
desarrollo productivo

Education and the labour market in Latin America: *Why* measurement is important and what it tells us about policies, reforms and performance

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Abstract

This paper examines two pivotal education and labour market policy and performance questions. One, the degree to which countries in the Latin American region are catching up or falling behind their competitors in the area of human capital formation with particular reference to upper secondary and technical education. Two, the degree to which higher educational attainment in Latin American countries results in positive labour market outcomes including labour force participation, employment and unemployment, and earnings. In this examination it assesses the degree to which the available data are sufficiently comparable, reliable and relevant to provide meaningful measurements to answer these questions. Part of this assessment is a review of the state of the art in the collection and analysis of related education and labour market data and indicators paying particular attention to the growing importance of measuring human capital and skills in the workplace more meaningfully. It points out major information limitations but despite these it concludes that the data are sufficient to provide these measurements once they have been standardized into internationally recognized comparable education and labour market indicators. However, important gaps persist in education, training and labour statistics, which handicap the in-depth study of the relationship between work and education and training.

In its study of educational attainment and performance in the region it finds that Latin American countries are falling behind their competitors in the key educational areas of upper secondary and technical education and stresses the importance of reforms of the upper secondary and technical education system and the associated areas of tertiary education to remedy the growing global disparities.

It analyzes for selected Latin American countries the relation between educational attainment and labour force participation, employment and unemployment and earnings. In its analysis of returns to education it presents recent trends in education premiums by age and level together with an analysis of gender wage disparities within the same levels of education. It finds that the pattern of positive labour market returns to education in the form of higher wages and lower unemployment which is fairly consistent throughout OECD countries is much more mixed in the Latin American countries and that in a number of cases it is negative. In particular, it finds that gender wage disparities among young workers with the same educational attainment have almost all increased in recent years although they are still lower than those found in the total working population.

I. Introduction

"Beginning in the mid-1970s, a new set of priorities began to influence education policy discourse around the world. The new priorities valued the development of individual, national and global competitiveness...In education, this translated into a greater priority accorded to quality....As a result of the new education priorities, policy makers have initiated reforms during the past twenty years that aim to achieve a better link between the products of the education system and the needs of the economy..." (Fernando Reimers, 2000)

This paper examines two pivotal education and labour market policy and performance questions. One, the degree to which countries in the Latin American region are catching up or falling behind their competitors in the area of human capital formation with particular reference to upper secondary level and technical education. Two, the degree to which higher educational attainment in Latin American countries results in positive labour market outcomes including labour force participation, employment and unemployment, and earnings. It finds that, in spite of very large investments in education reform, Latin American countries are falling behind their competitors in these key educational areas and that the pattern of positive labour market returns to education which is fairly consistent throughout OECD countries is much more mixed in the Latin American countries and in a number of cases is negative.

The data the paper makes use of provide valuable comparable information about the status of education and its relation to labour market performance in the general population, and this is extremely useful for developing and monitoring major policies, for example, the priorities for education reform efforts. It discusses the degree to which the available data are sufficiently comparable, reliable and relevant to provide meaningful measurements to answer these questions. The paper argues that, despite their limitations, the data are sufficient to provide meaningful measurements for these broad purposes in countries with solid national household survey data that have been standardized into internationally recognized comparable education and labour market indicators but that work needs to go ahead to improve national household surveys and indicator development. Having said this, important gaps persist in education, training and labour statistics, which handicap the in-depth study of the relationship between work and education and training. We must not lose sight of the fact that national data collection programmes in Latin American countries do not provide the necessary micro data and analyses that are needed to understand education and labour market dynamics within countries and especially to drive actions in the short term. A great deal of turbulence lies underneath the often-benign aggregate rates, be they employment, unemployment or earnings, that mask the Schumpeterian processes of creative destruction and the impact of the business cycle.

Getting and keeping a job is becoming harder in today's globalized world but little is known through official statistics about the impact of free trade, market liberalization, national regulatory structures and other factors on the longitudinal prospects for people of differing education and skills to stay in employment, with growing wages and job security. A great deal of further work is needed to examine the microeconomics of education, skills and labour markets. Traditionally the information source for returns to education estimates is household surveys although these are limited by their relatively small sample sizes. At the same time, information about demand for workers comes from industrial censuses and surveys. What is needed and is not generally available is an intersection of the information coming from population censuses and household surveys with industrial censuses and surveys in order to relate the dynamics of the supply of workers with that of the demand for labour.

II. Policy implications

The central importance of measuring labour market outcomes of education¹ is becoming increasingly apparent with the evolution of the labour market in the tertiary sector and as the relevance of education and skills training becomes more critical for people to obtain and hold employment in the globalized economy. The purpose of this paper is to review the state of the art in the collection and analysis of related education and labour market indicators and consider the policy implications for Latin American countries.

The ability to measure the importance of educational attainment in relation to labour market factors like employment and income is very important not just for current policy formulation but also for a whole range of often new economic, labour and social analyses. For example, the situation of young workers coming into the labour market raises a critical policy question in most countries today. Governments and the private sector alike are also concerned about the level of qualifications and labour flexibility of older workers. This is particularly important as employment in the service sector continues to grow, in many cases requiring the higher skills and educational qualifications that are needed for successful and globally competitive performance. Latin America as a region has also experienced an enormous increase in the proportion of women entering full time work in the last few decades. The data that are analyzed in this paper might help answer questions about relative educational levels, employment and earnings from work and also permit a comparison of the evolution of female earnings and employment.

¹ It should be noted that the term 'labour market outcomes of education' is the standard and internationally accepted OECD terminology. It implies of course a causal relationship which we can agree exists but this in no sense means that the 'labour market outcomes' discussed here are due only to education. Performance in the labour market is subject to many factors, as is discussed in the paper, of which education is one of the most important.

Policy makers who are concerned about whether their nation's education system is adequately responding to its economic needs will require information on the economic outcomes that result from schooling and training. A considerable body of economic research has already demonstrated that education is related to a wide range of economic outcomes, benefiting both individuals and society at large. Education and work are intimately connected, with education having two obvious effects on productivity. First, education can contribute to the development of knowledge, which translates into technological improvements and aggregate productivity gains. Second, education can increase the skills and knowledge of individual workers, allowing them to better accomplish particular tasks and more easily adapt to changing job requirements. In an openly competitive labour market, the success of an education system can manifest itself through the success of the individual in finding and holding a job as well as in the level of wages that employers are willing to pay for the skills that the individual holds.

The interest in measuring how education and training affect work and labour market dynamics arises not only from the belief that they might improve an individual's prospects, performance and earnings but also from the view that they might make enterprises and economies more productive. For employers, the most important outcome of education and training is an adequate supply of workers with the knowledge, skills and competencies required by jobs. For the economy as a whole, the major concern is the contribution of education and training to economic growth and national and international competitiveness. This is a complex relationship that is always difficult to measure. There are no simple ways to do this but one common practice is to look at the output in terms of the stock and flow of educated people and particularly educated workers. However, we always need to bear in mind that these stock and flow indicators do not directly measure the knowledge, skills and competencies acquired from education and training. Despite ad hoc efforts at data collection, performance outcomes at the enterprise level still appear to be the biggest data gap in training statistics and the best method for collecting data on how education and training affect organizational performance may be through longitudinal enterprise surveys (Amjad et al, 2001).

1. Basic competencies for the workplace

"An untrained worker may have valuable talents but those talents must be certified by the 'educational establishment' before a company can afford to use them (Akerlof, 1970)".

There is a growing recognition of the need to measure skill and human capital more meaningfully than relying on fairly broad International Standard Classification of Education (ISCED) levels.² More than 20 countries have tried to define and measure acquired competencies through their participation in the International Adult Literacy Survey (IALS) which has collected high quality internationally comparable information on the level and distribution of basic competencies in the adult population. Representing more than 50 per cent of the world's gross domestic product, the literacy data from these 20 countries contribute importantly to an understanding of the demand and supply of skills in the current global, knowledge-based economy (OECD, 2000a).

These measurements have shown very dramatically that low "functional" adult literacy is a much larger problem than previously assumed in every country surveyed at a time of increasing skill demands in the labour market. These measurements have also shown that, across countries,

² A description of the ISCED education levels is provided in Annex 3.

higher levels of literacy skills in the workforce are associated with larger proportions of knowledge jobs in the economy. Literacy skills influence positively the probability of being in a white-collar high-skilled position and negatively of being unemployed or in a blue-collar position and this conclusion is supported by evidence from studying occupational categories by industrial sectors. The impact of improved literacy especially in white-collar high-skilled occupations, differs according to the level of educational attainment of individuals. The benefits accruing to improved literacy skills are even higher for workers with tertiary education than those with secondary education.

Of the factors studied in the analysis of wages, educational attainment is the most important determinant of earnings in most countries, even when variations in the other factors are held constant. Literacy proficiency also has a substantial effect on earnings in many of the countries studied. But there are also major differences among countries in the strength of these relationships. The effect of literacy skills on earnings depends in part on differences in levels of education, but in many countries literacy also has an independent, net effect on wages. There are large differences among countries in how much their labour markets reward education and how much they pay for skills and experience as they are amplified or attenuated by the relative conditions of supply and demand.

Chile's experience as the first Latin American country to measure itself and publish its results is sobering and shows the very large gap in basic competencies as well as the large internal inequalities that will need to be corrected. The message for the present and the future is the need to improve the quality and equity of public education and to inculcate the habit of lifelong learning in adults' working and private lives (Bravo and Contreras, 2001).

A number of countries have tried to combine basic competencies in the workplace with formal educational programmes. Australia has introduced national competence standards and Canada has developed a prior-learning assessment and standards setting, both with the combined involvement of the educational community, business, labour and the federal and state governments. Prior learning assessments are based on the assumption that the acquisition of knowledge and skills may take place not only through formal education courses but also through work experience, community and volunteer work, and independent study. Adults who demonstrate that they have achieved a well-defined skill level may be given formal credits towards a school or college curriculum or a certification that can be used in the labour market.

France has established Assessment Centres and the United Kingdom has designed a system of National Vocational Qualifications (OECD, 1996). The UK system has had a profound impact on competence assessment and certification methods covering not only the traditional fields of vocational training but also broad sections of the labour market and the working population. However, the OECD analysis used in this paper still relies on the ISCED levels of educational attainment for the purpose of making international comparisons.

Attention to the incoming cohorts of workers constitutes an important planning priority for the future but, in addition to preparing future workers, the public and private sectors need to be attentive to the retraining and productivity of older workers already in the labour force. The ability of older workers to learn new skills is an important determinant of their continuing productivity, especially their ability to keep up with modernizing industrial and occupational structures. This is a critical labour market issue taking into account increasing longevity and the demographic aging of the population which is becoming increasingly significant in Latin America.

2. A regional perspective

Regional indicators and research are important complements to the international comparative measurement and indicators on labour markets and their educational links. International work provides an essential comparative empirical framework for detailed analyses of labour market and educational performance within regions and countries, and classifications like ISCED serve an important function of standardizing and harmonizing the differences among countries and regions in education. While global compilations and international comparisons are important, they can be limited by data availability, comparability and often present data that are older than what is available and in current use within countries or regions.

