal characteristics	0.059	16.0
B. Family and community characteristics	0.007	1.9
C. Educational attainment	0.009	2.4
D. Educational quality	0.088	23.9
Joint effects		
AB	0.005	1.4
AC	0.018	4.9
AD	0.007	1.9
BC	0.002	0.5
BD	0.043	11.7
CD	0.025	6.8
ABC	0.002	0.5
ABD	0.013	3.5
ACD	0.022	6.0
BCD	0.032	8.7
ABCD	0.036	9.8

II. REGRESSION EQUATION

Variable[b]	Beta
Occupational aspirations	0.270*
Number of nonformal courses not related to work	0.180*
School type in 1971	0.144*
Pedagogical excellence, grade 8 school	0.142*
Last school year entered or completed	0.122*
Father's education	0.086
Textbook availability, secondary	0.061
Lived in city or country when young	0.037
Class size, grade 8	0.025
National test score, grade 8, class average	-0.011

[a] Personal characteristics: occupational aspirations. Family and community characteristics: father's education; lived in city or country when young. Educational attainment: last school year entered or completed. Educational quality: number of nonformal courses not related to work; school type in 1971; pedagogical excellence, grade 8 school; textbook availability, secondary; class size, grade 8; and national test score, grade 8, class average.

[b] Predictor variables are in order of regression weight.

*$p < 0.01$ p (total equation) < 0.01 $N = 213$

occupational aspiration, followed by number of nonformal courses not related to work,[9] school type in 1971, pedagogical excellence of grade 8 school, and level of educational attainment.

The results of the commonality analysis are very instructive. Family and community characteristics (essentially SES) have by far the lowest unique effect upon occupational attainment, accounting for only 1.9% of the explained variance.

The five educational quality variables have a very powerful unique

effect, accounting for 23.9% of the explained variance, and yet educational attainment has a very small unique effect. Occupational aspirations also have a powerful unique effect upon level of first job.

Several of the joint effects of variable sets also have a notable impact. The joint effect of family and community characteristics and the educational quality variables accounts for 11.7% of the explained variance. This result suggests that SES affects occupational destination not directly but through its indirect influence on the availability to the student of quality education. Two three-way joint effects also account for significant proportions of the explained variance: educational attainment and educational quality combined with occupational aspirations, and the same combined with family and community characteristics.

In summary, these data provide very strong answers to the two general questions posed above. First, the effect of family SES on occupational destinations is quite low relative to the other classes of variables. Among this group of Chilean young men, family background does not have a strong independent effect on occupational attainment.[10] Second, educational quality variables are much more powerful predictors of occupational attainment than level of educational attainment (they account for almost ten times as much of the explained variance).

As we expand our conception of education beyond simply counting years of schooling completed — including measures of school quality, widening the range of educational experience to include nonformal education, and pushing the time horizon back to cover primary education — we uncover very powerful educational effects on labour market entry that have previously been generally overlooked. A major weakness in many studies of occupational attainment lies in their using years of schooling as the only measure of education's effect on occupational destiny.

Females

It is quite clear that the factors affecting the occupational destinations of women are quite different from those operating among men. Not only is the variable set different, but so is the order of importance of common individual variables and of the variable groups (Table 76). Nonetheless, the 10 best predictors for women explain the same amount of total variance in occupational levels as do the predictors for men.

The most powerful individual predictor is availability of TV in the home. This variable had no important effect upon occupational level among men; it did not in fact survive the preliminary screening. It is also a difficult variable to interpret. Although it is related to other measures of family SES, it is not strongly associated with them; and in many of the analyses carried out in previous stages of this study, it has behaved, as a predictor, differently from them, as is the case in the present analysis. Although we have classified it under family and community characteristics, the availability of TV might also be considered as indexing the presence of a powerful informal educational medium.

Length of schooling (a less important predictor among men) is the second most powerful variable, followed by school type, which is also the

Table 76. Regression, with commonality analysis, on level of first job — females.

I. Commonality Analysis

	Percentage of total variance (total r^2 = 0.364)	Percentage of explained variance
Unique effects[a]		
A. Personal characteristics	0.026	7.1
B. Family and community characteristics	0.091	25.0
C. Educational attainment	0.043	11.8
D. Educational quality	0.070	19.2
Joint effects		
AB	0.000	–
AC	0.022	6.0
AD	0.010	2.7
BC	0.008	2.2
BD	0.032	8.8
CD	0.008	2.2
ABC	0.000	–
ABD	0.000	–
ACD	0.006	1.6
BCD	0.042	11.5
ABCD	0.006	1.6

II. Regression Equation

Variable[b]	Beta
TV in home	0.275**
Last school year entered or completed	0.265**
School type in 1971	0.245**
Occupational aspirations	0.138*
Pedagogical excellence, grade 8 school	0.119
Lives with spouse	-0.107
Lived in city or country when young	0.093
Teachers' pre-service training, grade 8	0.061
Father's education	0.048
Textbook availability, secondary	-0.022

[a] Personal characteristics: occupational aspirations; lives with spouse. Family and community characteristics: TV in home; father's education; lived in city or country when young. Educational attainment: last school year entered or completed. Educational quality: teachers' pre-service training, grade 8; textbook availability, secondary; school type in 1971; pedagogical excellence, grade 8 school.

[b] Predictor variables are in order of regression weight.

*$p < 0.05$ **$p < 0.01$ p (total equation) < 0.01 N = 208

third most important predictor for men. Occupational aspirations are less important among women, as is the pedagogical excellence of grade 8 school. Living with a spouse, which has no effect upon male occupational destinations, is the next best individual predictor. Curiously, although women who are married are less likely to be employed, the sign of the regression coefficient indicates that married women are more likely than single women to have a higher-level occupation.

In the commonality analysis, family and community characteristics have the strongest unique effect (by contrast, they are weakest for men).

Their strength is clearly, however, primarily the result of the influence of TV availability. When the TV-availability variable is removed from the equation, the percentage of explained variance uniquely accounted for by this group falls from 25.0% to 8.7%. The next most powerful group is educational quality, uniquely accounting for 19.2% of the explained variance. Educational attainment is, uniquely, considerably more important among women than men, although in both cases educational quality is more important than educational attainment.

Among joint effects, that between family and community characteristics and educational quality variables has an important effect on occupational destination, as does the joint effect of personal characteristics and educational attainment. The three-way joint effect among family and community characteristics, educational attainment, and educational quality also accounts for a significant proportion (11.5%) of the explained variance.

Although the patterns are not quite so sharp as they are among men, these data for women also shed important light on our two general questions. First, the effect of family SES (especially as it is captured by TV availability — if that is an appropriate categorization) is much stronger among women than men. It is a more powerful predictor set than either educational attainment or educational quality. The combined unique effects of the two educational dimensions (accounting for 31% of the explained variance) is greater, however, than the unique effect of family and community characteristics. The pattern would be even more pronounced if the troublesome TV-availability variable were removed so as to leave family and community characteristics with the two more traditional family-status indicators. Second, educational attainment has a more pronounced impact upon occupational destinations of women than men.

The comparison of the female and male results reinforces an argument we have developed elsewhere in detail (Schiefelbein and Farrell 1980).[11] The labour market for women in Chile appears to be much more socially predetermined than that for men, in the sense that there is a more limited range of occupations considered "socially appropriate" for educated women. Moreover, educational credentials are more important for women than for men in competition for the same types of jobs (see Tables 72 and 73). These factors would explain the lesser importance of occupational aspirations among women (the range of their aspirations being limited) and the greater importance of educational attainment.

A Note on the Effect of Educational Achievement

As we have indicated above, in addition to educational attainment, educational achievement is the other educational indicator that has frequently been used in studies of occupational attainment. To test the effect of educational achievement, we added the grade 8 national test score to the regression equation for males (Table 75) and for females (Table 76).[12] This new variable was treated separately for commonality analysis to produce a five-group analysis. Given the complexity of these results — with a five-group commonality analysis there are 26 separate joint effects — we will consider only the salient findings.

Among females, educational achievement has essentially no net effect upon occupational destination. In the regression, it is the eighth of 11 predictors in order of size of regression coefficient. Its unique effect in commonality analysis is very small, accounting for only 0.9% of the explained variance, and its presence does not alter either the total variance explained or the patterning of the unique effects of the other variable sets. It does have a significant impact jointly with family and community characteristics and educational attainment (jointly accounting for 15.0% of the explained variance). That impact likely reflects the fact that individual achievement at the grade 8 level and family SES are powerful predictors of survival to the end of secondary, which has a stronger effect on labour market entry among women than men.

Among males, the effect of educational achievement is more pronounced, but it operates in a somewhat puzzling fashion. Inclusion of this variable increases the predictive power of the total equation (total $r^2 = 0.448$). The relative power of unique effects of educational quality, personal characteristics, and family and community characteristics is not altered. However, the unique effect of educational achievement (accounting for 7.1% of the explained variance) acts so as to eliminate the unique effect of educational attainment (now accounting for only 0.06% of the explained variance). Whereas both educational achievement and attainment are much less powerful predictors than the educational quality variables (which in this equation uniquely account for 31.2% of the explained variance), achievement appears to be considerably more important than attainment among males.

Examination of the regression coefficients for the individual variables indicates, however, that although grade 8 national test score is the fourth strongest of the 10 predictors, with a statistically significant beta ($p < 0.01$), its direction of effect on occupational attainment is negative. That is, all else being equal, those with higher test scores have lower positions in the labour market, and vice versa.

We have no fully convincing explanation for this result. Possibly, it reflects an interaction between achievement, educational attainment, and SES within this particular sample. None of this group has completed university; most have not entered university. We know that lower-SES students are much less likely than higher-SES students with the same achievement level to enter university -- for the obvious financial reasons. Higher-SES students who do not go on to university are primarily those with lower levels of academic achievement. Thus, this pool of male labour market entrants may contain a group of higher-SES students with generally low test scores as well as a significant number of lower-SES students with relatively high test scores. The higher-SES students may be able to convert their inherited status into relatively good jobs in spite of their lower academic achievement; but many of the lower-SES students may end up in inferior jobs in spite of their relatively good academic record. This explanation is consistent with the evidence assembled through the various stages of the study to date. The number of males with jobs in the present sample is not large enough, however, to permit the detailed multivariate cross-tabular analysis that could provide a clear demonstration of the interactions suggested here.[13]

Conclusions

Several general conclusions may be drawn with particular reference to the two major questions guiding this effort:

- For both sexes, educational variables are more powerful than family SES as predictors of occupational attainment. The relationship is very pronounced among males and somewhat attenuated among females.
- For females, educational attainment is more important than educational achievement; the latter has a negligible effect on occupational destination. Among males, the reverse is the case; educational achievement suppresses the relatively small effect of educational attainment, but it operates negatively in relation to level of first job.
- For both sexes, educational quality variables are much more powerful predictors of occupational attainment than either educational attainment or educational achievement. The relationship is stronger among males than females.

The first conclusion is, in a comparative context, not surprising. As we have indicated above, the most recent cross-national evidence indicates that, at least for males (there being very little data regarding females), the effect of educational attainment, relative to status of origin, upon occupational attainment is quite weak in very underdeveloped societies; that its effect becomes strong among societies in the mid-range of development; and that the relative effect of educational attainment begins to decrease in highly developed nations. Chile being a mid-range society in terms of economic development, the data for males fit this pattern. What is particularly new here is the discovery that the relationship is somewhat different for females. We have developed elsewhere a detailed analysis and explanation of female labour market entry patterns in Chile (Schiefelbein and Farrell 1980).

The second conclusion, for women, is entirely consistent with the argument we have presented here and elsewhere regarding female occupational behaviour in Chile. The negative net effect of educational achievement for men remains puzzling. The tentative explanation advanced above requires further testing.

It is the third conclusion — the relatively strong impact of educational quality on occupational attainment, after controlling for educational attainment and achievement — that is perhaps the most powerful, certainly the most surprising, result of these analyses. We have consistently found, through earlier stages of the study, that various indicators of schooling quality have a powerful unique impact upon such educational "results" as levels of learning and years of schooling completed. The existing comparative data regarding the effect of schooling quality on occupational attainment are both limited and inconclusive. Jencks' analysis of U.S. data (1979:295) indicates that variations in school quality have no noticeable relationship with variations in later income. Currie's data from Uganda (1974) show a significant relationship between quality of the secondary school attended and occupational attainment ($b = 0.16$), but the main effect of school quality is indirect, through its influence on academic

performance. Heyneman's Malawi data (1980: table 20) show that the distinction between a boarding and a day secondary school (an indirect measure of quality, since boarding schools in that society tend to have better facilities and teachers and higher per-pupil costs) is the third strongest of five predictors of later earnings in a regression equation.[14] The quality variable, however, accounts for only 2% of the explained variance, with years of secondary schooling and examination performance (in that order) accounting for the other 98%.

These results from previous stages of this study and from studies in other nations would easily lead one to expect, for these young Chileans, that schooling quality might have *some* direct effect on occupational attainment, but that most of the effect would probably be indirect, through an influence on educational attainment or achievement or both. The results reported here clearly deviate markedly from that expectation.[15] Educational quality has a strong direct effect on occupational attainment. The indirect effect (joint effect of educational quality and educational attainment) is moderate, being much less than the unique effect for males — accounting for 6.8% of the explained variance (Table 75) — and negligible for females — 2.2% (Table 76).