Furthermore, the priority policy issues vary substantially among regions and countries. In some regions and countries, the emphasis is necessarily on what is happening with primary education while in other areas, where primary education is universal, the debate has moved to the coverage and performance of secondary education systems and related issues of supply and demand in the labour market. In the ECLAC region, the recent evolution of the tertiary sector and the increasing importance and pace of technological change places more emphasis on the relevance of university curricula, as well as skills-building in tertiary, non-university programmes and increasing the graduation rates from upper secondary education and the quality of education overall. In short, national and regional research on labour market performance and its links with education system performance are essential complements of international measurement. Some examples of current ECLAC research are presented below to indicate the policies concerns that are being studied in the region.

In Latin America, issues of quality and equity are central policy concerns in both education and labour market research. With the ever-increasing importance of the global and market economy, it is essential that countries in the Latin American region are able to measure their national competitiveness and labour market competitiveness is a central element. Furthermore, in the Latin American context, the evolution of wage employment, linked with improvements in educational attainment and educational quality could be key factors in improving income distribution and reducing poverty, which are major Latin American concerns.

Education in Latin America involves four problem areas. The level of educational attainment has increased more slowly than in other regions in recent decades as a result of deficiencies in the scope of secondary education, with children leaving the school system early, especially before completion of secondary education. The disparity in educational attainment is high because, although younger generations receive more education than older ones, within each generation there are major income, social class and location differences in educational achievement. The returns to education are low for the first years of school and non-university post-secondary education but high for university education. They are also substantially lower in rural than in urban areas. Educational quality is much lower for students from low-income families, most of whom attend public school and do not have access to better quality higher education. In summary, education is profoundly stratified in Latin America, an effect that is perpetuating, rather than correcting, income inequalities.

Knowledge-based economies cannot afford in the long run to exclude a large part of their population from access to quality education and learning resources. Furthermore, inequalities in societies raise problems of mutual mistrust in the workplace and in society as a whole. At the heart of the political debate is a growing awareness that global changes promising to enhance prosperity also risk increasing inequalities and dividing societies (CERI, 2001a). A critical challenge for knowledge-based societies is to build and maintain social cohesion.

The ECLAC perspective at the beginning of the new millenium is concerned with building on macroeconomic reforms and the interaction between governments and markets, to focus more on

social policy and the second generation of reforms. These reforms aim at correcting the large equity gap that still remains in most Latin American countries which seriously affects individual and collective growth, productivity and development (Ocampo, 1998). This policy prescription builds on ECLAC's earlier work on *Social equity and changing production patterns* (ECLAC 1992a), emphasizing technical progress, productive employment and investment in human resources and recognizing the central role of education and knowledge for changing production patterns with social equity (ECLAC/UNESCO, 1992b).

In measuring educational disparities by socioeconomic categories e.g. income quartiles and educational attainment of parents, ECLAC's analysis of earning levels of job market entrants indicates that secondary school completion, i.e. a minimum of 12 years of education, is the threshold that provides an 80% chance of earning an income that will keep labour market participants out of poverty in the Latin American countries studied (ECLAC, 1997). However, the increase in recent decades of the average number of years of schooling of youth, as compared to their parents, has not improved the opportunities of young people from poor social strata. Furthermore, young people coming from lower income families earn 30% to 40% less than youths with the same level of education but coming from households where parents have higher incomes. Consequently, higher education is necessary but not sufficient.

An ECLAC study of the determinants of inequality among urban households emphasized the need for greater access by the poor to education and skills training, lowering the barriers to access to the labour market and productive employment (Jiménez and Ruedi, 1998). Another study took a new look at the quality and heterogeneity of employment in some nine countries in the region, especially changes in the quality of salaried employment and the evolution of wage gaps and salaries by educational level. In this study, Weller (2000), concludes from empirical evidence from national household surveys and based on country research that disparities in salaries are indeed widening between workers with low and high levels of education and between small and large enterprises. However, it does not comment on the effects of unemployment. The widening salary gaps reflects a labour market demand for higher qualified workers resulting in salary premiums going to higher educated workers as opposed to workers with low educational attainment. These trends are reinforced by a growing segmentation in the labour market between stable, well paid jobs and lower paid, less stable paid employment with fewer benefits.

3. Catching up or falling behind in the field of human capital formation

The regional human capital component of the productivity equation has to be seen from a number of perspectives. The main constraint in Latin America has been its insufficient supply of educated, trained youth entering the workforce. In particular, upper secondary graduation rates are way below where they should be. This is true for the region as a whole. Secondly, the quality of public education needs to be dramatically improved in order for countries and individuals to compete on an equitable basis. Thirdly, post-secondary education has to be more specifically related to the needs of the job market and national productivity. In order for countries to compete in the global economy, especially where technical innovation is concerned, Latin American universities need to be able to supply a greater number of trained scientists and engineers.

Economic development is increasingly linked to a nation's ability to acquire technical knowledge and the process of globalization is speeding up this trend. Comparative advantages are coming less from abundant natural resources and cheap labour and more from technical innovation and the competitive use of knowledge. The proportion of goods with a medium-high and high level of technology content in international trade has gone up from 33% in 1976 to 54% in 1996 (World Bank 1998). This was

underlined at the May 2001 meeting of the OECD Council of Ministers which emphasized the significant contribution that human capital makes to macro-economic development and the wide range of benefits it yields in terms of labour market success (OECD, 2001a).

So how does the region's education base stack up against other countries and regions? The countries of the Latin American and Caribbean region are falling behind their main industrial competitors in providing the semi-skilled and highly skilled manpower that is essential for raising their productivity and maintaining a competitive edge in the global market. The 2001 IDB Economic and Social Progress Report concludes that if the countries of Latin America wish to improve economic growth and competitiveness, the first and foremost policy of importance is to give greater priority to education (IDB, 2001).

Table 1
ENROLMENT IN SECONDARY AND HIGHER EDUCATION: 1985 TO 1997

Country groups	Gross enrolment ratios					
	Secondary education			Tertiary education		
	1985	1997	Increase in enrolment ratios (% points)	1985	1997	Increase in enrolment ratios (% points)
Latin America and the Caribbean	50.2	62.2	12.0	15.8	19.4	3.6
OECD countries	92.3	108.0	15.7	39.3	61.1	21.8
NIAE countries*	57.3	73.1	15.8	14.8	30.5	15.7
East and Southeast Asia**	41.5	66.3	24.8	5.4	10.8	5.4

Source: B. Carlson, based on data from UNESCO World Education Report 2000.

* Newly Industrialized Asian Economies: Hong Kong, Korea Republic, Singapore, China, Malaysia and Thailand

** Developing countries only, including NIAE countries

The last two decades of the twentieth century have seen the NIAE countries –Hong Kong, Singapore, Korea Republic, China, Malaysia and Thailand— overtake the Latin American region both in secondary and tertiary education. At the same time the OECD countries are rapidly distancing themselves from the Latin American region. Not only are the Latin American countries showing smaller secondary and tertiary enrolment ratios than their competitors but these ratios are also rising at a much slower pace. The Latin American skill-gap is growing rapidly and even the developing countries of East and Southeast Asia as a whole have now overtaken the Latin American region at the secondary level. At the present rate they will overtake the Latin American region even in higher education by the end of the first quarter of the 21st century (see Table 1).

In the OECD countries almost everyone now goes on to upper secondary education and the great majority, nearly 80%, complete it with Japan at 95% heading the list. In Latin America and the Caribbean, only half go on to upper secondary education and, on average, less than a third complete it. Even in the NIAE countries nearly 75% go on to upper secondary education. It is upper secondary education and technical education that provide the key to skilled jobs and commensurate wages for the great majority of students who do not go on to university and it is that educational level that is inadequately provided in our region.

The duration of secondary education is also much shorter in the Latin America and Caribbean region than in the other competing groups by between a year and a year and a half. The duration of compulsory education in the region is also significantly shorter and in many countries in the region these compulsory school years still consist mainly of only half days. The proportion of tertiary students and graduates in Latin America and the Caribbean in the critical fields of engineering, natural sciences and agriculture is also considerably lower than in the Asian groupings although it matches the average proportion found in the OECD countries (see Table 2).

Table 2

HUMAN CAPITAL FORMATION: EDUCATIONAL PERFORMANCE 1998

Country groups	Duration of education		Tertiary education in natural sciences, engineering and agriculture as % of total tertiary	
	Compulsory (years)	Secondary (years)	Enrolment	Graduates
Latin America and the Caribbean	7.1	5.1	26.0	26.6
OECD countries	9.8	6.4	27.2	25.2
NIAE countries*	7.7	6.3	36.0	38.2
East and Southeast Asia**	7.3	6.1	31.6	32.2

Source: B. Carlson, based on data from UNESCO Statistical Yearbook 1999 and UNESCO World Education Report 2000.

* Newly Industrialized Asian Economies.

**Developing countries only, including NIAE countries.

4. Secondary and higher education policies and the labour market

The transition from school to work and the labour force participation of young people 15 to 29 years of age, both while in education and following the completion of initial education, are also important issues in Latin American countries. Rising skill requirements of labour markets, an increase in unemployment during recent years and higher economic expectations of individuals and societies have given rise to a growing regional concern with the need to put more emphasis on technical and vocational programmes in upper secondary education as opposed to general programmes. As was stated earlier, longitudinal or tracer surveys are probably the best tools to monitor and analyze the path from education and training to work. A good example of such a tracer survey is the England and Wales Youth Cohort Study (Courtenay and Mekkelholt, 1996). If the individual's labour market history is linked to the educational and training experience we might begin to answer the question of how education and training affect employment success. Tracer surveys could also be used to access the effectiveness of the labour market training programmes for the unemployed.

Increasingly, upper secondary education is seen as much a route to obtaining skilled and well paid employment as to getting a place in a university. Rising skill demands are making an upper secondary qualification the minimum level credential for successful labour market entry. The average OECD situation is that half of the upper secondary students are now attending vocational technical or apprenticeship programmes. By contrast, in the Latin American countries the emphasis is still on general programmes. The exceptions are Chile and Argentina with over 40% of upper secondary students attending technical and vocational programmes. In the other Latin American countries in the OECD survey the figures vary between 14% and 30% (see Table 3).

Table 3

**ENROLMENT IN TECHNICAL AND VOCATIONAL PROGRAMMES
AT THE UPPER SECONDARY LEVEL (1999):
LATIN AMERICAN AND SELECTED OECD COUNTRIES^a**

Country	Upper secondary graduates ^b	Distribution of enrolment in upper secondary by programme orientation		
		General	Technical/vocational	Of which part work-based
Japan	95	74	26	d
Germany ^c	92	35	65	49
Netherlands	92	33	67	20
United Kingdom	..	33	67	d
Switzerland	83	35	65	57
OECD country mean	79	49	51	16
United States	78	..	..	..
Spain	73	69	31	5
Portugal	..	75	25	d
Peru ^c	57	76	24	0
Chile ^c	56	58	42	1
Brazil ^{c, e}	44	70	30	..
Argentina ^c	40	57	43	0
Uruguay ^c	..	81	19	..
Mexico	31	86	14	d
Paraguay ^c	31	84	16	d

Source: B. Carlson, based on data in Education at a Glance: OECD Indicators 2000.

^a Includes public and private institutions and full-time and part-time students.

^b Upper secondary graduates as a percent of typical age of graduation.

^c 1998.

^d Not applicable because the category does not apply.

^e Brazil has a three year single level secondary programme.

In the OECD countries, an average of one sixth of the technical/vocational and apprenticeship upper secondary students receive training that is both school-based and work-based and one of the best examples of standard setting linked to training and the labour market has been the German dual apprenticeship system. Based on partnership between employees' and employers' organizations, and education authorities, the system covers all the potential beneficiary population, ensuring a smooth and effective mechanism for the insertion of youth into the labour market, a notoriously difficult undertaking (Garonna, 1991). Developing dual-system apprenticeship programmes at the upper secondary level could be a concrete and very productive way of expanding technical education in the region and improving the supply of the necessary skilled labour in the short to medium term.

In Latin America, however, the dual system apprenticeship programmes that are common in Germany, Switzerland and the Netherlands appear hardly to exist and the upper secondary vocational and technical programmes are still almost all school-based. Only Chile reports any dual system enrolment (OECD, 2000a) having begun in 1991 to experiment with the dual system in cooperation with the German government (GTZ). Other countries in the region such as the Dominican Republic and Ecuador, are apparently experimenting with dual-type systems, but unfortunately these are not documented. After 10 years, Chile's experience clearly shows that while it is a powerful education model, the dual approach is not easy to implement, taking time to adapt to national and local education and business realities. Its evaluators (Bravo et al, 2000) take the view that it might not be advisable at this time to go to scale with it because of the limited capacity of secondary schools to manage the programme and the low interest of firms to participate.

The long term success of this programme will depend on building stronger links between firms and schools, although a large proportion of the firms are small and medium sized enterprises that feel vulnerable to economic cycles and hesitate to take new risks. This seems to indicate that the best course of action is a slow but steady extension of the dual programme while making sure that the larger firms are well covered. It is interesting to note that more than 95% of the participating firms consulted in the evaluation indicated they wanted to continue, and a good tax incentives programme together with a systematic accident-insurance scheme to protect firms from liabilities could be positive stimuli to accelerate participation. However, a commitment by the Ministry of Education of Chile in partnership with municipal authorities, representatives of large as well as small and medium sized firms and trade union representatives is needed to transform this pilot experience into a major initiative. One surprising finding is that as many as 40% of the 1999 graduating cohort are going on to higher education instead of heading directly into the job market, a phenomenon that Castro (2000) views with concern, discussed later in the paper.

As is shown in Table 3, the proportion of students in Latin America who survive to graduate from upper secondary education is rarely more than half the proportion surviving in the OECD countries, and they also spend fewer years being trained at that level. This much rarer resource in our region needs to be used more productively in order to equip Latin American industry with the supply of skilled workers that it will need. It is upper secondary education that needs priority attention in the effort to raise national skill levels in a way that will not increase and might even decrease the overall inequality in educational systems in the region. In the critical expansion of upper secondary education and non-university tertiary education, which is the engine for producing a skilled labour force to man the industrial, agricultural and service establishments, the countries of Latin America are falling behind.

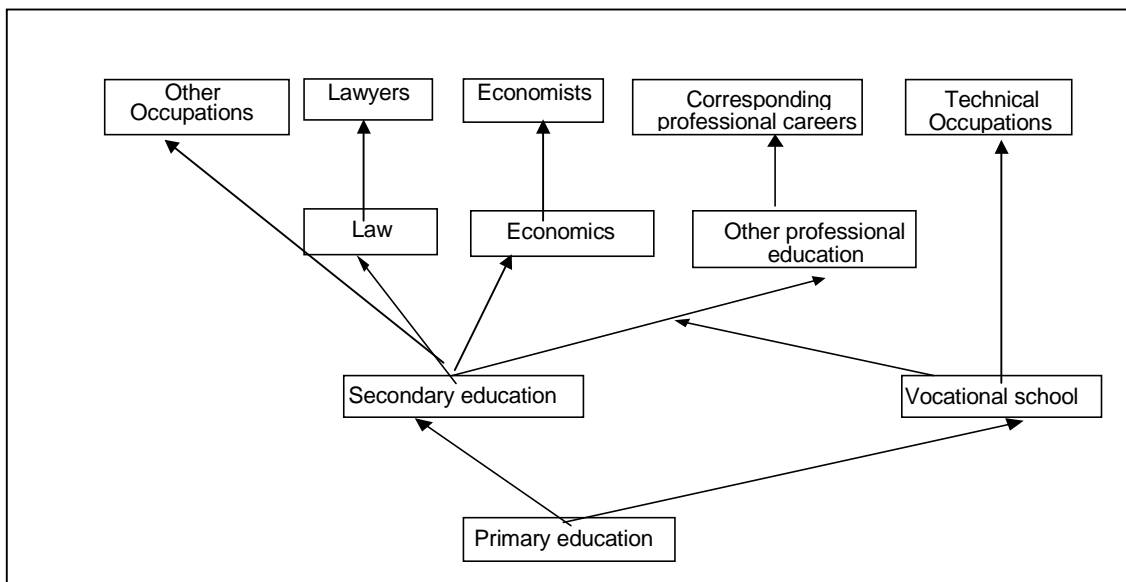
The Argentine education situation neatly encapsulates the challenge. Argentina's education system is one of the most advanced in the region and in a number of aspects equals that of the OECD countries. However, its low retention rates create a major difficulty in terms of the country's overall competitiveness and social cohesion. A recent cohort analysis shows that out of 100 students entering primary school, 84 will enter the seventh grade, 76 will enter the ninth grade, 40 will enter the last year of secondary school, 35 will enroll in university and only seven will graduate. According to the World Bank, private marginal rates of return by level of education in 1997 were 2.5% for primary education, only 10% for secondary education, just about equal to the usual rate of discount, and 29% for tertiary education. The World Bank comments "If out-of-pocket costs such as transportation and other school expenses are taken into account an additional year of secondary education would not be a very attractive investment" (World Bank, 2000c).

Nevertheless, Latin America needs to make a great leap forward in raising secondary graduation rates, providing technical training opportunities linked with secondary education and improving the quality and relevance of higher education with special attention to university programmes in the natural and applied sciences and engineering. Higher education systems have to adapt to meet the changing needs of industry and services. Effective labour market feedback mechanisms such as tracer surveys and regular consultations with employers and alumni are indispensable for the purpose of adjusting curricula. In Denmark, for example, industry representatives including presidents of large companies commonly sit on departmental boards in universities to advise them on training and research priorities (Salmi) and this also occurs in Mexico's new two year technological institutions (Castro, 2000).

The World Bank/UNESCO Task Force on Higher Education in Developing Countries has also emphasized the need to take active steps to forge stronger links between the academic and industrial sectors and noted that a number of countries in the region, Argentina, Brazil, Chile and Colombia, had started such interchanges (World Bank/UNESCO, 2000). However, in its overview

assessment of education in the region, the World Bank had serious misgivings. "Current teaching practices and curricula tend to reflect outdated methods and attitudes which preserves the rich social and cultural heritage of the past but does not meet the urgent requirements of the present and the pressing needs of the future. This lack of relevance is particularly troublesome given the economic context and labour market conditions"(World Bank, 2000b).

Figure 1
TRADITIONAL MODEL OF EDUCATION



Source: Claudio de Moura Castro and Daniel C. Levy in *Myth, Reality and Reform*, 2001.

At the same time, some educators are afraid of the accreditation systems that arise from these links, arguing that in many cases these are used to create market reserves for graduates with the "right" diplomas. This becomes a highly politicized battleground for those who have negotiated the legal and bureaucratic hurdles to obtain the authorization to issue diplomas (Castro, 2000). Castro goes on to describe through organigrams what he calls "the deprofessionalization of higher education" by which he means the result of large increases in enrolment producing more job candidates than the market can handle, so that graduates take up whatever jobs they can find because they cannot find jobs corresponding to their diplomas.

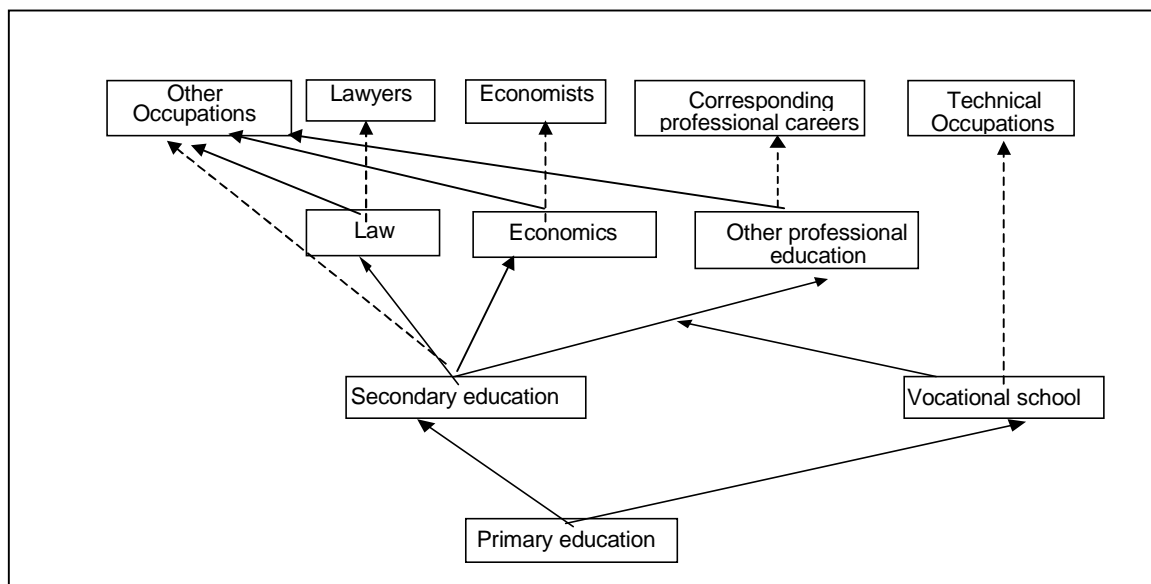
Figure 1 illustrates the *traditional model of education*. Among the secondary students who proceed directly to the job market, those in technical programmes take up technical occupations requiring more than primary education but where the specific skills that are required can be learned through work experience. Other students from both tracks obtain qualifications that allow entry into higher education that concentrates on professions that lead to corresponding jobs, e.g. law, engineering, medicine, etc. This remains the basic model under which most public policy is designed. However well it worked for many years, graduates at all levels have come to largely outpace labour market expansion and the neat assumptions of this model are breaking down.

However, when graduates of higher education cannot find jobs related to their education, their professional degrees help them gain better employment than that gained by those who do not have higher education and they take over much of the market for clerical occupations previously supplied by secondary level graduates. Also, because higher education degrees pay off, many

graduates of technical schools disregard their technical skills and try to use their technical diplomas to enter higher education. This is illustrated in Figure 2.