How, then, do we explain these new findings? A rather complex argument is advanced below. It must be considered tentative. Indeed, we would hope that a major function of the circulation of this work would be to spark discussion and debates regarding the possible meaning of these results.

It is commonly asserted that the formal school curriculum in developing nations, particularly at the primary and secondary levels, does not generally produce in students skills and knowledge that are specifically job-relevant (except for those whose "job" is to continue to the next level of schooling). By this argument, employers are inclined to hire an applicant who has a certificate such as a primary or secondary diploma, not because they expect the applicant to come with highly specific job skills, but rather because they consider the level of education as a proxy indicator of certain generally useful traits and habits. That is, they regard the diploma as representing a reasonable level of literacy and numeracy and general knowledge, a fairly high level of mental ability, ambition, and the like.

In Chile, the certification effect operates strongly in the employment market (see Table 68). Its importance in this sample is limited, however, by the nature of the study itself. All of these young people have completed primary school, and none have completed university. The fact that we are dealing with a limited range of educational attainment also means that they are potential entrants to a limited range within the occupational system. Practically none of the primary school leavers have entered the lowest quarter of the Chilean occupational spectrum, agricultural labour (see Table 68). At the other extreme, because they do not have university degrees, they cannot have entered the higher professions, such as law, medicine, and engineering, or even the lower-ranking professions such as nursing and teaching (which in Chile require a university degree). We are considering here, therefore, variations among a group of job-seekers who have a limited, and middle, range of educational attainment, and who are competitors for a limited, and middle, range of potential occupations.

This pattern probably accounts for the relatively low effect of educational attainment. If the full range of variation in education and occupation were included in the sample, the effect would likely be greater.

Moreover, the secondary-level certificate cannot be used to discriminate among most of these young people. Fewer than half entered the labour market directly after completing secondary schooling. Rather, 52.3% of the total sample (60.5% of males and 44.1% of females) sought their first job with some level of incomplete secondary or incomplete university.

Three observations may follow from the points made above: First, potential employers of these young people could not in many cases have relied solely upon the educational credential in making hiring decisions. Rather, they would have had to rely on their direct assessment of the traits and habits for which the certificate would otherwise serve as a proxy measure. Second, given the high rates of youth unemployment in Chile, there are typically many candidates for any given entry-level job. In such conditions the employer may set an educational criterion (in the present case the secondary certificate) as a minimum condition, and then discriminate among applicants using traits observed in a résumé or an interview. Finally, the schooling quality variables may have their greatest impact not upon formal test performance, which often determines educational attainment, but upon those general, and subtler, traits that a potential employer is seeking in a job applicant. The small portion of all the learning outcomes from schooling that is measured by formal tests may be very appropriate as a predictor of future schooling performance; however, tests may miss the learning outcomes that employers most seek, and that they must in the situation described here try to assess directly. For example, a young male entrant to the middle segment of the Chilean occupational structure may be at a considerable advantage if he has taken nonformal courses, even if they are not directly related to the job being sought. The fact that he has taken courses may indicate to the prospective employer a desire and willingness to learn. Attendance at a liceo may be interpreted as a sign of a generally high intellectual ability.[16] An adequate supply of textbooks may have increased the applicant's level of literacy and general knowledge, whether or not these are reflected in formal test performance. And so on. From the applicant's point of view, these educational quality indicators may describe an environment in which he is more likely to have acquired the traits that are most highly regarded by employers.

In summary, in the job competition among young people who all come from roughly the same mid-range level of the educational system and who are trying to enter roughly the same level of the occupational structure, the certification effect cannot, by definition, come fully into play. Nevertheless, educational quality variables may affect students' general level of knowledge, their perceived level of intelligence and willingness to learn, and the subtler traits of personality, character, and "presentation of self" that influence the decisions of potential employers.

If this argument is correct, one implication would be that if the effect of such "structural" phenomena as certification effect and inherited social status were decreased through social policy, the effect of school quality variables on success in the employment market would increase.

Leaving the First Job

In the Chilean labour market, there is a high degree of turnover. One estimate suggests that, on average, workers will pass through four or five different jobs during their life (Martínez 1965). For young people, not only is it hard to find a first job but it is difficult to keep that job. Among those respondents who had obtained a first job, 51.9% had left it by the time of the most recent follow-up contact. Available resources have not allowed us to analyze fully the determinants of job loss, but the information that could be acquired is instructive.

There is hardly any difference in job leaving rate between males and females; however, as could be expected, those with low-level jobs are more likely to have left the job than those with high-level jobs, although even in the latter category the figure is over 40% (Table 77). (The figures do not necessarily indicate greater overall instability in lower-level jobs. Since higher-level jobs generally require more education, those in our sample who have them are likely to have obtained them more recently.) There is also a clear interaction between sex and job level: among females, the job leaving rates for those with high- and low-level occupations are quite similar; however, among males, those with low-level jobs are much more likely to have left than are those with high-level jobs.

If we consider the effects of SES and initial job level on propensity to leave the first job, there is no difference overall across categories of father's education (Table 78). We do observe, however, a strong interaction. Among those with high levels of father's education, the job leaving rates are about the same for those with high-level jobs and those with low-level jobs. Among those whose fathers had primary education or less, the probability of having left the job is much greater among low- than high-level jobs. Indeed, the lowest job leaving rate is among those whose fathers had little education but who themselves have a high-level job — the upwardly mobile. It may be that this group, once having achieved a major step upward, will tend not to leave their job voluntarily and put their increased status at risk.

Respondents who had left their first job were asked to indicate the reason for doing so. A variety of possible reasons were provided, which fall into four main categories: to obtain a better job; layoffs by the firm or the end of the contract (i.e., involuntary dismissal); to obtain more education; and a variety of other reasons that do not individually have high enough response rates to make their separate analysis useful (e.g., disagreements with bosses or fellow workers, lack of discipline or inability to do the work,

Table 77. Maintenance of first job, by job level and by sex.

Level of first job	Males				Females			
	Kept job		Left job		Kept job		Left job	
	N	%	*N*	%	*N*	%	*N*	%
High	64	57.1	48	42.9	82	51.2	78	48.3
Low	53	38.7	84	61.3	36	49.3	37	50.7

$p < 0.001$

Table 78. Maintenance of first job, by job level and by father's education.

Level of first job	Father's education: Primary or less, Kept job N	%	Primary or less, Left job N	%	Secondary or more, Kept job N	%	Secondary or more, Left job N	%
High	66	59.5	45	40.5	77	51.7	72	48.3
Low	58	40.8	84	59.2	31	47.0	35	53.0

$p < 0.001$

low pay or no promotion opportunity, sickness, pregnancy). The most commonly cited reasons are layoffs by the firm and termination of a contract — 41.7% of the cases (Table 79). Relatively few respondents (less than a quarter) left their first job to obtain a better job or to continue their education. The patterning of reasons does not differ markedly between males and females. Likewise, the response distributions do not differ greatly between those with high- and low-level jobs. However, we observe significant differences when the respondents are categorized by level of father's education. Those with low levels of father's education are more likely to have lost their jobs because the firm reduced its labour force or their contract expired (47.3% vs 36.4%); those with high levels of father's education are much more likely to have quit to continue their education, although in neither case is this figure large (14.9% vs 5.4%).

We observe, then, an interesting patterning of results with respect to lower-status young people who have obtained a first job. Overall, they are more likely than their higher-status peers to have been subject to involuntary dismissal. Those among them who have accomplished a move upward (and the previous analyses indicate that this is a substantial group, and that education has contributed strongly to their occupational success) are more likely, however, than any other subgroup studied to have kept their first job.

Table 79. Reasons for leaving first job, by sex, by job level, and by father's education.

Reasons for leaving first job	Sex: Male	Female	Job level: High	Low	Father's education: Primary or less	Secondary or more	Total
To obtain a better job							
N	22	12	17	17	18	12	34
%	16.7	10.4	13.5	14.0	14.0	11.2	13.8
Layoff or end of contract							
N	53	50	53	50	61	39	103
%	40.2	43.5	42.0	41.3	47.3	36.4	41.7
To continue studies							
N	13	11	14	10	7	16	24
%	9.8	9.6	11.1	8.3	5.4	14.9	9.7
Other reasons							
N	44	42	42	44	43	40	86
%	33.3	36.5	33.3	36.4	33.3	37.4	34.8

A Final Note

In this section we have focused our attention upon entry into the labour market, treating it as the ultimate stage in this study. Much of the literature generated during the past several decades regarding education's role in development has claimed, implicitly or explicitly, that the ultimate aim of educational investment, whether from the individual or societal viewpoint, relates to the labour market and thus to the national economy.

Occupational attainment, the final "outcome" treated here, is only one aspect of the effect of education upon the long-term destiny of individuals. Many young people, especially women in many societies, will never enter the labour market. Even for those men and women who do search for and find work, the quality of their lives and the effect of their lives on the society in which they live are far from completely determined by the kind of job they have. We are very much in need of studies that examine the effects of education on non-occupational characteristics of adult life.

Notes

1. We are indebted to the Education Division of the World Bank for support provided that permitted us to undertake, during the past 2 years, substantial reanalysis of much of the data in this chapter.

2. The large majority of these first jobs are full-time positions. Respondents who had jobs were asked what hours they worked during the day (only mornings, only afternoons, morning and afternoon, evening, in shifts, etc.) and how many hours they worked per week. Some 76.6% worked both morning and afternoon, and another 8.2% on shift work. Only 18.6% worked 30 or fewer hours/week.

3. We are indebted to Stephen Heyneman for suggesting the potential utility of this threefold distinction for the analysis of our data.

4. Jobs available to females with lower levels of education pay less than those available to males. Thus, the income forgone to continue studying is less for a woman. (See Morales, Schiefelbein, and Rodriguez 1977.)

5. Since this analysis considers only those who had definitively left school at the time of the contact with them in 1977, none of the sample would have completed university and entered the labour market with their degree.

6. Evidence from a 1970 survey of occupations and earnings in Greater Santiago indicates that among young people aged 20–24 (the age range that includes almost all subjects in our sample) the earnings of those with at least 1 year of university were less than the earnings of those who had completed secondary schooling but not continued their studies. For older age groups (up to age 60), incomplete university did produce higher earnings than complete secondary schooling (Schiefelbein 1976:236).

7. The occupations that respondents indicated they would like to have in 1983 were coded into the same census categories used for classifying first jobs, and have been dichotomized in the same way.

8. Use of such a set of ordered categories as the dependent variable assumes, of course, strictly speaking, that the "true occupational distance" between each set of adjacent categories is approximately the same: that is, that we have an equal-interval scale. The groupings used here, and the score assigned to each group, are based upon our own judgments regarding the relative "prestige" of various occupations in Chile and considerable experience working with Chilean

economic and earnings data. They correspond reasonably well to a scale of occupational prestige in Chile developed by Bucknam (1971) on the basis of questionnaire responses from secondary school students. We believe that the category scores do not seriously violate the equal interval assumption. One might wish to check this by calculating the mean earnings for each occupational group, if reliable data were available. A difficulty with this approach is that even such mean income figures might be distorted by precisely the same economic phenomena that made it impossible for us to collect individual earnings information. In any event, Labovitz (1970) demonstrated that unless one has an extremely stretched or skewed underlying distribution, regression analysis is quite robust to the assignment of numbers to rank-ordered categories.

9. Results noted above indicate that nonformal courses related to work have a very complicated relationship with occupational attainment; the complexity probably explains why that variable did not survive preliminary screening. The number of nonformal courses not related to work (the variable included in this regression analysis) likely reflects the availability of, and tendency to utilize, general educational facilities in the community.

10. It may be thought that this low predictive power of family SES is partially due to the fact that the range on SES is limited by the study design. While it is true that this sample includes only those children of lower-status families who have managed to complete at least primary schooling, the study design also restricts the range of variation on other predictors, particularly educational attainment. No one in this sample has less than 8 years of primary education, and none have completed university. Thus, this argument cannot account for the low effect of family SES *relative* to such variables as educational attainment.

11. The careful reader will note some differences between the regression results reported in that earlier article and those reported here. Before we undertook the reanalyses shown here, the data files were transferred to a new machine, whose software provided a more satisfactory means of dealing with missing values and separating zeroes and blanks on some key variables.

12. For males, the grade 8 national test score, class average, was removed from the equation, as it has a very strong correlation with individual achievement, which could have produced insurmountable multicollinearity problems.

13. Examination of the joint effects in the commonality analysis is not conclusive for this purpose. We are dealing here (to use Lazersfeld's distinction) not with a problem of *explanation* but of *specification*, for which regression analysis, in whatever form, is a clumsy tool.

14. As a matter of policy, the Ugandan government places students with the highest scores on the Primary School Leavers Examination in boarding schools and then allocates the remainder to day schools until all available places have been filled.

15. The deviation from expectation is so great, in fact, that when these results were first produced, a very careful reexamination of all the computer programing, the data recoding, the hand calculations for the commonality analyses, etc., was undertaken.

16. Some comparative support for this argument is found in the unpublished results of a very detailed study of the occupational destinations of secondary graduates and leavers in Ontario, Canada. In that study, it was found that the type of secondary program (general arts and science, business and commerce, trades) and the level of instruction (in the Ontario system, secondary students may study the same subject at any one of six different levels of difficulty, depending upon their past academic performance) can be more important determinants of occupational destination than certification itself (N. Rowen, OISE, Toronto, personal communication).

Part V
Conclusion

Chapter 12

A Final View: through Schooling to the Labour Market

In the opening chapter of this book, we presented the general vision of educational equality that currently guides our thinking and that has been used as an organizing framework for the preceding chapters. As we have followed these young people through successive stages of their educational careers, and then into the labour market, and examined the factors that appear to affect their destiny at each critical sorting or screening point suggested by the model, an increasingly complex, and perhaps confusing, picture has been developed. One of the difficulties with a longitudinal study of this sort is that the very richness of the data generated can create a bewildering set of conceptual problems. Now it is time to attempt to pull the somewhat tangled threads of this set of analyses back together again.

Through the preceding chapters, we have observed separately the various stages of the flow of Chilean young people through the school system and into the labour market. To understand more fully the social meaning of a combination of these separate analyses, and to grasp the role education has played (or has been unable to play) in affecting the destiny of the children of various social strata, we must combine the inflow and outflow views of mobility, and take into account the changing nature of the Chilean occupational structure during the past 20 years.

When we consider the occupational distribution among economically active males in 1960 — these would be the fathers of our students, who entered school shortly after 1960 — roughly 5.7% of Chilean fathers were upper class (managers and professionals), 13.6% were middle class, 44.2% were urban labourers, and 36.5% were agricultural labourers (Fig. 5). (All percentages have been adjusted to eliminate non-classifiable and non-response categories in the 1960 census.)

The estimations of the flow of children through the educational system are based on the percentages of educational survivors from each occupational stratum at, respectively, the end of primary schooling (grade 8), the end of secondary schooling (grade 12), and the 1st year of university (Fig. 5). Since by the 1960s almost all Chilean children entered grade 1 and few dropped out before completing grades 4, 5, or 6, we indicate the dropout pattern as starting around grade 4. The importance of taking both an inflow and outflow view is obvious. For example, at the

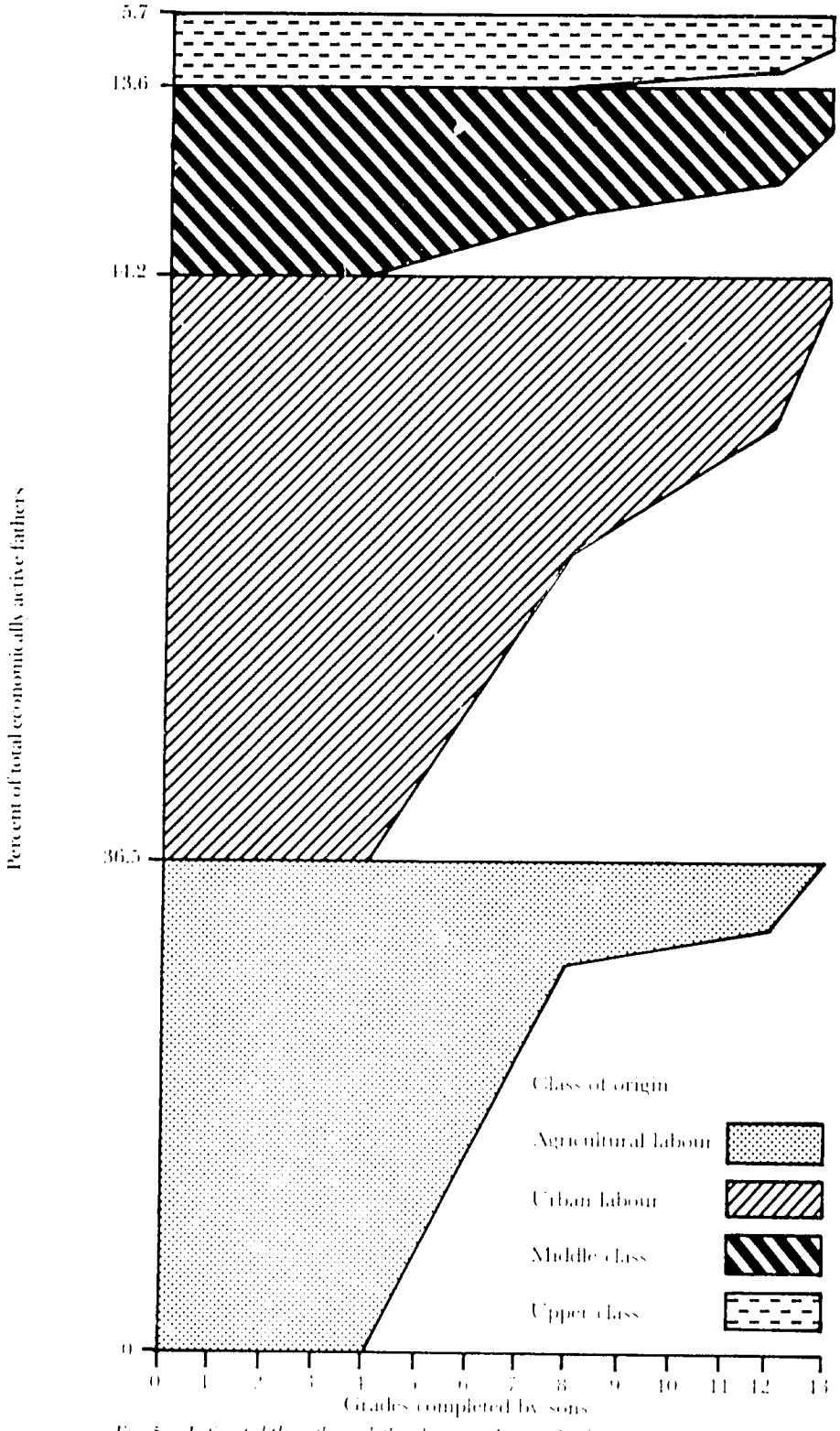

Fig. 5. Estimated flows through the educational system by class of origin.

grade 12 level, most upper-class children are still in school, but only a small percentage of the children of agricultural labourers. From an inflow perspective, however, because the latter group is so much larger a portion of the 1960 occupational structure than the former, children from the two strata represent about equal proportions of all grade 12 students. We find the same kind of contrast when we compare children of the middle class and of urban labourers. About half of the former and only about a quarter of the latter survive to the end of secondary schooling; yet because the urban labouring group was in 1960 more than three times as large as the middle-class group, there are more children of urban labourers in school at grade 12 than there are middle-class children.

From our estimations of the nature of the Chilean occupational structure in the late 1970s, we see that since 1960 upper-class positions have grown from 5.7% to 15% of all jobs; middle-class positions have nearly doubled, from 13.6% to 25%; urban labouring jobs have remained constant at about 40%; and agricultural labouring jobs have decreased markedly, from more than a third to about 20% (Fig. 6). We have noted this pattern several times in the preceding chapters. If we assume that first jobs available to young Chileans are distributed approximately as are all jobs in the economy, it is these figures that mark the occupational opportunity structure available to our sample when they entered the labour market.

Our estimations of the actual jobs obtained by this cohort of Chilean young people pertain to males only, for reasons noted in chapters 10 and 11. In interpreting these figures, two cautions should be kept in mind. First, as we have observed above, our data refer only to first jobs obtained; a further follow-up will be required to detect patterns of within-career mobility. Second, given the mid-range nature of our job attainment sample — which includes only those who have completed primary schooling but not completed university — we have had to use other data and make several assumptions to estimate the job attainment patterns of those who were not included.

The estimations for upper-class positions are based on the following considerations. Managerial and professional occupations predominantly require a university education. If we assume that all university entrants proceeded to a degree (or at least that dropout patterns in university were not significantly class biased), the number of entrants to these upper-class jobs from each occupational stratum will be proportional to the number who entered university. However, university entrants constituted only 10% of the total cohort; thus, even if they all gained a degree, they could not possibly fill all available slots in this category, which constitutes 15% of all available jobs. We assume that the remaining 5% of upper-class jobs are filled first by sons of the upper class who did not attend university and then by sons of the upper middle class who did not attend university. Thus, we estimate that the 15% of all jobs that are upper class are distributed as follows in terms of father's occupational stratum: upper class, 5.7%; middle class, 5.6%; urban labour, 2.6%; agricultural labour, 1.1% (Fig. 6).

Most children of agricultural labourers are also not in our job-attainment sample. For these young men, the most salient phenomenon has been the shrinkage in the proportion of jobs available in their father's category.

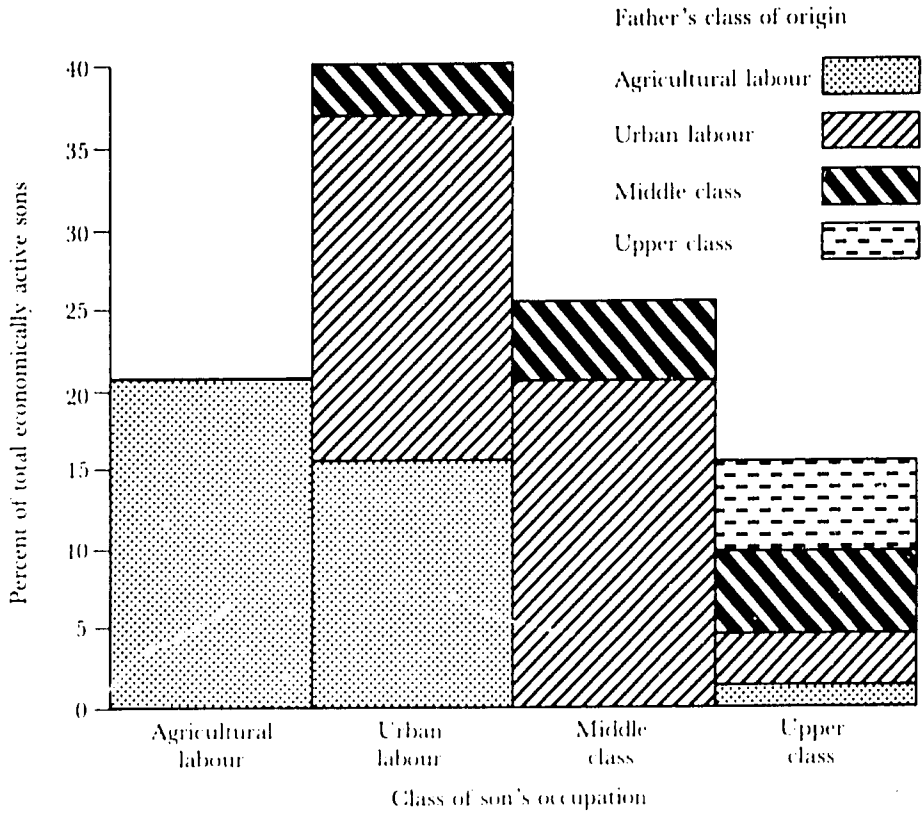

Fig. 6. Estimated flows into the labour market by class of origin.

We assume that the 20% of jobs in the agricultural labouring stratum in the late 1970s have been occupied by those sons of the rural working class with the least education, and that the remainder of their peers have migrated to towns and cities in search or urban labouring jobs (except for that small percentage who entered university). Thus, of the 36.5% of the original cohort who were sons of agricultural workers, we estimate that 20% have entered the same occupational group, a maximum of 1.1% have entered upper-class positions (the university entrants), and the remainder (15.4%) have become urban labourers, probably in unskilled or marginal jobs in the towns and cities.

For the mid-range half of the available jobs, to which our sample directly pertains, we have applied the intergenerational transition percentages (see Table 69). Here, we find a rather surprising pattern, which could only be revealed by combining the inflow and outflow perspectives on mobility and taking into account the changes in the occupational structure between the fathers' and sons' generations. Since (a) the middle-class stratum in 1960 was only about one-third the size of the urban labouring stratum, (b) middle-class positions in the late 1970s were much more plentiful than in 1960, and (c) a significant proportion of the sons of the small 1960 middle class have moved into the expanded upper-class stratum, we find that about 80% of the entrants to middle-class jobs come from the urban labouring class.

The estimations of job attainment patterns for this group of young men are based upon a chain of assumptions that have been identified. Those assumptions are not arbitrary; they are rooted either in our own data or our understanding of the Chilean socioeconomic system during the 1960s and 1970s. Precisely because they are *assumptions*, however, we cannot take too seriously the *exact* job attainment percentages (Fig. 6). For example, it is likely that some upper-class children have moved downward into middle-class positions. It is also likely that at least a few of the small proportion of rural labourers' sons who have obtained secondary education have parlayed their attainment into middle-class jobs. Moreover, these occupational attainment estimates pertain only to those who found jobs. (The data in chapter 10 indicate, however, that status of origin is not an important predictor of the probability of having found a first job. Hence, it may be safe to assume that when and if the unemployed young men find jobs, they will be distributed approximately as we estimated.) Those numbers should rather be taken as indicative of several general patterns, with some important implications both for understanding how education operates within Chilean society and for general social theory.