Figure 2

DEPROFESSIONALIZATION OF HIGHER EDUCATION IN LATIN AMERICA

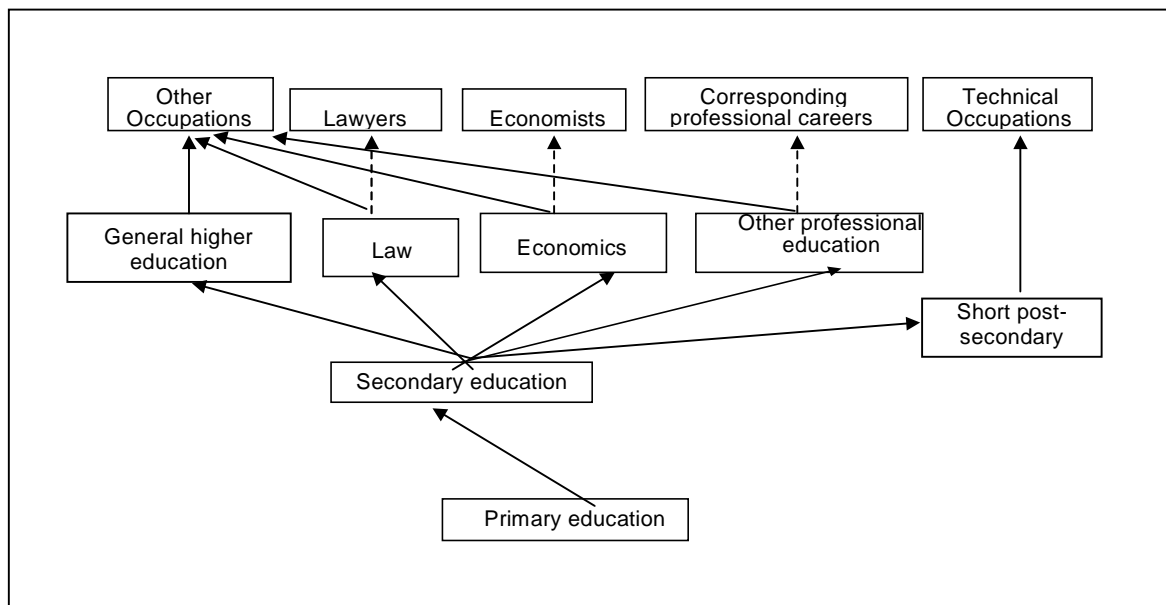


Source: Claudio de Moura Castro and Daniel C. Levy in *Myth, Reality and Reform*, 2001.

Figure 3 shows two possible solutions to the problem of deprofessionalization that Castro proposes, each already occurring but needing more recognition and appropriate public policy to become effective. The first introduces 'general higher education' as a formal higher education option to complement the specific so-called 'professional education' options of law, economics and other professional education, leading to professional careers in these areas. The advantage this change provides is that it takes the pressure off the universities to teach students in professions that they do not intend or are not equipped to pursue, thereby reducing the resources needed to meet the demand for university training in these fields and providing a more realistic supply of graduates to those professions. The general higher education option develops skills in writing, reading, mathematics and problem solving and responds to broader humanistic, cultural, social, and political rationales for more educated citizens. It responds to a market for managerial, clerical and service-sector occupations, where the service sector alone accounted for 58% of the labour force in Latin America and the Caribbean in 1999 (World Bank, 2000). In effect, this option elevates what had been considered a secondary school responsibility to higher education, a recognition of increasing knowledge, reasoning and judgement required by these jobs in the growing knowledge economy.

The second important change elevates training for technical occupations to the post-secondary level as has been done with associate degrees at community colleges in the United States, diplomas at polytechnics (now university colleges) in the United Kingdom, and parallel forms in other industrialized countries. Secondary education would cease to carry the burden of technical or vocational skills that are not wanted by the students, giving them the option to enroll in the post-secondary option in order to seek the specific technical skills that they wish to develop for particular labour markets. These courses are growing faster than conventional four-year courses in industrial countries and, as the examples of Argentina and Chile suggest, could well do likewise throughout Latin America. At the same time, they allow secondary education to focus on its task of giving a higher quality general education to prepare students for the labour market to carry out their roles as involved, informed citizens and parents.

Figure 3

SOLUTIONS TO THE PROBLEM OF DEPROFESSIONALIZATION IN LATIN AMERICA

Source: Claudio de Moura Castro and Daniel C. Levy in *Myth, Reality and Reform*, 2001.

5. Educational attainment and unemployment

A recent study by Blanchard and Portugal (2001) compares the labour markets of the USA and Portugal, countries with very similar unemployment rates. It shows that the duration of unemployment in Portugal was three times longer than in the USA but that the flow of workers into unemployment, was three times lower in Portugal. Partly because of the high employment protection in Portugal, job creation and job destruction was much lower so that, once in unemployment the Portuguese worker finds it much more difficult to get out of unemployment. In USA, workers are much more mobile and move more easily into and out of unemployment. However, Spain with similar levels of job protection has a much higher level of unemployment perhaps partly because of the growing proportion of fixed term labour contracts. It would be very interesting to carry out similar studies of the nature of unemployment and the extent of employment protection in those Latin American countries for which comparable data are available.

The unemployment rate is a measure of an economy's ability to supply a job to everyone who wants one. Educational attainment is assumed to be an indicator of acquired skill and human capital and tells employers of potential knowledge and capacities. A common way of relating education and training to labour markets is based on unemployment on the grounds that the success of an educational system shows itself in terms of the success of an individual in finding and keeping a job although we have to accept that unemployment rates are influenced by many factors not directly related to educational attainment and similar unemployment rates may hide very different labour markets.

It is conventional wisdom that education is positively correlated with employment and earnings and better educated people are more likely to be at work and, if economically active, less likely to be unemployed (CERI, 2001). Labour force participation rates also almost invariably rise with higher educational attainment and this applies equally to the OECD and the Latin American countries (OECD, 2000a). As the analysis in the later part of the paper shows, the rates of earnings in Latin America also usually rise although differentially with higher educational attainment. This

is to be expected as both the OECD and Latin American economies are becoming increasingly dependent on a stable supply of well educated workers to further their economic development and maintain their competitiveness. But the patterns are not similar in the case of unemployment.

If increasing numbers of people with higher education qualifications do not find work the economic costs incurred will be considerable and the social costs incalculable. Table 4 shows unemployment rates by level of educational attainment for five Latin American countries and for the OECD countries as a whole.

Table 4
UNEMPLOYMENT RATES BY LEVEL OF EDUCATIONAL ATTAINMENT 1998:
POPULATION AGE 25 TO 64

Country		Level of educational attainment			
		Below upper secondary	Upper secondary and non-tertiary post secondary	Tertiary type B ³	Tertiary type A ⁴
		(%)	(%)	(%)	(%)
Brazil	men	5.9	4.7	2.7	3.7
	women	12.5	9.0	3.4	1.5
Chile	men	4.7	4.1	5.6	2.4
	women	3.6	5.0	7.7	2.3
Mexico	men	1.7	2.0	2.1	2.4
	women	3.3	4.6	1.9	2.6
Paraguay	men	2.6	2.8	3.5	2.8
	women	5.5	4.5	2.5	2.7
Uruguay	men	5.4	5.2	..	1.4 ^a
	women	12.8	8.7	..	2.7 ^a
OECD	men	8.9	5.3	4.3	3.3
Country mean	women	10.0	7.6	5.2	4.6

Source: B. Carlson, based on data from Education at a Glance: OECD Indicators 2000.

^a All tertiary.

About 8% of the available national unemployment rates disaggregated by educational level and gender in the OECD countries showed unemployment rates rising with higher educational attainment. By contrast, nearly 40% of the available disaggregated national unemployment rates in Latin American countries showed unemployment rates rising with higher educational attainment. This is not an isolated current phenomenon. The 1996 figures which covered only three countries in the Latin American region showed that half of the available disaggregated unemployment rates rose with higher educational attainment (OECD, 2000b). It should be noted that this analysis is not comparing unemployment rates per se but is being made on the differentials in unemployment rates by level of education within each country. The unemployment rates for Mexico and Paraguay, for example, appear to be exceptionally low and may reflect a problem of under-registration of people

³ Tertiary type B programmes are typically shorter than tertiary type A programmes and focus on practical, technical or occupational skills for direct entry into the labour market although some theoretical foundations may be covered. They have a minimum duration of two years full-time equivalent.

⁴ Tertiary type A programmes are largely theory-based and are designed to provide sufficient qualifications to advance to research programmes and professions with high skill requirements. They have a minimum duration of three years full-time equivalent although they typically last four or more years. They also include second degree programmes like a Master's degree.

looking for work, and therefore counted as unemployed. It would be useful to attempt to estimate the degree of under-registration in Latin American countries in order to sharpen the picture of the labour market situation. Nevertheless, the disparity analysis approach avoids many of the problems that occur when simple rates are compared.

The OECD and Latin American countries also diverge in the distribution of students between the shorter more practical educational programmes designed to impart occupational skills for direct entry into the labour market (ISCED Type 5B classification), and the longer academic programmes (ISCED Type 5A classification). In both the OECD countries and the Latin American countries the practical Type B programmes predominate in the initial enrolment figures.

Table 5
DISTRIBUTION OF TERTIARY EDUCATION 1998: POPULATION AGE 25 TO 64

	Distribution of students at entry		Distribution of students at graduation	
	Type A (%)	Type B (%)	Type A (%)	Type B (%)
OECD mean	32	68	28	72
Argentina	36	64	53	47
Chile	29	71	46	54
Uruguay	44	56	47	53

Source: B. Carlson, based on data from Education at a Glance: OECD Indicators 2000.

As illustrated in Table 5, on average, two-thirds of the tertiary level students enroll in professional-technical education programmes with a minimum duration of two years full-time equivalent and one-third in theory-based programmes which typically last four or more years and include the second degree programmes equivalent to a Master's degree. In the OECD countries the predominance of the technical/occupational Type B programmes is even increased by the time the students graduate; more students drop out of the academic track Type A educational programmes before graduation while more students stay on to graduate from the Type B programmes.

This is not the case in the three Latin American countries for which data are available. Here, Type A students have the higher graduation rates and markedly so in Argentina and Chile. This raises the serious policy question as to why so many of the Type B students, students in the practical, shorter tertiary educational programmes that are designed to lead directly into the job markets, are not graduating. As we have seen from the work of Castro and Levy on the deprofessionalization of higher education in Latin America, and Bravo et al in Chile, many students enroll in technical Type B institutions as a stepping stone or parking space until they can gain entry to the traditional four year academic university educational programmes which provide a greater wage premium.

The labour market effect of education also needs to be considered over the whole life-cycle and one revealing indicator is the average number of years an individual can expect in unemployment over a working lifetime, disaggregated by level of educational attainment. This was done for 25 OECD countries using actual employment in a single year, 1995 in this case. This measures the difference that education makes in unemployment expectations although it does not take into account the impact of economic cycles on unemployment or the possibility of widening unemployment rates across educational levels over time (CERI, 1998).

On average, across the 25 countries covered, individuals with below upper secondary attainment could expect to spend more than twice as much time unemployed as tertiary graduates,

3.2 years unemployed rather than 1.4 years, in the course of a working life. In all 25 countries upper secondary had a lower unemployment expectation than below upper secondary and in only three countries did tertiary have a higher unemployment expectation than upper secondary. This is consistent with the OECD findings presented in Tables 4 and 5.

A major ECLAC multi-country study on growth, employment and equity found that unemployment in Latin America was increasing. Average unemployment in all but one of the countries that were being analyzed in the study actually rose from 6.9% in the 1980s to 7.2% in the 1990s despite the higher growth of GNP. With the generalized fall in growth rates in South America in 1999 "unemployment reached historic highs in that sub-region" (Stallings and Peres, 2000).

There appears to be a serious mismatch in the region between the actual or perceived adequacy of working skills and the capacity of the labour market to supply jobs that match these skills. This raises critical issues for policy makers in the region both on the education side and the labour market side and further studies need to be undertaken on the recruitment and promotion practices and decision-making processes of firms of all sizes as well as the attitudes of established trade unions. The latter could be very relevant inasmuch as young workers entering the labour market are more likely to be given temporary contracts and less likely to join a trade union in the short term (OECD 2001b). This is a very pertinent current issue in Latin America as a whole with its growing unemployment, now approaching 9%, a declining quality of jobs and the clear preponderance of the informal sector in generating new jobs. It would be all too easy in this situation for enterprises to rely on the traditional "flexible" hiring and firing methods but this will not lead to the viable business-labour collaboration that is needed (Ocampo 2001). The roles played by individual institutions like firms and trade unions are very important but go well beyond the scope of this paper.

6. Education premiums by levels of educational attainment: selected Latin American findings

As has been stated earlier, the impact of education and training on labour market performance is still inadequately measured. Efforts to measure this typically use wages as an indicator, as is done in the following series of analyses. This is based on the assumption that superior performance in the workplace will be rewarded by higher wages and that earnings differentials by levels of educational attainment are a measure of the financial incentives in a particular country to invest in further education (OECD, 1998). However, there are obvious limitations to this assumption. Earning differentials may also reflect differences in the supply of educational programmes at different levels as well as barriers in access to these programmes. Wages can be driven as much by occupational choice as by performance within an occupation and the best teacher still earns less than a mediocre football player. Wage differentials by educational level might as much reflect the current financial incentives in a country to invest in education (see the example of Argentina in an earlier section) as the effect of the education and training system on labour market success (Amjad et al, 2001).

Nonetheless, earnings data are one of the few labour market indicators that are regularly and reliably collected and, in the analysis here, countries are not directly compared to each other. Instead, the analysis is based on earnings differentials within a country, which thus excludes the effects of exchange rates and inflation. Using the OECD methodology of indexing the other educational levels to upper secondary educational earnings, it was possible to analyze these differentials for five Latin American countries participating in the UNESCO/OECD World

Education Indicators programme: Argentina, Brazil, Chile, Paraguay and Uruguay. This has been done on the basis of the two latest household surveys carried out in each of these countries⁵.

It is recommended that these "education premiums" analyses be carried out on a regular basis for as many countries in the ECLAC region as can provide suitable data from their national households survey programmes. This would allow for comparable analyses for many countries in the region on a continuous basis as part of the regular household survey analysis carried out by ECLAC and the respective countries in analyzing and interpreting national household survey data to measure performance and progress of the reforms, linking education and the labour market through the calculation of "returns" to education.

Table 6

EDUCATION PREMIUMS: EARNINGS OF PERSONS AGE 15 TO 64 BY LEVEL OF EDUCATIONAL ATTAINMENT AND GENDER RELATIVE TO UPPER SECONDARY: 1993-1999

Level of educational attainment		Argentina		Brazil		Chile		Paraguay		Uruguay	
		1994	1999	1993	1999	1996	1999	1994	1999	1994	1999
Below upper secondary	Male	65	64	44	52	70	61	53	63	63	63
	Female	63	62	45	52	71	60	33	58	64	62
Upper secondary	Male	100	100	100	100	100	100	100	100	100	100
	Female	100	100	100	100	100	100	100	100	100	100
Non-university tertiary	Male	98	139	..	..	139	118	..	118	..	121
	Female	90	123	..	..	108	112	116	132	..	133
University tertiary	Male	166	203	259 ^{a)}	270 ^{a)}	296	279	228	217	188	196
	Female	176	177	233 ^{a)}	272 ^{a)}	224	224	189	214	173	181

Source: B. Carlson, education premiums calculations, based on special tabulations of household survey data by ECLAC's Division of Statistics and Economic Projections.

a) Includes university and non-university.

There is for the most part a strong relationship between educational attainment and earnings in the five Latin American countries as shown in Table 6. In all the countries, university level graduates earn considerably more than upper secondary graduates, the latter being used as the index basis for the education premium calculations. Chile and Brazil show the greatest overall university education premiums even though the Brazil figures include both university and non-university graduates, Uruguay and Argentina show the smallest overall university education premiums. The current premiums range from 179% for men in Chile down to 77% for women in Argentina. These university education premiums have also increased in the relatively short period between the two surveys except in Paraguay. The university education premiums are usually higher for men than for women but both sets of premiums have increased in almost all cases.

However, the phenomenon observed in Argentina in the earlier surveys where tertiary non-university graduates were actually earning less than the upper secondary graduates has now disappeared in the more recent survey. Tertiary non-university education is undergoing a fairly recent expansion and does not yet seem to have acquired the status, either for students or employers that it has in the OECD countries. Interestingly enough one of the few countries where this negative earnings differential for tertiary non-university graduates occurs among OECD countries is Spain. For this non-university tertiary level education the latest premiums are not always higher for men as they are at the university level. In Paraguay and Uruguay they are higher for women, suggesting

⁵ Author's analysis and calculations are on the basis of special tabulations of data by ECLAC's Division of Statistics and Economic Projections from household surveys in the respective countries.

that in these two countries having a non-university tertiary qualification is more valued by the market for women than it is for men.

In these five Latin American countries there is also a large education premium for upper secondary graduates. These education premiums are substantial, although not as large, as the university education premiums. In Brazil and Paraguay the earning capacity of a student is nearly doubled by completing upper secondary education and in the other three countries it is increased by at least a third. Completing upper secondary education is clearly recognized as the starting point for earning higher wages⁶. These upper secondary premiums have increased between the two surveys in Argentina, Chile and Uruguay but have decreased in Brazil and Paraguay probably because of the more recent expansion and improvement of the existing primary school systems. The premiums are also consistently higher for women than men which is somewhat surprising but might reflect the growing demand for female secretarial and other service staff.

Table 6 examined the earnings differential patterns for the working population aged 15 to 64, which is practically the total working population. In order to see how these earnings premiums might be changing between generations. Table 7 provides a similar analysis for the young working population aged 25 to 34. For Latin American countries the age group 25 to 34 is preferred to the age group 30 to 44 which is used in the OECD publication. Educational reform is of a much more recent origin and using the 30 to 44 age group would largely mask the new educational developments in these countries.

The differential earning patterns for the young working population age 25 to 34 are very different from those of the working population as a whole. The most significant difference is that the current earnings premiums for university education for this younger age group are still considerably lower than for the working population as a whole in the five Latin American countries, as was the case based on data coming from household surveys measuring earnings and education in the early 1990s with the exception of Argentina. The education premiums of this young age group have almost all gone up over the last five years but have not caught up with the overall education premiums, which have increased also. The major exception to this pattern is Argentina where the university education premiums have actually gone down. The last five years of economic crisis and severe recession have been absorbed in the dramatic decrement in the wage premium of women workers with university tertiary education whose earnings premiums have fallen by 20% in five years. In 1999, university educated women earned on average only about 20% more than their counterparts with an upper secondary qualification. In fact they appear to have absorbed almost all the impact of the economic crisis on comparative wages among the university educated employed. As the crisis in Argentina has deepened greatly since 1999, one can only speculate at the severe condition of current earnings together with the huge problem of unemployment.

⁶ It should be remembered that, as the figures in Table 6 are indexed to upper secondary education earnings, the education premium for upper secondary education itself is represented by the difference between 100 and the figures shown in the line "Below upper secondary". As an illustration, the Brazil "Below upper secondary" figure in the 1999 survey in Table 6 is 52. $100-52=48$ which means that Brazil's upper secondary education premium in 1999 was 92% i.e. $48/52$

Table 7

EDUCATION PREMIUMS: EARNINGS OF PERSONS AGE 25 TO 34 BY LEVEL OF EDUCATIONAL ATTAINMENT AND GENDER RELATIVE TO UPPER SECONDARY 1993-1999

Level of educational attainment		Argentina		Brazil		Chile		Paraguay		Uruguay	
		1994	1999	1993	1999	1996	1999	1994	1999	1994	1999
Below upper secondary	Male	72	71	53	55	64	72	75	64	71	72
	Female	69	63	48	56	64	60	64	59	60	55
Upper secondary	Male	100	100	100	100	100	100	100	100	100	100
	Female	100	100	100	100	100	100	100	100	100	100
Non-university tertiary	Male	98	131	..	..	127	132	..	100	..	130
	Female	96	137	..	..	119	128	102	132	..	110
University tertiary	Male	164	177	212 ^{a)}	225 ^{a)}	200	267	181	177	144	147
	Female	208	168	215 ^{a)}	242 ^{a)}	242	247	170	229	134	159

Source: B. Carlson, education premiums calculations, based on special tabulations of household survey data by ECLAC's Division of Statistics and Economic Projections.

^{a)} Includes university and non-university.

Another difference at the university level is that the male-female earning patterns are far less clear, apart from the case in Argentina. Unlike the total working population where the university education premiums are almost all higher for men than for women, among the young working population in three of the five countries, Uruguay, Paraguay and Brazil, the earnings premiums at this level are higher for women. This was also the case in the survey measurements coming from the first half of the 1990s, but at that time for Argentina, Brazil and Chile. Only in two cases have the university earnings premiums fallen over the period, for women in Argentina, as noted earlier and for men in Paraguay.

At the tertiary non-university level there is no consistent earnings premium difference between the young workers and the working population as a whole. Argentina and Chile show higher earnings premiums for the young workers whereas Paraguay and Uruguay show lower earnings premiums. But what is significant is that all these premiums for young workers have risen in the last five years and there are now no negative premiums at the tertiary non-university level. This applies equally to the premiums for men and women at this level, all of which have risen. Unlike with the working population as a whole there is no consistent pattern of women's premiums being higher than those for men. In Argentina and Paraguay they are higher for this level but in Chile and Uruguay they are lower.

The premiums for upper secondary education for young workers have not changed very much, increasing a little in Argentina and Paraguay and decreasing a little in Brazil, Chile and Uruguay. The separate patterns for men and women follow the same trend except that in Chile and Uruguay there was a small increase for women. For all the countries except Paraguay the premiums for upper secondary education for the young workers are less than for the working population as a whole probably due to the fact that most of the young below upper secondary population will have completed primary and may have completed lower secondary whereas in the working population as a whole there is still a large block which has not completed primary. As well, in the general working population completing upper secondary education was not very common but in recent years this has changed with education reform and much higher enrolments in upper secondary and so the wage premium has tended to decline to reflect the larger supply in this category and the

increasing demands for post secondary. The premiums are all higher for women than men except in Brazil and significantly higher in Chile and Uruguay. In almost all cases the earnings premiums for upper secondary education separately by gender for young workers are lower than for the total working population, the only current exception being Uruguay for women.