First, there is almost absolute intergenerational status inheritance only at the very extremes of the system: all of the children of the small upper class of 1960 retain their position, and all of the agricultural labouring positions in the late 1970s are occupied by children of the same stratum. These loci of complete intergenerational rigidity constitute only about one-quarter of the final occupational structure.

Second, because of changes in the occupational structure, particularly growth in the proportion of middle- and upper-class jobs available, a great deal of potential occupational mobility was available to this generation of young Chileans. Third, a significant amount of occupational mobility indeed occurred (see Table 80).

Of all young men born into middle-class families, 11.1% have moved into the newly created upper-class positions; 24.4% have ended up in urban labouring jobs; and only about a third (34.6%) have stayed in the same stratum. Just over half of the sons of urban labourers have moved upward. Combining these estimates with the proportions in each status of origin, we conclude that, of all boys in the original cohort who started school in the early 1960s, 51.3% have remained in their father's occupational group, 3.3% have moved downward, and 45.3% have moved upward.

Fourth, education has played a very significant role in the substantial

Table 80. Mobility estimates by class of origin.

	Percentage of the original group		
Original class of student	Upwardly mobile	Same status	Downwardly mobile
Upper class		100	
Middle class	11.1	34.6	24.3
Urban labour	51.8	48.1	
Agricultural labour	45.2	54.8	
Total	45.3	51.3	3.3

amount of mobility that has occurred. The data reported in chapter 11 clearly indicate that for the middle ranges of the educational system and the occupational structure, the most important predictors of occupational attainment are educational variables. If our assumptions regarding upper-class positions are correct, there has been a significant amount of upward mobility into that class and it has been dependent upon educational attainment. With reference to the children of agricultural labourers, the nature of this study does not permit us to observe the extent to which educational variables are important discriminators between those who have remained in agricultural labour and those who have moved into urban labour. The available comparative data suggest, however, that those with higher levels of educational attainment or achievement are more likely to have migrated to the towns and cities.

Fifth, even in a system in which a great deal of occupational mobility has occurred, and has been strongly influenced by educational variables, the "queuing-order" model we advanced for the educational system itself also pertains to the occupational system. As new positions are opened up at the highest occupational levels, they are distributed first to those from the next-lowest stratum, and then in decreasing proportions to those in each lower stratum. Clearly, the children of agricultural workers are always last in line.

Sixth, there are two major weaknesses in what has become the standard approach for studying intergenerational status transmission and education's effect upon it — that is, to use a path-analytic model to treat correlations between the entire distributions of father's occupation, son's education, and son's occupation (plus a few other variables in some studies). First, one cannot adequately interpret the results of such studies without taking into account the constraining effect upon the underlying correlations of changes in the occupational distribution between generations. In their important comparative study, which we have cited several times, Lin and Yauger (1975) use differences in occupational structure at one point in time to attempt to explain, post hoc, the cross-national differences they find in education's effect upon status transmission, but they do not attend to possible changes within each society over time. In the most statistically complex and theoretically sophisticated extant study of status transmission in developed societies, Boudon (1974:157–160) notes that conclusions derived from a static analysis will not hold if there have been "drastic changes" in the social structure. Lack of attention to the degree and pattern of change in the occupational distribution between generations may not be a serious problem in studies of societies where the occupational distribution is changing very slowly; it is a major impediment to understanding in societies such as Chile, where massive changes have occurred. And it is of course precisely in developing societies where we expect (or at least hope) that Boudon's drastic changes will occur. We may have here another instance of an analytic model that has proven useful in developed societies (in this case the so-called Wisconsin model of status attainment) being inappropriate for the study of developing societies. Second, correlation coefficients based upon the entire occupational and educational distributions can mask the pattern we have discovered in Chile, which indicates that there are some sectors of the status hierarchy where a great deal of mobility occurs, and where education plays a powerful role,

and other sectors where there is very little mobility. For both theory and policy it is critically important to observe the proportions of the occupational distribution, in both the parents' and the children's generations, in which there is little or no potential for occupational mobility, or a great deal of potential, and to note where in the overall hierarchy the different potentials are located.

Only a sector-by-sector analysis, carefully noting for each stratum the current and changing proportion of the total population it includes, can overcome these limitations of the global-correlation/path-analysis style of studying status acquisition. We do not suggest that the particular methodological approach followed in this study is the only, or the best, way to overcome these limitations; rather, these results illustrate the greater depth and precision of understanding that is possible when one takes a more disaggregated and dynamic look at education's effect upon status transmission.

In the preceding paragraphs, we have focused upon the relationship between education and labour market entry. However, as noted in the previous chapter, many people, particularly many women, will never enter the labour market. Moreover, in a society such as Chile, a comparison of the occupational and educational distributions indicates that many young people will necessarily work at jobs that do not, in a strict sense, require the level of education they have attained: although it may be useful for a factory worker or a mechanic to have a grade 10 education or more, it remains an open question how much the years of schooling beyond the level needed for solid literacy and numeracy directly increase the worker's productive capacity. Nonetheless, we must remind ourselves that, however important the directly "economic" functions of education — whether we call them job preparation, human capital formation, rationing, certifying, chartering, or whatever — they are only a portion of the reasons for which societies establish schooling systems. For example, political socialization is an important goal in most societies. Similarly, it is generally held that individuals with some general knowledge of science (broadly writ) are more likely to follow sanitary, nutritional, and medical practices that will improve the quality of their own lives and those of their children. Preliminary analyses of one aspect of our own data (which we have not yet been able to explore fully) indicate that there is a strong association between educational attainment and achievement and knowledge of and willingness to use contraceptive methods to limit family size. And so forth. In short, there are many aspects of general knowledge and attitudes that schools are presumed to provide, that are regarded as important, and that have little or nothing to do with the labour market. From this point of view, equality in the provision of education itself (equality of access, survival, and output in the model we have used) is an important question independent of the linkage between education and the labour market.

Thus, each aspect of the general equality model introduced in chapter 1 has significant linkages to other and succeeding aspects, but is also important in its own right. In the preceding chapters, we have considered separately the factors that appear to influence the destiny of young Chileans at each of the sorting points suggested by that original model. To clarify somewhat the extremely complex relationships between the sorting points themselves, and the factors that affect them, over time,

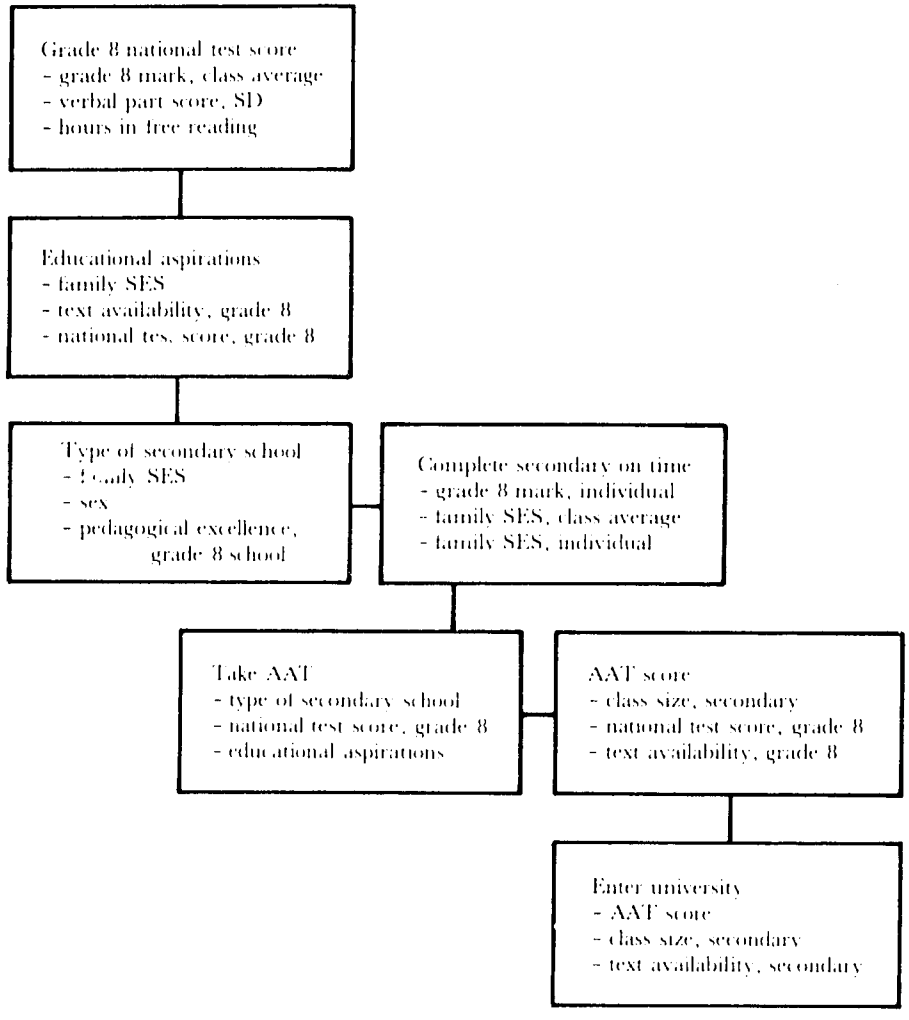

Fig. 7. Model presenting seven distinct educational sorting points in chronological order and the three most powerful variables for each in order of importance.

we have developed two models to summarize interconnected results of the various separate analyses (Fig. 7 and Fig. 8). The first model deals only with the educational system itself, presenting seven distinct educational sorting points in chronological order, and the three most powerful predictor variables for each in order of importance. Only the three strongest variables from each analysis have been included to keep the model reasonably readable. The second model uses only three critical educational points — grade 8 national test score, type of secondary school entered, and final educational attainment — and includes the level of occupational attainment for males and females separately. With fewer outcomes involved, the five most powerful predictors can be shown.

These models are obviously simplifications. Even as such, however, they illustrate the complexity of the processes that over many years influence the destiny of children. Though the information presented in these pages represents, we submit, a considerable advance in our

understanding of that complexity, there is still much to learn; and we have noted throughout the book a number of unanswered questions, many of which would require styles of investigation quite different from what we have done. Nonetheless, consideration of these models (particularly in light of the patterns shown in Fig. 5 and Fig. 6), and the many pages of text they are meant to summarize, leads us to offer a variety of concluding observations.

Family SES is clearly an important predictor of students' educational destiny, and thus indirectly of their occupational fate. Indeed, were this not the case, we would not likely be much concerned with the question of educational equality. SES is nowhere so overwhelmingly important, however, that we may take differences in the family circumstances of children as ineluctable, unchangeable "givens." It is noteworthy in this respect that the direct effect of SES is strongest at earlier sorting points (e.g., type of secondary school entered) and diminishes at the later points (except for its effect as demonstrated in commonality analysis on the occupational destinations of women). If there is to be effective educational intervention to meliorate the effect of family origin, it needs to start early.

But what kind of educational intervention are we talking about? The strength of these models, and the more detailed analyses they represent is precisely in their identification of a number of educational policy variables that may have the potential to reduce significantly the effect of the inequalities that children bring with them to the school. Two variables have

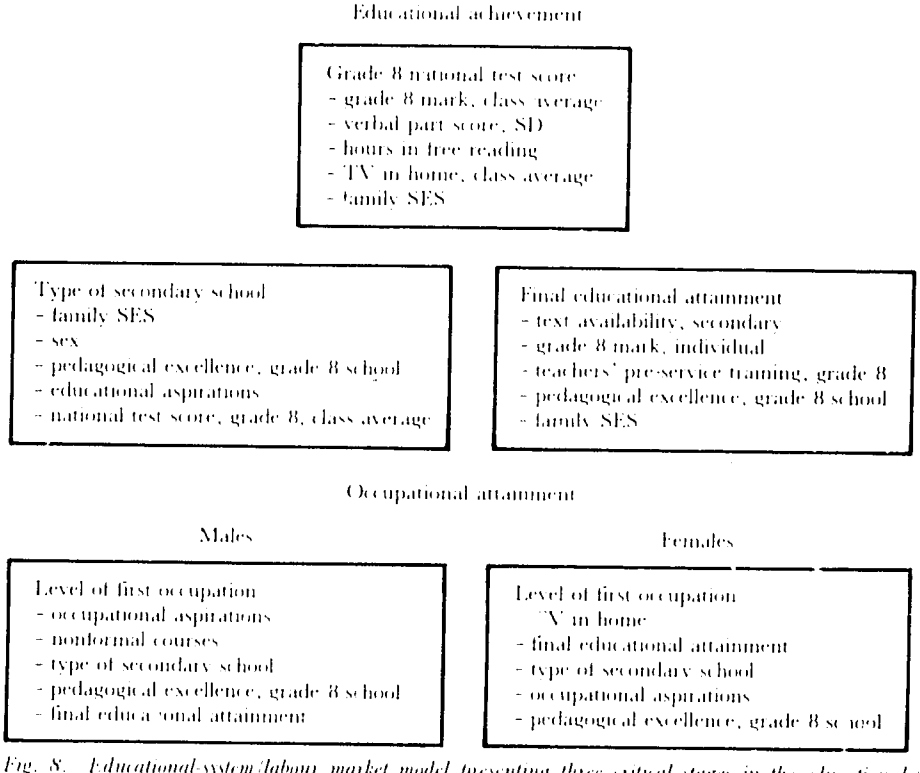

Fig. 8. Educational-system/labour market model presenting three critical stages in the educational system, and the five most powerful predictors for the level of occupational attainment for males and females.

been identified — textbook availability and pedagogical excellence of the grade 8 school — that appear to have significant direct and indirect short-term and long-term effects upon the destiny of children. These variables are relatively easily manipulated by educational policy. All too often, discussions of needed educational changes lead to suggestions that cannot be implemented because no one knows how to implement them. How precisely would one, as a policymaker, go about changing teachers' negative attitudes toward lower-status children? What policy levers could one manipulate to reduce the prevalence of rote-memorization teaching behaviour in one's system? In contrast, even if we do not fully understand why they have a positive effect, we know how to increase the availability of textbooks, laboratories, workshops, libraries, etc., in a school system. The difficulties in implementing improvements in these areas are fiscal and administrative rather than conceptual, and that is a fundamental advantage. Telling educational policymakers that they *ought to do* what nobody can tell them *how to do* is worse than useless.

The importance of the peer group effect in improving the educational chances of lower-status children in particular has been clearly demonstrated. Filp et al. (1981) have recently found a similar effect at the grade 1 level in Chile. Altering the composition of classroom groupings is clearly more difficult to accomplish by policy. The experience of the U.S. with school desegregation, the Swedish efforts at secondary school comprehensivation, and the Cuban "schools in the countryside" program, for example, all suggest that where the political will exists, significant improvements in this area can be accomplished.

One of the main aims of our research has been to identify educational variables that might reverse what was labeled in chapter 4 the headstart effect: that is, variables that would have a greater positive impact upon the educational success of lower-status rather than higher-status youngsters. The specifications of analyses by SES that could only be accomplished in a detailed longitudinal study, which are not captured by our two models (Fig. 7 and Fig. 8), have revealed several relationships in which an educational variable has its greatest impact upon lower-status students: for example, the effect of textbook availability upon grade 8 achievement level; the effect of grade 8 pedagogical excellence upon secondary school access; the effect of grade 8 national test score upon AAT score; and the entire discussion of secondary level survival found in chapter 7. Again, the educational variables are relatively easily manipulated by policy. This is the most desirable of findings — operable factors that may have precisely the desired redistributive consequences.

Moreover, certain educational variables that were thought to be important have turned out to have no significant impact upon students' destinies: for example, in-service training of teachers, in which Chile invested great sums of money; pre-service training of teachers, except for its effect upon final educational attainment; and class size, where our results are contrary to what practicing teachers believe but generally consistent with the available comparative evidence. Findings such as these are particularly useful when considering financial trade-offs among educational policies. As we demonstrated in an earlier article (Schiefelbein and Farrell 1974), reduction of expenditures in such "non-productive" areas can make available to a government resources sufficient to permit

major improvements in policy variables that have a higher probability of a significant social payoff.

The importance of early educational success, and access to educational quality in primary school, is very evident in these data. One of the limitations of this study, noted again and again, is that it started with students who were already in the last year of primary school. Before that time, a great deal of educational screening had already taken place. It may be that the educational policy variables we have emphasized here have an equally strong, or stronger, impact among the lower-status children who dropped out of school before they could enter our sample. It is also possible, however, that the key variables are individual qualities — of intellect, personality, whatever — or what Heyneman and Loxley (1981) have called parental push, variables that are not likely to be affected by educational policy. We are very much in need of careful studies focusing upon poor children in the early primary years.

In the opening chapter, we suggested that it is necessary to move beyond the black box treatment of education and to view it as a cumulative and dynamic process, if we are to understand the social role of schooling in developing societies more fully. By building these two considerations into the methodology of this study — focusing on detailed examinations of more qualitative internal schooling factors, particularly those that can be manipulated by policy, and linking various stages together through a longitudinal study — we have been able to observe a number of apparently powerful effects of educational variables that have hitherto not been noticed. Perhaps the most surprising of these findings is the direct effect, seen in chapter 11, of educational quality variables on occupational attainment. By building into the original design a method for getting a detailed picture of the influence upon an individual student of the characteristics of the immediate classroom group, we have been able to discover important peer group effects that, as Simmons and Alexander (1978) rightly note, no other study has been able to isolate.

Although we believe that these results advance our understanding of education's role in developing societies, we must also emphasize the many observed relationships that remain puzzling — those for which we can advance no explanation or for which the explanation we have suggested remains untested (further probing of these questions will require many different styles of research, from the large-scale and quantitative to the most detailed and naturalistic). It is perhaps salutary that these data raise as many questions as they answer, if not more, for this reminds us that there is still a great deal that is not understood about these complex and fundamental social institutions we call educational systems.

We would certainly not suggest, then, that on the strength of this one study it could unequivocally be concluded that large investments in any of the areas discussed here would automatically produce desired improvements. Rather, these results indicate a variety of areas where experimentation and carefully evaluated pilot projects could be quite productive.

We most definitely do not suggest that manipulating the educational policy variables highlighted in this book, or any other set of such variables, is going to eliminate all of the ultimate differences in life trajectories among children who are born in societies generally characterized by a high

degree of structural inequality. We do suggest, however, that the data reported here indicate that we should not readily accept the converse proposition, which has become increasingly popular of late: that little or nothing can be done to reduce the degree to which educational systems act simply as ratifiers or reinforcers of existing patterns of socioeconomic inequality.

Problems of inequality in the distribution of essential social goods, such as education and preferred types of occupations, may well be an inevitable aspect of the human condition. At least no existing society seems to have eliminated them. So long as there is some "good" in society that is scarce — whether it be income, access to political power, prestige among one's peers — it will, by definition, have to be rationed. As we have suggested earlier, in such circumstances the salient question is whether the chances of any one child's being able to acquire the scarce good are roughly the same as those of any other child, or whether its possession is effectively monopolized by certain segments of society. The ideal-type view of equality, then, is one of random access, with the paradigm case being a fair lottery. In real social systems, however, life chances are not distributed by lottery.

In almost all extant societies, formal schooling systems play an important role in that rationing process, whether the critical life decision is made before a child enters primary school or after a young adult enters university. The experience of Chile, as it has been documented here, suggests that as one type of educational inequality problem is solved, the following one gains predominance. When equality of access to primary schooling is no longer a problem, equality of survival in primary schooling will become one; when universal primary education is effectively implemented, children will be sorted at some later stage. We would suggest, however, that the later in children's lives the fundamental rationing of life chances occurs, the greater is the probability that the outcome may be influenced by social policy rather than accident of birth. The objective of our work has been to try to find ways to move from the less preferable to the more tolerable versions of this general social-distribution problem. As we noted in an earlier article (Schiefelbein and Farrell 1978a), the educational equality difficulties faced by Chile in the 1970s were "problems" to which many poorer nations were aspiring.

The final conclusions we draw, after 10 years of struggling to understand what affects the destiny of many young Chileans who have lived through very turbulent times, are tentative. Neither these data, nor the available comparative data that have been frequently cited here, nor the current state of theoretical analysis, can safely lead one to definitive conclusions regarding the effects of changes in the schooling system upon the lives of children. Educational policymakers, however, whether they operate at the level of a local school, a national ministry, or an international agency, live in a political world that does not often permit them the luxury of waiting until the best data are in. Choices must be made and consequences lived with. It is our hope that the results of the study reported in these pages will contribute to making those choices at least somewhat better informed. But it would be foolhardy to suggest that there are any guarantees. This is a time for intellectual humility rather than ideological certitude.

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Appendix
Questionnaires

QUESTIONNAIRES

In this appendix, translations are provided for the three questionnaires used in the first stage of the study (for students, teachers, and school directors) and that used in the final 1977 follow-up. Since some of the translations from the Spanish originals are rather literal, the items would obviously not all be suitable for use in their present form with native English speakers.

No attempt is made to imitate here the visual format of the originals. The intent is simply to indicate the substance and scope of the information elicited. The format in fact did vary between questionnaires: whereas the grade 8 students recorded their responses on separate answer sheets, the questionnaires for the grade 8 teachers, for the directors of schools, and for the 1977 follow-up required respondents to fill in the blanks or to check the appropriate response among options. For the 1977 follow-up, those administering the questionnaire also had available a supply of *anexos* — supplementary sheets that respondents could use as needed to provide information regarding, for example, jobs subsequent to the first. The purposes for which the supplementary sheets were used is evident in the questionnaire.

Questionnaire for Grade 8 Students

Instructions

Most of the questions in this questionnaire have a code which indicates the alternative responses. Read each question. Select from the alternative responses that one which best reflects your situation. Put the number of this response in the appropriate box on the Response Sheet. For example, read questions 1, 2, and 3. If your father has graduated from a secondary school, but has not studied at a university or other high-level school, write the number 06 in the box for question 1. If your mother has had 3 years of secondary school, put the number 04 in the box for question 2. If you want to graduate from a university, put the number 5 in the box for question 3.

Questions

1 and 2. Use the following code:

- 00 illiterate
- 01 1st to 4th year primary
- 02 5th or 6th year primary
- 03 graduate from primary
- 04 1st to 3rd year secondary
- 05 4th year or more secondary
- 06 graduate from secondary
- 07 1st or 2nd year university
- 08 3rd year or more of university
- 09 graduate from university
- 10 postgraduate studies

1. Indicate the highest educational level reached by your father.
2. Indicate the highest educational level reached by your mother.
   (If your parents are dead, indicate the highest educational level reached by your guardian in the space for question 1.)
3. What level of education do you want to reach? (Use the following code.)
   - 1 Graduate from primary school, but not enroll in secondary school
   - 2 Enroll in secondary school, but not graduate
   - 3 Graduate from secondary school, but not enroll in university
   - 4 Enroll in university but not graduate
   - 5 Graduate from university
4. If you want to enroll in secondary school, in what type of area do you want to study? (Use the following code.)
   - 1 Humanistic-scientific
   - 2 Industrial
   - 3 Specialized services and techniques
   - 4 Commercial
   - 5 Agricultural
   - 6 Other (If you choose six, write your choice on the line below the answer box.)

7 I don't want to enroll in secondary school
8 I don't know

5. How important do you think enrolling in a secondary school is for your own personal plans for the future? (Use the following code.)
   1 Indispensable
   2 Very important
   3 Important
   4 Useful, but not necessary
   5 Really it is not important
   6 I don't know

6. Sometimes a student cannot reach the level of education that he wants. Considering your own abilities, grades, economic situation, etc., what level of education do you really expect to reach? (Use the following code.)
   1 Graduate from primary school, but not enroll in secondary school
   2 Enroll in secondary school, but not graduate
   3 Enroll in university, but not graduate
   4 Graduate from university

7. Have you had any financial assistance for your schooling this year or last year? (Use the following code.)
   1 Yes
   2 No
   (If your answer to question 7 is "yes," please answer question 8.)

8. What kind of assistance? (Use the following code.)
   1 From my school
   2 From the National School Assistance Committee
   3 Other (If you mark 3, write what kind on the line next to the answer space.)

9. How many times have you repeated a grade? [Answer sheet indicates by grade and total.]

10. How many brothers and sisters do you have? (If there are more than 9, mark 9.)

11. How many older brothers and sisters do you have who are studying? (If there are more than 9, mark 9.)

12 to 16. How often do members of the following groups visit the house of your parents? (Use the following code.)
   1 Very frequently (at least once a month)
   2 Frequently (4 to 11 times a year)
   3 Occasionally (1 to 3 times a year)
   4 Almost never (less than once a year)
   5 Never

12. Academics and teachers.

13. Owners of large farms or industries.

14. People very active in public life and politics.

15. Scientists, engineers, and other professionals.

16. Artists, writers, musicians, critics, etc.

17 to 20. How valuable do your parents consider the following to be? (Answer for your father and your mother separately. If your parents are dead, or if you do not live with them, use the column "guardian.") (Use the following code.)
   1 Very much value
   2 Much value
   3 Some value
   4 Little value
   5 No value

17. Intellectual interests and activities have . . . .
18. Education has . . . .
19. Economic success in life has . . . .
20. Social prestige in the community has . . . .
21. Which of the following sentences best describes the interest that your parents have in your school work? (Answer for your father and your mother separately. If your parents are dead, or if you do not live with them, use the column "guardian.") (Use the following code.)
    1 They help me with my homework.
    2 They talk with me about my school work.
    3 They encourage me, but do not talk about the details of my school work.
    4 They do not show much interest in my school work.
    5 They do not want to be bothered about my school work.
22. Where did you learn to read? (Use the following code.)
    1 In school, with the book OJO
    2 In school, with the book HISPANO
    3 In school, with the book LEA
    4 In school, with the book MI TESORO
    5 In school, with the book MI TIERRA
    6 In school, with another book
    7 At home, with a different book from the one used in school
    8 At home, with the same book used in school
    9 I do not remember

23 to 33. Use the following code: 1 Yes. 2 No.