To sum up, education premiums for the young working population aged 25 to 34 have almost all increased at all education levels but three quarters of them are still below the premiums for the total working population with the same education qualification. This is not all that surprising as the older populations are also rewarded for experience. The biggest increases have been at the university level as might be expected. For example, young Chilean workers increased from a 90% earnings premium at this level to a 151% earnings premium, a startling contrast to Argentina at the same level where the earnings premiums actually fell, the only instance of this in the two tertiary levels for all the countries.

7. Gender wage disparities by level of education: selected Latin American findings

Although both men and women with upper secondary or tertiary educational attainment levels have substantial earnings advantages compared to men and women who do not complete secondary education, there remain very large earnings differentials between men and women with the same level of educational attainment. Table 8 presents these male-female earnings disparities for the working population 35 to 64 years of age and also for the young age group 25 to 34 years of age in order to see more precisely if these female-male earnings disparities might be diminishing. We would have preferred to use the 25 to 29 age group as better representing recently acquired educational attainment levels and reflecting the new education reform policies but this was not possible because of problems of sample size.

Table 8

**MEAN ANNUAL EARNINGS OF WOMEN AS A PERCENTAGE OF MEAN ANNUAL EARNINGS OF MEN
25 TO 34 AND 15 TO 64 YEARS OF AGE, BY LEVEL OF EDUCATIONAL ATTAINMENT 1993-1999**

Level of educational attainment	Age group	Argentina		Brazil		Chile		Paraguay		Uruguay	
		1994	1999	1993	1999	1996	1999	1994	1999	1994	1999
Below upper secondary	25-34	66	62	51	46	77	60	59	68	56	52
	15-64		62		55		66		67		61
Upper secondary	25-34	70	69	55	44	76	72	77	75	65	68
	15-64		64		56		71		73		62
Non-university tertiary	25-34	72	72	..	..	63	70	64	..	62	57
	15-64		57		..		67		..		69
University tertiary	25-34	..	66	57 ^{a)}	48 ^{a)}	70	67	68	..	..	74
	15-64		56		56 ^{a)}		57		72		58

Source: B. Carlson, gender earnings disparities calculations, based on special tabulations of household survey data by ECLAC's Division of Statistics and Economic Projections.

a) Includes university and non-university.

The female-male earnings disparities present a very mixed picture. As would be expected and is common throughout the world, earnings disparities between women and men with the same educational qualifications exist in Latin America for all the countries analyzed and at all educational levels. These disparities range from young upper secondary graduates in Brazil where

the average woman still earns only 44% of the average man's wage to young upper secondary graduates in Paraguay where the average woman now earns 75% of the average man's wage. The current earnings disparities are fairly consistent throughout the educational levels as is their range. Within a range of earnings disparities of between 50% and 70% one finds 38 of the 53 disparity calculations.

What is not expected is the number of cases in the young working population where these gender disparities have increased since the previous set of surveys three to five years ago. Of the 15 disparity calculations for young workers that we can make for two points in time these already large female-male earnings disparity have increased in 11 cases and decreased only in three. The three disparity decreases are found in young workers with below upper secondary attainment in Paraguay, in young upper secondary graduate workers in Uruguay, and in young tertiary non-university graduates in Chile. The earnings disparity did not change for young non-university graduate workers in Argentina but everywhere else the gender earnings disparities have got worse. Even at the university level the two disparities that it was possible to track over recent years, in Brazil and Chile, have got worse.

At the same time the gender earnings disparities for the 25 to 34 age group of young workers are often less than the gender earnings disparities among the total working population age 15 to 64. Out of the 17 possible comparisons, the younger workers have a smaller earnings disparity in 10 cases and a greater earnings disparity in six. Most of these worsening generational situations occur in Brazil (3) and Uruguay (2). Although there has been a generational improvement the most recent trends among the young workers in discouraging. What is particularly disturbing is the fact that gender earnings disparities have increased at all educational levels suggesting a fundamental socio-economic malaise.

Among young workers, Brazil currently has the greatest gender earnings disparities followed by Uruguay but with the exception of Uruguay's tertiary university graduates. Paraguay has the smallest gender earnings disparities. For the working population as a whole, age 15 to 64, Brazil shows the greatest gender earnings disparities although Argentina, Uruguay and Chile are just as bad with respect to tertiary graduates. Paraguay has the smallest gender earnings disparities.

In conclusion, the disparity between women's and men's earnings among workers with the same educational qualifications continues to be with us and it has even been growing in recent years. There has been a moderate generational improvement but the recent worsening disparities among younger workers suggests that this generational change is not being transmitted to new entrants into the labour market, particularly in the context of an economic slowdown.

III. Measurement practices

One of the questions this paper addresses is the degree to which the available data are sufficiently comparable, reliable and relevant to provide meaningful measurements of the relation between education and the labour market. It is the view of this paper that the data are sufficient to provide such measurements once they have been standardized into internationally recognized comparable education and labour market indicators. In this connection the work of the OECD and ILO has been invaluable and is discussed below along with current international and national practice with respect to the leading current statistical instrument in this area, the household survey. However, as has been pointed out in many earlier parts of this paper, there are still major limitations in current concepts, practices and instruments and some of these limitations are also discussed here. Important gaps persist in education, training and labour statistics, which handicap the in-depth study of the relationship between work and education and training.

The data the paper makes use of provide valuable comparable information about the status of education and its relation to labour market performance in the general population, which is extremely useful for developing and monitoring major policies, for example, the priorities for education reform efforts. However, we must not lose sight of the fact that they do not provide the necessary micro data and analyses that are needed to understand education and labour market dynamics within countries and especially to drive actions in the short term. A great deal of turbulence lies underneath the often-benign aggregate rates, be they employment, unemployment or earnings, that mask the Schumpeterian processes of creative destruction and the impact of the business cycle.

Getting and keeping a job is becoming harder in today's globalized world but little is known through official statistics about the impact of free trade, market liberalization, national regulatory structures and other factors on the longitudinal prospects for people of differing education and skills to stay in employment, with growing wages and job security. A great deal of further work is needed to examine the microeconomics of education, skills and labour markets. Traditionally the information source for returns to education estimates is household surveys although these are limited by their relatively small sample sizes. At the same time, information about demand for workers comes from industrial censuses and surveys. What is needed and is not generally available is an intersection of the information coming from population censuses and household surveys with industrial censuses and business surveys in order to relate the dynamics of the supply of workers with that of the demand for labour. Furthermore, business surveys need a great deal more attention to their design and methodology to incorporate the human capital dimension and study firm and worker performance over time. Governments would do well to allocate more investment in basic data collection in this area as it is imperative to understand these dynamics in an increasingly fast paced and globalizing world economic situation.

1. International work in measuring the labour market outcomes of education

Since the mid-1980s the Organization for Economic Co-operation and Development (OECD) has been publishing indicators on the labour market outcomes of education. These indicators are based on data originally collected within OECD countries, typically by national statistical offices or labour ministries through household and labour force surveys. The main purpose of these indicators is to provide tools for measuring the results of education and to reveal problems in labour supply and demand. The OECD indicators are:

- a) Labour force participation of men and women at different levels of educational attainment
- b) Employment ratios and unemployment rates of men and women at different levels of educational attainment, by age
- c) Youth employment and unemployment by level of educational attainment
- d) Unemployment of school leavers
- e) Relative earnings across different levels of education
- f) Expected number of years in employment, unemployment and outside the labour market between the ages 25 and 64 by level of educational attainment
- g) Internal rates of return for completing different levels of education

The OECD indicators are presented in detail in Annex 1.

The analysis of labour market outcomes of education was put on the agenda of the UNESCO/OECD World Education Indicators programme (WEI) at its inception in 1997⁷. National Coordinators, ECLAC and others have expressed an interest in the development of indicators in this area as well as the underlying methodology and data collection instruments. In the 1998 edition

⁷ This programme is a technical cooperation effort to extend to selected developing countries the methodology used in OECD countries for analyzing Indicators of National Education Systems (INES). The programme includes some 18 non-OECD countries, including six in Latin America, whose national coordinators meet regularly to agree on the content of the annual report and its indicators. The OECD and UNESCO have coordinated this programme, analyzed the country data provided, constructed standardized indicators and presented the material in *Education at a Glance: OECD Indicators* and separate policy analysis reports. In 2001, the central focus is on teachers.

of the publication *Education at a Glance OECD Indicators*, WEI countries were represented in three indicator series: 1) Expected number of years in employment, unemployment and outside the labour market by level of educational attainment and age; 2) Youth unemployment and employment by level of educational attainment, age and gender; and 3) Labour force participation and unemployment rates by level of educational attainment, age and gender.

In the subsequent 2000 edition of *Education at a Glance OECD Indicators*, WEI countries were represented in only one of these indicator series, labour force participation and unemployment rates by level of educational attainment, age and gender. Four WEI countries from Latin America, Argentina, Brazil, Paraguay and Uruguay were represented in the 1998 indicator series. In the 2000 indicator series a fifth WEI country, Chile, was added as well as Mexico an OECD country. Other labour market related indicators included in *Education at a Glance*, e.g. the series on earnings and educational attainment, and the series on participation in skill improvement training among the employed population did not include any WEI countries in either edition but it is hoped that they might be included in later editions as they are available for the Latin American countries.

The experience of assembling these data shows the elegant simplicity of the methodology that the OECD has developed over time. This refers to the three standard tables that are calculated from the household or labour force survey database: weighted total number of persons employed; weighted total monthly earnings; and the average of these two, disaggregated by age groups of policy interest, levels of educational attainment and gender. With this most basic breakdown, any number of meaningful policy analyses can be undertaken.

The International Labour Office (ILO) focuses on two key labour market indicators relating to education and the coverage is international:

- a) Unemployment by educational attainment, and
- b) Educational attainment and illiteracy in the labour force.

These are two of the 18 indicators in the ILO's *Key Indicators of the Labour Market 1999*. The ILO has not included the very useful indicator on relative earnings across different levels of educational attainment, a key OECD indicator in *Education at a Glance*. It is interesting to note that the ILO believes that educational attainment is a key indicator in relation to unemployment and the labour force but has not included it as a key indicator in relation to employment.

The full set of ILO key indicators is not included in this paper in part for considerations of space, but more importantly, as reported by the ILO, due to insufficient country coverage and problems of comparability across countries and regions. However, the ILO commented that the initial response to the first publication of *Key Indicators of the Labour Market 1999* and the companion volume, *Country Profiles*, which includes all the ECLAC countries, showed a desire by countries for greater detail in the related area of education. The two key ILO labour market indicators relating to education are analyzed in detail in Annex 2.