23. Is there a television set in your house?
24. Is there a refrigerator in your house?
25. Is there electricity in your house?
26. Is there a record player in your house?
27. Is there a washing machine in your house?
28. Does your family have an automobile, truck, pick-up, jeep, or station wagon?
29. Does any member of your family have a bicycle?
30. Does any member of your family have a motorcycle or motorbike?
31. Do you have a room where you can do your homework by yourself?
32. Do you take private music lessons?
33. Is there a radio in your house?
34. How many servants are there in your house?
35. How many newspapers are subscribed to or bought regularly in your house?
36. How many magazines are subscribed to or bought regularly in your house? (If there are more than 9, mark 9.)
37. How many books are there in your house? (Use the following code.)
    1 None
    2 1–10
    3 11–50
    4 51–100
    5 more than 100
38. How often do you visit the dentist? (Use the following code.)
    1 Never
    2 Only when I need it
    3 Regularly once a year
    4 Regularly more than once a year

39. When you have finished your studies, in what kind of area would you prefer to live and work? (Use the following code.)
   1 In the country
   2 In a small city
   3 In the capital of a province
   4 In Santiago

40. Is there a library in your school? (Not including a personal collection of books of a teacher.) (Use the following code.)
   1 Yes
   2 No

   (If your answer is "yes," please answer question 41.)

41. In the past month, how many library books have you used?

42 to 46. Which of the following phrases best describes your personal situation regarding textbooks in the subjects mentioned? (Use the following code.)

   1 None of the students in this school have textbooks in this subject.
   2 Some of the students in this school have textbooks in this subject, but I do not have a textbook.
   3 I share a textbook for this subject with three other students (or fewer).
   4 I have a textbook for this subject for my own personal use.

42. Mathematics
43. Spanish
44. Natural science
45. Social science
46. Foreign language

47. In your personal opinion, have you had sufficient textbooks in this school this year? (Use the following code.)
   1 Yes, I have always had sufficient textbooks.
   2 Yes, I have usually had sufficient textbooks.
   3 No, I have not usually had sufficient textbooks.
   4 No, it is very rare to have textbooks.
   5 No, I have never had a text for any subject.

48. Where do you live during the school year? (Use the following code.)
   1 In a school dormitory
   2 In a rooming house for students
   3 In the house of your parents
   4 In the house of relatives
   5 In the house of family friends

49. When you talk at home, your parents: (Use the following code.)
   1 Always or almost always insist that you speak correctly
   2 Sometimes insist that you speak correctly
   3 Let you speak however you want to

50. How often do people in your home use a Spanish dictionary? (Use the following code.)
   1 Often
   2 Occasionally
   3 Never, or we do not have a Spanish dictionary

51. Not including comic books, in your free time when you are at home, your parents: (Use the following code.)
   1 Encourage you to read as much as possible
   2 Sometimes suggest that you read
   3 Don't bother whether you read or not

52. When you arrive home after school, your parents: (Use the following code.)
   1 Always or almost always want to know what you have been doing
   2 Sometimes ask you about your school work
   3 Never or almost never ask you about your school work

53. Approximately how many hours did you spend reading for your own enjoyment last week (not including comic books)? (Use the following code.)
   1 0 hours
   2 Less than one hour
   3 Between 1 and 2 hours
   4 Between 2 and 3 hours
   5 More than 3 hours

54 to 63. What is your personal opinion of the subjects indicated in the following questions? (Use the following code.)
   1 I have never studied this subject.
   2 One of my favourite subjects.
   3 Generally, I have liked this subject.
   4 Generally, I have not liked this subject.
   5 One of the subjects that I like least.

54. Spanish
55. Mathematics
56. Natural science
57. Social science
58. Technical-manual education
59. Plastic arts
60. Music
61. Physical education
62. Foreign language (Name which one)
63 Second foreign language (Name which one)

64 to 67. How valuable do you personally consider the following to be? (Use the following code.)
   1 Very much value
   2 Much value
   3 Some value
   4 Little value
   5 No value

64. Intellectual interests and activities have . . . .
65. Education has . . . .
66. Economic success in life has . . . .
67. Social prestige in the community has . . . .

68 to 75. Answer as clearly as you can, even if you are not very sure of your answer. (If both of your parents are dead, answer the questions for your guardian.)

68. Indicate exactly and completely the type of occupation or profession your father has. (If he has died or retired, describe his last occupation or profession.)
69. What kind of work does he do?
70. In what institution, business, or place does he work?
71. What type of product or service does this institution or business produce?
72. What position does he hold?
73. How many persons does he supervise?
74. What does your mother do? (If she works, describe her job in the same way as your father's job.)

75. Where is the house of your parents located? Name the community, the department, the province, and the country (if it is not Chile).

Questionnaire for Grade 8 Teachers

School

1. Sex: Male Female
2. Year of birth:
3. Place of birth: City County Department Province Country (if not Chile)
4. Indicate your level and type of professional training.

   1 I attended a normal school, but do not have a degree
   2 I have a normal school degree
   3 I attended a university, but do not have a degree
   4 I have a university degree, but not in pedagogy
   5 I have a university degree in pedagogy
   6 Other (specify)

5. Please indicate below the schools in which you have studied (City Years of Attendance Degree Date of Degree): Secondary School(s) Normal School(s) University(s)
6. Have you taken any of the in-service training courses offered during the past 5 years? If your answer is "yes," indicate which courses and in what year.
7. Do you teach in another school besides this one? If your answer is "yes," give the details. (School Grade Subject)
8. How many hours do you teach per week?

   a In this school
   b In other institutions
   c Private students

9. Do you have any other job besides teaching? If your answer is "yes,"

   a What is the job?
   b How many hours do you work per week?
   c In which job do you earn more? Teaching Other

10. Did you have another job before beginning to teach? If so, what?
11. Indicate below the history of your teaching experience. Put your current post on the first line, and indicate previous posts in inverse order, from the most recent to the earliest. (Years Subject(s) Grade(s) School(s) County Province)

12 to 18. Answer as clearly as possible, even if you are not very sure of your responses.

12. Indicate exactly and completely the type of occupation or profession your father has. (If he has died or retired, describe his last occupation or profession.)
13. What kind of work does he do?
14. In what institution, business, or place does he work?

15. What type of product or service does this institution or business produce?
16. What position does he hold?
17. How many persons does he supervise?
18. What does your mother do? (If she works, describe her job in the same way as your father's job.)
19. Is there a television set in your house?
20. Is there a refrigerator in your house?
21. Is there electricity in your house?
22. Is there a record player in your house?
23. Is there a washing machine in your house?
24. Does your family have an automobile, truck, pick-up, jeep, or station wagon?
25. Does any member of your family have a bicycle?
26. Does any member of your family have a motorcycle or motorbike?
27. Is there a radio in your house?
28. How many servants are there in your house?
29. How many newspapers are subscribed to or bought regularly in your house?
30. How many magazines are subscribed to or bought regularly in your house?
31. How many books are there in your house? Use this code.

1	None
2	1–10
3	11–50
4	51–100
5	more than 100

32 and 33. Use the following code:

00	illiterate
01	1st to 4th year primary
02	5th or 6th year primary
03	graduate from primary
04	1st to 3rd year secondary
05	4th year or more secondary
06	graduate from secondary
07	1st or 2nd year university
08	3rd year or more of university
09	graduate from university
10	postgraduate studies

32. Indicate the highest educational level reached by your father.
33. Indicate the highest educational level reached by your mother.

34 to 37. How accurately do the following phrases describe the current reality of the community in which this school is located? (Use the following code.)

1	It is a very exact description
2	It is somewhat exact
3	It is somewhat imprecise
4	It is very imprecise

34. The son of a worker does not have much chance of becoming a professional.
35. Businessmen have many important friends who help their sons achieve success.
36. Control of this city is in the hands of a small group of people, and the common citizen does not participate in what happens.

37. This city is formed of small closed groups.

38 to 45. Indicate your level of agreement or disagreement with the following sentences. Use this code:

1 I agree very much
2 I agree somewhat
3 I disagree somewhat
4 I disagree very much

38. Making plans only brings unhappiness, because plans are always difficult to carry out.
39. These days, as things are, the intelligent person ought to think of the present, without worrying himself about what can happen tomorrow.
40. In looking for employment, one should find an occupation in an area near to one's parents, even if this implies losing a good opportunity elsewhere.
41. When one is in difficulties, one can depend on the help only of relatives.
42. If one has the opportunity to give employment to someone, it is always better to give it to a relative than to a stranger.
43. To be happy, one should behave as others wish, even when one has to repress one's own ideas.
44. Generally, life is much better in small cities, where one knows everybody.
45. People in the large city are cold and impersonal, and it is difficult to make new friends.

46 to 53. Below, we present a series of opinions that some hold about Chilean workers. We would like you to indicate your degree of agreement or disagreement with these. Please express opinions concerning the group in general, not considering particular persons. Use this code:

1 I agree very much
2 I agree somewhat
3 I disagree somewhat
4 I disagree very much

46. Chilean workers are not sufficiently disciplined.
47. Generally, the Chilean worker does not take life seriously.
48. The Chilean worker is only concerned with diversion.
49. Generally, Chilean workers don't care for their families and don't bother about the education of their children.
50. The worker is socially indolent and unconcerned.
51. Someday, Chilean workers will be as skilled as European workers.
52. Chilean workers don't care if the country improves and increases its industrial production.
53. Chilean workers like to destroy the tools that their employers give them.

Questionnaire for Directors of Schools

1. What is the total enrollment of this school? [Answers given by grade and total.]
2. How many classes attend each shift in this school? [Answers given grade by grade.]
3. Number of full-time teachers in the school.
4. Number of part-time teachers in the school. Total number of hours taught weekly by part-time teachers.
5. Who is the owner of the school?
   1 Public
   2 Society for the Construction of Educational Establishments
   3 Municipality
   4 Private
   5 Other (specify)
6. What is the sex of the students in this school?
   1 Boys
   2 Girls
   3 Coeducational
7. Please indicate the annual budget of your school in the following areas. (If exact figures are not now available, indicate your best possible estimation.)
   1 Salaries of professors
   2 Salaries of non-teaching personnel
   3 Maintenance and repairs
   4 Books, writing materials, etc.
   5 Purchase of laboratory equipment and material, teaching material, etc.
   6 Other (for example, amortization of debts)
8. Which of the following institutions are available to be visited by students who attend your school? (Use the following code.)
   1 A short distance from the school (less than 30 minutes journey)
   2 In a nearby town (which can be reached in less than 2 hours)
   3 Not easily accessible
   a Museums
   b Zoo
   c Public library
   d Concert hall
   e Opera, theatre, or ballet
   f Societies, cultural organizations, or foreign language centres
9. Which of the following professionals (full-time or equivalent) serve in your school?
   a Librarian
   b Technical laboratory aid
   c Professional counselor
   d Psychologist
   e Reading specialist
   f Social visitor

g Teacher's aide
h Foreign language aide

10. Does your school have at its disposal some specialized service (such as a psychological or guidance clinic) to which can be sent children with reading difficulties?

11. On the average, how many hours of class a week do grade 8 students in your school have?

12. On the average, how many weeks of class a year do grade 8 students in your school have?

13. How many classrooms are there in this school?

14. How many bathrooms are there in the building?

15. Does the school have any type of heating? If yes, what type?

16. How old is the school building?

17. When was the last important repair to the building made?

18. How many laboratories does the school have?

19. How many workshops does the school have?

20. For how many shifts a day is the school used?

21. Are educational television programs used in the school?

22. Does the school have a parents' organization? If the answer is "yes," please answer questions 22a and 22b.

22a. How often does it meet?
1 Once a year
2 Twice a year
3 3 to 5 times a year
4 6 or more times a year

22b. With what problems does it concern itself? (Mark all those appropriate.)
1 Social welfare of the community
2 Cultural and social activities
3 Activities to gather funds for the school
4 Problems of program and method (cooperation in learning problems of the students)
5 Education of the parents, presenting information regarding different aspects of the school program

23 How often have community groups or organizations used the following school facilities? Use this code:
1 Once a week or more
2 One to three times a month
3 Occasionally, but less than once a month
4 Never
a Classrooms
b Gymnasium
c Laboratories
d Auditoriums
e Library
f Other (specify)

Please answer the following questions regarding the nature of the community in which the school is located.

24. What is the total population of the community?
1 < 1000
2 1000 – 5000
3 5000 – 10 000
4 10 000 – 20 000

5 20 000–50 000
6 50 000–100 000
7 >100 000

25 to 43. If the community has fewer than 100 000 inhabitants, please answer the following questions. For these questions, if your answer is "yes," answer the additional question: "For how many years?" For this, use the following code:

1 Less than 1 year
2 Between 1 and 5 years
3 Between 6 and 10 years
4 More than 10 years

25. Does the community have a name which is generally known?
26. Does the community have at least one road which can be used all year to travel to other localities?
27. Does the community have regular daily bus service?
28. Does the community have regular collective taxi service?
29. Does the community have a railroad station?
30. Does the community have a church with a full-time priest?
31. Is there a police station?
32. Is there a bank?
33. Is there a clinic?
34. Is there a hospital?
35. Is there at least one doctor who lives in the community?
36. Is there a secondary school of any type?
37. Is there piped water service?
38. Is there electricity 24 hours/day?
39. Is there telephone service?
40. Is there a service station?
41. Is there a hotel, hostelry, pension, or other place which provides lodging?
42. Is there a theatre which regularly exhibits films?
43. Can television transmissions be received in the community?

1977 Questionnaire

Instructions

To answer most of the questions in this questionnaire, you need to choose only *one* of the proposed alternatives. Select your answer marking an X in the box in front of the selected alternative.

Example: Question: How many times a week do you watch television?

If you watch television only during weekends, select the alternative in the following manner.

- ☐ 1 Never
- ☐ 2 Rarely
- ☒ 3 Only on weekends
- ☐ 4 Every day

In other cases, if you are asked to indicate *all* the alternatives corresponding to your situation, you have to mark an X in front of the alternatives you have selected.

Regarding the questions which indicate quantity (as in the case of questions about number of pupils, average marks, etc.), place the corresponding figure in the corresponding space.

Regarding the open questions, which require your written answer, please print!

If you have any doubts (no matter how small) about a question or its wording, please *ask* the person in charge of this survey.

Identification

1. Name
2. Present address, including province and region
3. Telephone
4. Any permanent address where you can be located in the future (for example, your parents' home, in case you don't live with them) and name of the person who lives in such address
5. Other telephone where you can be reached in the future
6. Another permanent address, for example, of a brother or sister, uncle, or another relative or friend, where you can be contacted for a future interview, and name of the person living in such address
7. Sex: 1. Male 2. Female
8. Date of Birth: Day Month Year
9. Your family's address (city or town, and province) at the time you were born. (Do not mention hospital where you were born.)
10. During the first 15 years of my life, I lived mainly in:
    1. A city 2. The countryside
11. With whom do you live at present? Please mark *all* corresponding alternatives.
    1 With my parents (or one of them)

2 With my spouse
3 With my children
4 With my in-laws
5 With my grandparents
6 With my brothers and sisters
7 With other relatives
8 With friends
9 Alone (even if you rent a room)
10 Other (please specify)

12. If you live with your parents, go to question 15. If you *don't* live with your parents, indicate their address: District Province

13. Indicate year in which you left your parents' home.

14. How frequently do you visit your parents (or they visit you)?
    1 Never
    2 Less than three times a year
    3 Between four and ten times a year
    4 Once or twice a month
    5 One or more times a week

15. Indicate the total number of persons living with you (include all your relatives and people living with you on a relatively permanent basis).
    Parents or in-laws
    Brothers or sisters (including yourself)
    Spouse/children
    Other relatives
    Friends and colleagues
    Employees
    Total

16. How many rooms do the total number of people mentioned by you in question 15 occupy? (Count each bathroom as room; if the kitchen is a room attached, count it as a room too.)

17. Indicate total number of brothers and sisters (including yourself), even if they don't live with you.

18. Which is your place among your brothers and sisters (eldest, second, third, etc.)?

19. How many brothers or sisters (*without* including yourself) are presently enrolled or were enrolled (even if for a year) in secondary school?

20. How many brothers and sisters (*without* including yourself) are presently enrolled or were enrolled (even if for a year) in university)?

Results of 1971 studies

We now would like to know the results of the studies you completed each year, beginning in 1970. After filling out the sheet corresponding to the last year you have completed, please go to question 165.

21. Indicate the school in which you were enrolled.

22. Indicate the place where the school was located: Province District

23. Indicate the course taken.

24. Type of school: 1. Public 2. Private

25. Branch of school:
    1 High school (scientific-humanistic)
    2 Commercial
    3 Industrial
    4 Agricultural

5 Services and technical
6 Normal

26. Sex of pupils attending the school:
1 Coeducational
2 Male
3 Female

27. You attended classes:
1 Only in the morning
2 Only in the afternoon
3 Morning and afternoon
4 Evening

28. How many pupils were there in the class (approximately)?

29. With respect to the rest of the class, were you:
1 Among the last 10 pupils of the class
2 Around the average of the class
3 Among the first 10 of the class

30. Indicate the subjects in which you had your own textbook. If your answer is "no," use this code to indicate why you did not have it: (a) the teacher did not ask for it; (b) you did not take that subject; (c) somebody lent it to you during the whole or part of the year; (d) you were not able to buy it; (e) other reasons (specify):

Spanish	1. Yes	2. No
Mathematics	1. Yes	2. No
Natural science	1. Yes	2. No
Social science	1. Yes	2. No
English	1. Yes	2. No
French	1. Yes	2. No
Other language	1. Yes	2. No

31. Where did you live during your 1971 school year?
1 In a boarding school
2 In a rooming house for students
3 With your parents
4 With relatives
5 With family friends
6 Other (specify)

32. How did you get along with your teachers during 1971:

Mathematics:	1. Poorly	2. Satisfactorily	3. Well
	4. Did not have a teacher		
Spanish:	1. Poorly	2. Satisfactorily	3. Well
	4. Did not have a teacher		

33. Did you have a scholarship during that year?
1 Yes, the whole year
2 Yes, a part of the year
3 No

34. If you answered "yes" to the previous question, indicate who granted it and what it consisted of.

35. Many students must work while they are studying. How many hours/week of compensated work (with a salary) did you do during 1971?
1 >20 hours
2 16–20 hours
3 11–15 hours
4 6–10 hours
5 1–5 hours
6 None

36. How long did it take you to get to school?
    1 >1 hour
    2 46–60 minutes
    3 31–45 minutes
    4 16–30 minutes
    5 <15 minutes
37. Did you withdraw before completing the 1971 school year?
    1 No
    2 Yes, because . . .
38. If you attended the whole year:
    1 Did you pass (to the next grade)?
    2 Did you fail in December?
    3 Did you pass late?
39. Subjects in which you failed (even if you were promoted to the next grade):
40. Subsequently you passed:
    1 All those subjects
    2 Just part of them
    3 Had already been promoted
41. Date in which you passed those subjects (or part of them):

There might have been other factors that decisively affected the results of your studies of 1971. We are interested in knowing both the positive and the negative elements which influenced them.

42. Extraordinary factors which had a negative influence on the results of 1971 (please indicate all important ones):
    1 I was ill with during months.
    2 My family moved from to
    3 My died or was seriously ill.
    4 I had problems with
    5 Other causes (please specify)
43. Extraordinary factors which had a positive influence (please indicate all important ones):
    1 This year I was able to live with my family.
    2 I had more time to study at my disposal (I stopped working or doing other chores).
    3 I had all the materials which the school asked for at my disposal (texts, copybooks, etc.).
    4 Other (specify)

[Questions 44 through 161 elicit same information for 1972, 1973, 1974, 1975, and 1976.]

If you did not apply for university enrollment in 1976, go to question 165. If you did (for the first or second time), please answer the following questions:

162. Average of high school marks:
163. Academic Aptitude Test mark:
164. Indicate the three first fields of study to which you applied:
    First option
    Second option
    Third option
165. If at present you are not attending secondary school or university, indicate when you stopped studying: during (or at the end of) 19
166. There are several reasons for which students stop studying definitively. A list of them follows. What was the importance, in your case, of each of these reasons? Use this code, indicating for each sentence the letter of the selected

alternative: (a) it greatly influenced my decision; (b) it had a relative influence; (c) it had little influence in my decision; (d) it did not influence my decision.

I had very low marks.
I was tired of my school studies.
I wanted to work.
I had to earn money and was forced to work.
I could not enroll in secondary school.
I could not enroll in the secondary school I preferred.
There were no secondary schools close to the area where I lived.
I did not want to go on to higher education.
I could not get into university.
I could not study the program I preferred.
There was no university close to where I lived.
I had to help my family.
I wanted to get married (I got married), so I had to start working.
I got married and had to dedicate myself to my home.
My health did not permit me to continue my studies.
I was expelled for disciplinary reasons.
I enrolled late (or I had to repeat) and was too old.
My family could not afford to go on paying for my studies.
Other (specify)

167. In your personal opinion, did you have a sufficient number of textbooks while you were in secondary school?
   1 No, I never had textbooks for any of the subjects.
   2 No, I rarely had sufficient textbooks.
   3 No, I usually did not have sufficient textbooks.
   4 Yes, I generally had sufficient textbooks.
   5 Yes, I always had the textbooks I needed.

168. Which of the following phrases best describes your parents' interest in your performance at school? (When answering, think about your mother and father; if they died or did not live with you during part of that period, then refer to the person(s) who took care of you during the period of your secondary studies.)
   1 They did not want to be bothered with school affairs.
   2 They did not show any major interest in my studies (they were indifferent).
   3 They did not have time to talk about my studies.
   4 They stimulated me, but we did not talk about my studies in detail.
   5 They talked with me about subjects related to my studies.
   6 They helped me with my homework.

169. Did you have difficulties in taking notes during class?
   1 Yes
   2 Sometimes
   3 No

170. Did you have difficulties in understanding and assimilating subjects related to mathematics?
   1 Yes
   2 Sometimes
   3 No

171. Did you have difficulties in getting used to reading fast and assimilating the essence of books and textbooks?
   1 Yes
   2 Sometimes
   3 No

172. When you talked with your parents at home:
   1 Did they allow you to speak the way you wanted?
   2 Did they sometimes insist that you speak correctly?
   3 Did they always, or almost always, insist that you speak correctly?

173. When you were at home with your parents, did they encourage you to read in your spare time? (not including comics)
   1 They did not encourage me to read.
   2 Sometimes they would encourage me to read.
   3 They encouraged me to read as much as possible.

174. Give your personal opinion on the subjects listed below according to the following code:
   1 I never took this subject (I did not have to study this subject)
   2 I did not like this subject
   3 In general, I did not like it
   4 It was one of the subjects to which I was relatively indifferent
   5 In general, I liked this subject
   6 It was one of my favourite subjects

   Spanish
   Mathematics
   Natural science
   Social science
   Philosophy
   Technical-manual education
   Plastic arts
   Music
   Physical education
   English
   French
   Other language

175. Indicate the subject the teacher of which you liked most during secondary school.

176. How was your relationship with the teachers of the following subjects?
   Spanish: 1. Poor 2. Satisfactory 3. Good
   Mathematics: 1. Poor 2. Satisfactory 3. Good

Description of the first nonformal course

We would like to know what other types of studies you have done in academies, institutes, centres, or enterprises. Some courses might have been very simple and of a week's duration. Others might have had a longer duration. Please ask the person in charge of the survey for additional forms if you have taken more than one course.

177. Give a brief description of the course.

178. Name of the institution (organization, centre, program, parish, enterprise) where you attended the course.

179. Place: Province District

180. Starting date: Month Year

181. Ending date: Month Year

182. Did you graduate from the course?
   1 Yes
   2 No
   3 There was no final examination or degree

183. Total duration of the course
   1 <30 hours

2 31–50 hours
3 51–100 hours
4 101–300 hours
5 301–500 hours
6 501–1000 hours
7 >1000 hours

184. The course took place:
1 During working days
2 During weekends
3 During both working days and weekends
4 By correspondence

185. The course hours were:
1 In the morning only
2 In the afternoon only
3 Mornings and afternoons
4 Evenings
5 Other (specify)

186. How long did it take you to get to the course site from where you lived?
1 >1 hour
2 46–60 minutes
3 31–45 minutes
4 16–30 minutes
5 <15 minutes

187. Indicate *all* the requirements you had to fulfill in order to take the course.
1 Admission fee: (a) High (b) Low (c) Free
2 Write exam
3 Present certificates (specify)
4 Fulfill other requirements (specify)

188. Where did you obtain the money for the course?
1 My own money
2 My parents
3 Other relatives
4 Friends
5 My company
6 Scholarship: from
7 Other

189. How did you know (the first time) about the course?
1 My parents
2 Other relatives
3 A friend
4 My company
5 Newspaper
6 Radio or TV
7 Advertised on poster
8 I had known about it for some time
9 I don't remember
10 Other

190. Different courses require different types of material. There is a list of them below. Indicate the ones you had to use for your course.
1 Blackboard and chalk
2 Books and notes
3 Photographs and reproduction material
4 Slides and films
5 Assembling parts

6 Tape recorders
7 Machines and the necessary material to practice with them
8 Other (specify)

191. Modes in which the course was developed (indicate all of them):
1 Verbal statements
2 Practical work
3 Visits
4 Presentations
5 Language laboratory
6 Case studies
7 Homework and other types of individual exercises
8 Examinations
9 Dramatization
10 Other

192. Number of pupils attending the course:

193. Did you work while you were attending the course? 1. Yes 2. No

194. If yes, how many hours per week?
1 <15 hours/week
2 16–30 hours/week
3 31–40 hours/week
4 >40 hours/week

195. If you worked while attending the course, did the pressure allow you sufficient time to fully participate in the course (did you have enough time to devote to it)?
1 Yes
2 Satisfactory
3 Moderate
4 Poor

196. There are many reasons why a person decides to take a course. In your case, indicate grades of importance of the reasons stated below. Use the following code for the selected alternative: 1. very important 2. important 3. less important 4. no importance
a Preparation to find or to perform my first job
b To enable me to change to a better job
c To enable me to rise in my career
d To keep my present job
e To open possibilities for future jobs
f To be able to perform my present job in a more efficient manner
g To be more respected by the people around me
h To develop myself as a human being
i To be able to be a better parent
j To be able to learn how to best perform the tasks (of a technical nature) taught during the course
k Because the subject matter of the course interested me
l To be able to better serve my fellow beings
m To be able to explore or to know whether the subjects of the course would interest me
n Because other friends of mine decided to take the course
o To satisfy an intellectual need
p Other reasons (specify and use the code)

197. Which of all the above-mentioned reasons had a decisive influence in your decision to take the course? Write the letter of the four most decisive reasons.