2. Measurement without theory: the case of the labour market

Some practitioners, like Garonna and Triacca (1999), are concerned that labour market analysis lacks a fundamental theoretical basis. They argue that the current statistical analysis of the labour market is a case of measurement without theory, the fundamentals were applicable to traditional models of the labour market but today's economic analysis has evolved in a number of new directions and there has been a lack of sufficiently solid conceptual frameworks to lead to a consensus that would allow them to become operational statistically. These newer interpretations

include work on efficiency wages, the theory of implicit contracts and internal labour markets, among others.

They recognize that the indicators approach has had more success with the search for indicators that are complementary to the unemployment rate and activity rate: in particular, disaggregated indicators of unemployment by age, sex, and duration; the distinction between job losers, job leavers and persons seeking their first job; and the disaggregations by education and skill levels, by territorial area, by household typology and position within the household. One group of indicators links the job search with the conditions of supply: minimum acceptable salary, geographic availability, the search for temporary or atypical jobs, and the intensity of the job search. The labour force survey is a good source although it may run into problems of statistical significance because of small sample size. The sensitivity of the unemployment rate to variations in these supply conditions has proved to be important and growing. In these circumstances the labour market for the most part does not function exclusively on effective demand.

A prevailing trend, led by the US Bureau of Labor Statistics, has been to substitute the unemployment rate with a set of indicators based on the principle that a single index is unable to satisfy the need for information and adequately represent the complex factors at work in labour markets. This practice reflects the view that it is inadvisable to use a single composite index or indicator to represent a complex operational reality like the Human Development Index, which is really a political indicator, and which is subject to very serious measurement limitations which reduce its relevance.

The indicator approach favored by Garonna and Triacca is in some ways similar to the approach being followed by the OECD Indicators of Education Systems (INES): a consensus-building process based upon agreed indicators. Which brings us back to the issue of relevance and conceptual underpinnings. This is especially relevant in the context of the area of labour market performance and educational attainment. The consensus builders in the INES and the WEI programmes are education professionals and statisticians, not labour market professionals and statisticians. This may be one of the reasons why the development of the labour market indicators and analysis work in education policy circles has lagged behind that of the purely educational.

On the one hand it is natural that education professionals are first concerned with the internal performance of their systems: education inputs, outputs and costs. Furthermore, the data sources for labour market analysis in relation to education are not usually within the responsibility of Ministries of Education, most often being based on household and labour force surveys, as well as surveys of business establishments, or special data collections. Consequently, assembling these data places an additional burden on Ministries of Education since they require going outside the standard ministry statistical databases that are routinely compiled and analyzed by the sector. On the other side of the coin, labour economists and labour statisticians rarely make as much use of education and skills data and indicators as they might.

The gap between labour professionals and education professionals has resulted in less than optimum theoretical development in analytical and indicator frameworks, data collection instruments, and analysis and dissemination. Garonna and Triacca make this point with respect to labour analysis: “the true obstacle is still wide divergence existing between analysts and labour scholars and official statisticians. The former often tend to neglect conceptual questions connected to statistical production, only to then lament the scarcity and imprecision of data. The latter feel that sometimes they are able to act alone, taking charge of survey techniques and limiting themselves to a conventional harmonization of definitions and classifications. Reassessing unemployment statistics, may in this context, represent an important occasion to bridge this gap and work together....to close the gap between unemployment theory and measurement practice”. Even more so, the gap between labour professionals and education professionals creates a barrier to

the development of theory and practice in data collection, indicator development, and analysis in the area of labour market performance and educational attainment and this is also true of the gap between economists and social scientists.

3. The current household survey data situation and recommendations for change

Household and establishment surveys and national population and housing censuses are the major sources for studying the important relationships between education and employment. Education is perhaps the most important social variable and labour force participation is perhaps the most important economic variable from a human capital and human development perspective. One would therefore expect that the measurement of these variables would be clearly understood and regularly implemented in national household surveys in the region. We know how to measure educational attainment in household surveys – this has been practiced for over four decades in most industrialized and many developing countries. And yet this is still not happening today in many countries in the region. Even when we begin to use national labour force and household survey data to study education and its correlates, especially labour force participation, we find that we often do not have the necessary information in a useful form.

Labour force and household surveys and censuses provide the basic data for the study of labour market performance in relation to education, by age and sex of workers. The study of young age groups is a priority focus of attention for active policy making and evaluation of government reforms and social policies. For this purpose the 25-29 age group or 25 to 34 age group (the cohorts that could have completed tertiary education) is a target group of interest for studying the transition to work as it is happening in contemporary times. For the same reason, what is happening to school leavers in the 15-24 year age group is another contemporary policy focus. Household surveys, however, because of their relatively small sample sizes, present serious limits to the analysis and comparability of these age groups and thus call for further research.

A good frame of reference for measuring and analyzing the situation of the labour market in relation to education is the set of indicators on the labour market outcomes of education used by the OECD since the mid-1980s listed earlier. These data are based on data originally collected within OECD countries, through labour force and other household surveys undertaken by national statistical offices and labour ministries.

In order to analyze this among countries, especially in our increasingly integrated and competitive global economy, educational levels must be classified in an internationally comparable way. Household surveys, as well as classifying the employment status of persons, need also to classify people by their level of completed education. The 1997 revision of ISCED should be used for this purpose. ISCED provides an integrated and consistent statistical framework for the collection and reporting of internationally comparable education statistics and is the result of a consensus of the member states of UNESCO in consultation with OECD and EUROSTAT.

These labour force, employment and education indicators and classification systems are the starting point for the WEI programme as it extends indicator development and use to some key countries outside the OECD. In Latin America, Argentina, Brazil, Chile, Paraguay and Uruguay, as well as CEPAL, are participating in this first effort and are assembling national indicators following the OECD standards. Mexico is already a member of OECD.

For its regional analysis, CEPAL prepares a standardized set of national household surveys from surveys that member states in Latin America make available to it for regional analysis. Data have been made available for some 15 of the 22 countries in the region but the data on labour force

and employment vary by country. All include data on the labour force: employed, unemployed, out of work, working for the first time, sector of economic activity, hours worked, occupational classification, salary and other income. Some, but not all, have the size of the establishment in which they are working. Sex, age and education are measured in all surveys. Ten of the fifteen countries in the household survey database have surveys that are national in coverage. All countries collect education information about household members but there is a large variation in the detail, ranging from two to twenty-two questions.

The categories of survey questions in these Latin American surveys cannot be fully converted into ISCED levels, especially in higher education with its finer analysis of the differences in skill levels and competencies between first university degrees and advanced degrees and research diplomas. Furthermore, in a number of countries, the household surveys are not structured to provide information on the number of years of completed education of household members, which is essential for the in-depth study of the labour supply and human capital.

The Argentina case is a good example. The re-design of Argentina's national household survey is providing a good opportunity to take into account the data needs implied by the OECD international standards for measuring education and its relation to labour market performance. National labour force and current household surveys are the richest source of detailed information of persons aged 15 and over in the population, including data on completed education, employment and labour force participation, wages and earnings. Within the same surveys, the data on education of household members, household and personal expenditure, i.e. on education are collected. The collection of these topics in the same survey sampling frame makes it possible to analyze the relationship between education and labour force characteristics and to investigate the household and personal behavior with respect to the demand for education; for example, how much families spend on education.

Nevertheless, surveys vary in the manner and the depth with which they explore education topics and in the survey coverage. In Argentina the "Encuesta Permanente de Hogares" surveys 21,771 households in 21 urban areas and so is not national in coverage, which is unfortunate. Compared with other Latin American countries, it is about average in its inquiry about education, with six questions devoted to education: literacy, pre-school attendance, school attendance, highest level of completed education, and current level of attendance.

However, the questions on highest level of completed education are hard to understand and recode into the ISCED-97 levels of education. The survey asks:

- Can you read and write?
- Are you attending or did you attend school?
- What level are you attending or did you complete? (0=pre-school; 1=primary; 2=national; 3=commercial; 4=normal; 5=technical; 6=other secondary; 7= post-secondary; 8=university)
- Categories 5-8 of the previous question lead to an open-ended question about which course of study or specialization is being attended and finally, whether this study has been completed or not.

Effectively, in the Argentina survey it is not possible to calculate the exact number of years of education but only to determine the level of education using this set of questions. Years of education and educational qualification serve as a proxy for skill levels and the stock of human capital for labour market and other productivity and economic analyses as well as social research.

It is thus not possible to differentiate with this set of questions the important distinction between first university degree and research and doctoral degrees (ISCED5 and ISCED 6) which is needed to study the supply of highly skilled human capital for research and development and skilled professions. Also the definitions of the educational terms have changed over time which makes comparisons, based solely on these terms rather approximate, taking into account the changes that may have occurred during the some 50 year span of the stock of the labour force replying to these questions. Completed years of education would be a very useful additional question, again, taking into account that the stock of the labour force is 15-64, with older age cohorts more likely to have lower levels of educational attainment, e.g. non-completion of primary, where it would be useful to know the exact number of completed years.

The number of years of completed education in many Latin American countries, including Argentina, is still low, less than the duration of completed primary education for significant proportions of the adult population. More important is the need for precise information about the number of years of secondary school for the school-going and adult populations. Furthermore it is useful to know the current grade attended for school-going children and adults in order to calculate future educational supply.

There is a great deal of current interest in Latin America, as well as other regions, to study education in relation to economic development and macro-economic growth. This has been the subject, for example, of a recent paper on "Provincial economic growth in Argentina" in which the deficiencies of available data may have limited the analysis and interpretation of the relationship between education and economic growth. The Argentine study finds that the benefits of education on development or economic growth are not conclusive but this might be because of the lack of sufficient empirical data on education (Mitnic 1998a). The analysis lumped all primary (including zero years) together and all secondary and post secondary together (the study in fact used decennial census data). It would have been possible to separate zero years of education; completed primary, secondary and tertiary (diploma) just using available data from the existing INDEC permanent household survey.

However, if the survey were revised to provide the additional detail of completed years, the analysis could have been far more sensitive, especially for the provincial analysis where one can imagine that skill levels would have far less variance within regions and greater variance among regions.

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Annexes

Annex 1

OECD Indicators on Labour Market Outcomes of Education

1. Labour force participation of men and women at different levels of educational attainment

Skill levels tend to rise with levels of education and the costs of not working also rise. If labour markets are flexible enough to make use of the increasing skill levels of individuals, higher levels of labour force participation should be associated with higher levels of education. The labour force is defined as persons who are either employed or unemployed but are seeking a job and currently available for work.

Data from OECD countries show that, with only a few exceptions, the labour force participation rates of men and particularly of women rise with increasing educational attainment. This occurs when a significant number of unskilled workers leave the labour market through early retirement schemes or because limited job opportunities exist. It also occurs when a significant number of jobs are “undeclared” jobs in the underground “black economy”, more often found in labour intensive low profit sectors like agriculture, retailing, construction, and catering. In addition to this, a significant number of unskilled women might never enter the labour market, or enter it later or leave it return to domestic work at home.

**Rates of labour force participation by level of educational attainment for the population 25 to 64 years of age; by 25-29, 30-34, 35-44, 45-54, and 55-64 age groups*

**by gender*

2. Employment ratios and unemployment rates of men and women at different levels of educational attainment, by age

The employed comprise all persons who during a specified period, either one week or one day, were in paid employment or self-employment. Unpaid domestic activities and voluntary community services are not counted.