198. Percentage of fulfillment of the objectives of each of the 4 selected reasons. Use the following code: (1) were totally fulfilled; (2) in general, they were fulfilled; (3) they were partially fulfilled; (4) they were not fulfilled.

If you have completed other courses please ask the person in charge of this survey for additional sheets.

If you have *not* taken other courses, please proceed as follows: If you are presently working, go to question 199. If you have never worked, but you are presently looking for a job, go to questions 212 and 214 and after that to question 222.

Description of your first job

199. Describe the duties performed in your first job.
200. Name of the institution or company you worked for
201. Where was the institution or company located? Province District
202. Type of product or services rendered by the institution or company
203. Specify accurately your position in the company
204. Indicate approximate size of your company:
    1 <10 workers
    2 10–50 workers
    3 51–200 workers
    4 >200 workers
205. Describe briefly the most complex machines used by the company.
206. Date you started working: Month Year
207. Date you finished working (or were promoted to another position in the company): Month Year
208. Work hours:
    1 Morning only
    2 Afternoon only
    3 Morning and afternoon
    4 Evening
    5 Other (specify)
209. Number of hours of work per week:
210. If you worked in the public sector, specify grade and position held when you left (or which you are now holding if you are still working).
211. How long was it before you were hired after you started looking for a job? (It could be that you were hired some time before you actually began working.) Months Weeks
212. To how many firms did you apply for a job after you started looking for work? (Do not include the firm that hired you.)
213. How many times were you interviewed or did you see possible employers before you were hired?
214. Which of the following sources of information did you use when looking for a job? (Indicate *all* the important ones.)
    1 Parents
    2 Relatives
    3 Friends or acquaintances
    4 Newspapers or magazines
    5 Radio and TV
    6 Poster or advertisement
    7 Former teacher
    8 Other (specify)
215. Which of the above was most useful in helping you to find a job?
216. Through which of the following did you find your job?
    1 Public competition
    2 Internal competition
    3 References or certificates

4 Decision of the person in charge of hiring
5 Other (specify)

217. Why did you accept the job?
1 Because it was the best
2 It was the first I found and I liked it (I did not try to find other jobs)
3 Because it was the only job available (although I tried to find others)

218. It is sometimes possible for a person who is applying for a job to modify certain of the job's conditions, through negotiation with the employer. Were you able, in your case, to make changes? (Mention *all* of them.)
1 Hours
2 Salary
3 Location
4 Probationary period
5 I tried to suggest some changes, but did not succeed
6 I was not interested in trying
7 None, I accepted what was offered to me
8 Other (specify)

219. Taking into consideration the characteristics of this job, which subjects or factors (or special courses) from the ones you studied were most helpful in the performance of your job?

220. For good performance of your job, would it have been necessary to have reached grade of primary school, or year of secondary school?

221. Which of the following reasons best describe your motives for leaving your job?
1 I found a better job.
2 Disagreements with supervisors or colleagues.
3 The company was relocated or went out of business.
4 The staff was reduced in number, or contract ended.
5 Late arrival, lack of discipline, lack of competence.
6 I did not like my job.
7 Other (specify)

If you have had another job, ask the person in charge of the survey for additional sheets. If it was your only job, go to question 222.

Aspirations

222. If conditions are favourable to your plans, what type of work do you hope to do in 1983? (Please be specific: for example, bank employee; driver for a Ministry; pediatric nurse; contractor in charge of house renovation; etc.). If you are not working right now and do not expect to be working during the next few years, answer this question in the following manner: if by any chance you were obliged to find a job, which would be, among the kind of job you could aspire to, the one you would select?

223. The following is a list of people and elements that could have conditioned your answer to the previous question. Could you specify to what degree any of these has influenced you in the selection of your job? Use this code, indicating the number of your selected option for each alternative: (1) did not have influence, (2) had little influence, (3) had a certain influence, (4) had a relatively strong infuence, (5) had a strong influence.
a Your father
b Your mother
c Your spouse
d Your brothers or sisters
e Other relatives
f Your teachers
g Your career guide

h Your neighbours
i Your friends
j Radio
k TV
l Newspapers
m Books and magazines
n Your own skills
o Your health
p Your work experience
q Other reasons (specify)

224. Select from among the above-mentioned list of factors the three which had the strongest influence in your answer to question 222. (Write the letter of the factor.)

First
Second
Third

225. The following is a list of factors which could have influenced you in the selection of the job described in question 222. Use this code, writing the corresponding letter for each alternative: (a) did not have influence, (b) had little influence, (c) had a certain influence, (d) had a relatively strong influence, (e) had a strong influence.

1 It gives me the opportunity to develop my natural ability.
2 It gives me the opportunity to serve my country.
3 It allows me to be creative and original.
4 It gives me the opportunity to help people.
5 It is the kind of work my parents would like me to do.
6 It will contribute to a secure and stable future.
7 It could upgrade my family's social position.
8 It could give me the opportunity to earn money.
9 It offers me the opportunity of fast career promotion.
10 I can work without getting my clothes or hands dirty.
11 It gives me the opportunity to be my own boss.
12 It is an easy job.
13 It gives me the opportunity to learn a trade.
14 It is a well-respected job.
15 It gives me the opportunity to work in a group.
16 It gives me the opportunity to work alone.
17 Work hours are convenient.
18 It provides me with pleasant work conditions.
19 It gives me the opportunity to perform the kind of work I like to do.
20 It gives me the opportunity to learn interesting things.
21 It allows me to travel.

226. From the above-mentioned 21 factors, name the three most important. (Write the number of the factor.)

First
Second
Third

227. What chance do you have, in your view, of acquiring the type of work described in question 222?

1 I am sure or almost sure.
2 It is probable.
3 It is possible.
4 There is little possibility.
5 There isn't any possibility.
6 I don't know (specify the reason).

228. The following is a list of factors which could possibly prevent you from getting the job described in question 222. Indicate the degree of influence of each factor using the following code: (a) would prevent me from getting the job, (b) would make it difficult for me to get the job, (c) would not be a serious obstacle, (d) would not affect me, (e) I don't know.

1 Lack of proper education.
2 Lack of proper training for the job.
3 Lack of experience for that particular type of work.
4 I don't know how to get information about the type of work.
5 I don't have any relatives or friends who could help me to get the job.
6 There are people who have more chance than I of getting the job.
7 There are not sufficient openings in the labour market.
8 It would be impossible for me to find the necessary resources (money or equipment).
9 The people in charge of recruiting the staff would not select people like me.
10 Lack of information about the job requirements.

229. Let us assume that the following occupations exist in Chile:

Plumber	Soldier
Lawyer	Oilfield worker
Waiter	Primary school teacher
Car mechanic	Taxi driver
Agricultural worker	Tailor
Small businessman	Judge
Army lieutenant	Chief of public service department
Secondary school teacher	Industrial foreman (with responsibility over 20 people)
Medium businessman	
Medical doctor	Medium industrial manager
Bank employee	Laboratory scientist
Miner	Mechanical technician (with degree)
Office worker	Director-general of public service
Manager of large company	Medium landowner
Construction worker	Tractor driver
Unskilled worker	Army general
Farmer (landowner)	Skilled worker
Electrical engineer	Small landowner
Shopkeeper	Agronomist

Select three of the above-mentioned occupations: 1. 2. 3.

230. If you are not a student, what would you like to study during the next 5 years? (If you are a student now, go to question 235.)

1 Finish high school
2 Go to university
3 Other type of training (specify)
4 Other courses (specify)
5 I do not wish to continue studying

231 In case you would like to continue studying, there would be some reasons which would influence your decision. Which degree of importance would you attach to each of the following? Use the following code: (1) very important, (2) quite important, (3) important, (4) little importance, (5) no importance.

a To be better prepared to get and perform job
b To enable me to get a better job
c To have a promotion in my career
d To be able to keep my present job
e To open new possibilities for future jobs
f To be able to be more efficient in other work areas

g To be respected
h To develop myself as a human being
i To be able to be a better parent
j To learn, and to practice what I have already learned
k Because the subject of the course interested me
l To better serve my fellow beings
m To find out whether the course would interest me
n Because other friends of mine took the course
o Due to need of intellectual activity
p Other (specify)

232. Select the four reasons which have the strongest influence on your decision. (Write the letter for each reason.)
First
Second
Third
Fourth

233. What probabilities are there, in your view, of your being able to pursue the studies mentioned in question 230?
1 It is sure or almost sure
2 It is very probable
3 It is possible
4 There is little possibility
5 There is no possibility
6 I don't know, because . . .

234. The following would be some obstacles to the studies mentioned in question 230. Indicate the degree to which each obstacle would prevent your taking those courses. Use the following code: (a) would prevent me, (b) would be difficult for me, (c) would not be a serious obstacle, (d) would not affect me, (e) I don't know.
1 Admission fee
2 Did not pass the admission test
3 Possibilities of admission reduced due to lack of time to follow the required hours
4 It is not possible to shorten work hours
5 Transportation expenses
6 Other expenses (specify)
7 Course hours
8 School location
9 Time that I would have to spend traveling
10 Lack of information and knowledge of where to find it
11 It is not available in this town (or in the nearest town, if you live in the country)
12 Insufficient preparation
13 I would not know where to leave my children while I am studying
14 My spouse would not let me dedicate myself to my studies
15 Too tired after work
16 Other family responsibilities (specify)
17 Other (specify)

235. To be answered only by women. Would you like to go on working after you get married?
1 No
2 Not unless it is essential
3 It would be the same one way or another
4 I would very much like to
5 Yes, by all means

Family characteristics

236. Indicate your father's degree of education using the following code:
    1 Illiterate
    2 Did not finish primary school
    3 Primary school
    4 Did not finish secondary school (or equivalent studies)
    5 Secondary school (or equivalent studies)
    6 Did not finish university (or equivalent studies)
    7 University degree (or equivalent)
    8 Other (specify)
237. Indicate your mother's degree of education. Use the same code. (Indicate the number of the alternative.)
238. Indicate your father's occupation or profession. (In case he is no longer living or is retired, mention his last occupation.)
239. What type of work does your father do?
240. What institution, firm, or farm does he work for?
241. What type of services does that institution offer?
242. Describe clearly your father's position.
243. How many people does he supervise?
244. What is your mother's occupation? (If she works, describe her work in the same manner you described your father's, questions 238 to 243.)
245. Families have different needs and different income levels to satisfy those needs. Read the following alternatives carefully and select the one that best describes your parents' case.
    1 The family's income is never sufficient to satisfy its needs.
    2 The family's income is, frequently, not sufficient to satisfy its needs.
    3 The family's income is hardly sufficient to satisfy its needs
    4 The family's income is adequate to satisfy its needs.
    5 The family's income is more than adequate to satisfy its needs.
246. My parents have studied or taken some courses during the last five years:
    1 Yes
    2 I don't know
    3 No
247. If the answer is "yes," specify type of course(s).
248. About how many hours did you devote to reading for your own pleasure during the last week (not counting comic books)?
    1 None
    2 <1 hour
    3 Between 1 and 2 hours
    4 Between 2 and 3 hours
    5 Between 3 and 5 hours
    6 >5 hours
249. How many children would you like to have?
    1 None
    2 One
    3 Two
    4 Three
    5 Four
    6 Five
    7 Six or more
    8 I would welcome all of them
    9 I don't know
250. What do you think of the couples who practice birth control?

1 I agree with them; I think it is reasonable to do so.
2 I am indifferent.
3 I do not agree with them.

251. When would be a good time to start practicing birth control during married life?
1 At the beginning
2 After the first child
3 After the second child
4 After the third child
5 After the fourth or more children
6 I do not accept birth control methods
7 I don't know

252. There are various methods of birth control. Which of the following are you familiar with? (Indicate *all* the methods you know.)
1 Vasectomy
2 Tying of fallopian tubes
3 Condom
4 IUD
5 Pill
6 Withdrawal
7 Rhythm
8 Abstinence
9 Diaphragm
10 Foam

253. Indicate source of information for the above-mentioned birth control methods. (Mention *all* important sources.)
1 I do not know of any method
2 Parents
3 Brothers or sisters
4 Other relatives
5 Friends
6 School
7 Hospital
8 Medical doctor
9 Magazines
10 Books
11 Radio and television
12 Posters or pamphlets
13 Newspapers
14 Other (specify)