To the extent that educational attainment is an indicator of skill, it acts as a signal to employers of the potential knowledge, capacities and work place performance of candidates for employment. Insuring that workers have sufficient skills for available jobs is a matter of significant policy interest. In all OECD countries, whatever the rate of unemployment or the number of jobs created, the proportion of persons employed increases with the level of educational attainment.

**Employment/population ratios for 25-64 year olds by level of educational attainment; by 25-29, 30-34, 35-44, 45-54, and 55-64 age groups*

**by gender*

Unemployed persons are all individuals who, during a brief specified reference period (e.g. a particular week), were without work, were current available for work and were actively seeking employed work (i.e. had taken specific steps in a given reference period to seek employment, such as applied for a job).

**Unemployment rates for 25-64 year olds by level of educational attainment; 25-29, 30-34, 35-44, 45-54, 55-64 age groups*

**by gender*

3. Youth employment and unemployment by level of educational attainment

Young people represent the most important source of new skills in our society. Many countries are interested in the extent to which education can help alleviate high youth unemployment rates. Cross-country variations in youth unemployment by level of education provide an indication of the ability of the current labour market to absorb young people with different levels of skill. Even with increasing educational attainment, unemployment among people is high in many OECD countries. This is a waste of human resources for both the individual and the society at large. In all OECD countries the unemployment levels of young people are higher than the unemployment levels of older workers.

**Youth unemployment rates by level of educational attainment, age group and gender; 15-19, 20-24, and 25-29 age groups*

4. Unemployment of school leavers

The transition from school to work is a critical period for young people. This indicator is one measure of the rate of absorption of new entrants into the labour market in many countries.

**Unemployment rates of persons having completed their education at various levels of attainment, by gender*

**One year after completion of schooling*

**Five years after completion of schooling*

5. Relative earnings across different levels of education

One way in which markets supply incentives for workers to develop and maintain appropriate levels of skills is through wage differentials, in particular through the enhanced earnings accorded to persons completing additional education. In all OECD countries there is a strong positive correlation between educational attainment and earnings for both women and men, and university graduates invariably earn significantly more than upper secondary graduates.

**Relative earnings of persons aged 25-64 with income from employment at different levels of educational attainment (In OECD countries the earnings of upper secondary level graduates is taken as the basis for comparison)*

**By gender*

**Mean annual earnings of women as a percentage of mean annual earnings of men; 30-44 and 55-64 are groups, by level of educational attainment*

**Age-earnings profiles: mean annual earnings of persons aged 14-24; 25-29; 30-34; 35-44; 45-54; and 55-64 years, relative to the mean annual earnings of 30-34 year olds who have completed upper secondary education*

6. Expected number of years in employment, unemployment and outside the labour market between the ages 25 and 64 by level of educational attainment

The effect of educational attainment on the labour force status of a typical person manifests itself not just at a single point in time, but over the entire life cycle. In particular, it affects the total number of years over a lifetime which are spent in employment, in unemployment and outside the labour force.

**Expected years in employment, out of the labour force and in unemployment for persons aged 25-64, by gender*

This is calculated by summing, over all age groups, the product of age-specific ratios of employment, unemployment and inactivity to population ratios and the number of years in each corresponding age group.

7. Internal rates of return for completing different levels of education

This complex indicator shows the internal rates of return across levels of education, calculated by comparing additional earnings over a working lifetime with the additional cost of completing education at those levels. From the individual's point of view, costs correspond to direct costs of tuition (fees), educational materials, student living costs and forgone earnings of students. Social costs include all of these private costs as well as those direct costs incurred by public authorities in providing education. If the total social cost of completing a particular level of education is taken into account, a rate of return can be estimated by comparing additional lifetime earnings with the additional cost of completing that level. This is a hybrid between an individual and social rate of return, since it compares individual benefits with social costs. But it does give some indication as to whether investment in education is worthwhile for an individual, given the structure of the labour market in a particular country.

The rate of return of each level of education is calculated by finding the rate of discount that would equate the present value of the costs of completing a level of education to the present value of increased earnings associated with completing that level of education. These calculations are based on the creation of the lifetime earnings profiles of persons who attain different levels of education.

The earnings benefit of completing each higher level of education for each age from graduation at that level to age 65 is calculated as the difference between the average earnings of workers with successive levels of education. The average earnings of persons who completed the university level of education are compared to those who stopped at the upper secondary level of education rather than at the non-university tertiary level of education, because in most countries the choice of attending the university level or of following another path is made at the end of upper secondary education.

The added costs of completing each higher level of education are calculated for each level of education as the sum of the direct costs and forgone earnings. The direct costs are estimated from data on the average annual expenditure per student. For some countries, these cover only public expenditure. It is assumed that these average annual expenditures were incurred for each year the student was enrolled at that level of education. The costs are applied at the ages at which a person would be expected to be enrolled in each level of education, which varies across countries. The forgone earnings of students who continue to the next higher level of education are estimated as the average earnings of persons who did not continue, minus the average earnings of students at that level of education.

Annex 2

ILO Key Indicators of the Labour Market Relating to Education

1. Unemployment by educational attainment

This first indicator focuses on unemployment among workers categorized by different levels of educational attainment. Specifically, the indicator is a percentage distribution of the total unemployed for a country according to five categories of schooling – persons with less than one year of education, less than primary level, primary level, secondary level, and tertiary level, by total, male and female. Unfortunately, neither the secondary nor the tertiary levels have been disaggregated until now.

This indicator can provide important insights into the relationship between the educational attainment of workers and unemployment in different economies. By presenting the distribution of unemployment by level of educational attainment, it allows researchers to discern a key characteristic of a country or a regional unemployed labour force and, by so doing, assists in identifying determinants as to the likelihood of different groups of workers experiencing unemployment. The data may also be used to draw inferences relating to changes in employment demand. The ILO feels that data on educational attainment are currently the best available indicators of skill levels of the labour force. By focusing on the educational characteristics of the unemployed, this indicator can aid in analyses designed to shed light on how significant long-term events in the economy, such as ongoing skill-based technological change, increased trade openness or shifts in the sectoral structure of the economy, alter the experience of high- and low-skilled workers in the labour market.

The information provided has important implications for both employment and education policy. By taking into account the present educational and skill levels of the unemployed, these data can be useful in improving the efficiency of training programmes for jobless workers or designing employment-creation programmes. Availability of data on unemployment at different educational attainment levels can also permit an examination of how education and training strategies can improve employment outcomes for workers, and for the economy as a whole.

The distribution of the unemployed labour force by level of educational attainment shows considerable variation across countries in all regions, including wide differences among industrialized countries. The distribution of unemployment by educational level appears to be country specific; this implies a need for policy makers to be aware that the design of employment, training and education policies must take into account the unique characteristics of the jobless in their country.

Comparisons between countries are instructive but need to take into account the structure of national education systems. For example, the considerably greater share of unemployed workers with tertiary education (levels 5-7) in Canada compared to Spain, 34% versus 16% in 1995, may be explained partly by the fact that the proportion of the labour force that has attained tertiary education in Canada is more than twice as great as that in Spain and suggests that in some cases there may be diminishing returns in the labour market from more education.

2. Educational attainment and illiteracy in the labour force

Education and skills acquisition are increasingly necessary for countries to compete successfully in the global economy and to make efficient use of rapid technological advances and for workers to achieve a high level of employability. Although natural endowments of labour power remain relevant, ongoing economic and technological change means that the bulk of labour capacity is now acquired through education and skills training.

This second indicator focuses on the level and distribution of educational attainment in the labour force. It covers the educational attainment of the entire labour force, as well as focusing on a group of young workers (age 25-29). The statistics on the younger age group provide a better picture of recent changes in the level of educational attainment in a country, although this small age group may present sampling problems. Data are presented for the labour force aged 15 years and over by level of educational attainment for less than one year, less than primary, primary, secondary, and tertiary levels, by total, male and female, again with the secondary and tertiary levels not disaggregated.

The same information is also presented using as its denominator the population aged 25 years and over, rather than the labour force, which allows much greater country coverage (124 countries are represented in the population-based ILO table as opposed to 82 countries in the labour force-based table). Aside from greater country coverage, the 25 and over analysis, while not representing the entire labour force, does provide a more standardized picture of educational attainment since most of the 15-24 age group will be too young to have reached or completed tertiary education. The labour force aged 25 to 29 having completed tertiary education is also presented for 44 countries, in absolute and percentage terms for male and female.

Data on the levels and trends in educational attainment of national labour forces provide an indication of how well countries are prepared to achieve important economic goals, give insights into the structure of the labour force, highlight policy needs, allow analysis of the influence of skills acquisition on economic outcomes as well as the success of different policies in raising the educational level of the workforce, and give an indication of the degree of inequality in the distribution of resources –specifically human capital resources– within countries and internationally.

Among the findings of this set of indicators is the growing wage dispersion between low-skilled and high-skilled workers in many countries which provides strong evidence of increasing returns to education as an issue in the global economy. The distribution of educational attainment can play a significant role in a country's income distribution. A highly unequal distribution of educational attainment will lead to an increasingly unequal income distribution within a country in the future, while a more equal distribution of educational attainment can work towards a significant lessening of household income disparities. A more balanced distribution of educational attainment across the primary, secondary and tertiary levels also allows for greater flexibility in adopting new technologies and the ability to compete in the world economy across a broader range of industries. This is particularly important for the countries of the Latin American and Caribbean region, which has by far the greatest income inequality of any region in the world.

Educational attainment distributions for countries like Canada and Japan are representative of a common kind of distribution in developed economies in which the bulk of the labour force has attained at least secondary education and sizeable proportion of the workforce (between 20% and 50%) has had tertiary education. Educational attainment distributions for countries like India and Mexico are representative of the type of distribution of educational resources commonly found in many developing countries. In these countries the distribution is usually skewed towards the lower levels of education, often with less than one-third of workers attaining more than primary education.

Developing economies like Republic of Korea, Singapore and Hong Kong (China), referred to by the IMF as Newly Industrialized Asian Economies (NIAE), have achieved high levels of growth and export competitiveness in recent years and show a more balanced distribution of educational attainment in their labour forces. This supports the view that a better-educated labour force opens up more policy and market opportunities through which developing countries can realize greater growth and competitiveness. The countries of Latin America consist of a mix of the distributions of the NIAE countries and those of the developing countries like India.

Annex 3

ISCED-97: International Standard Classification of Education-1997

The coverage of ISCED-97 extends to all organized and sustained learning opportunities for children, youth and adults, irrespective of the institutions or organizations providing them or the form in which they are delivered. While it is widely recognized that learning can occur in situations that are not formally organized and in activities of short duration, the requirement that instruction be organized and sustained facilitates the collection of comparable data across countries and over time within countries.

ISCED-97 is divided into levels of education. A level of education is broadly defined as the gradations of learning experience and the competencies built into the design of an educational programme. Broadly speaking, the level is related to the degree of complexity of the content of the programme.

The pre-primary level of education (ISCED 0) is defined as the initial stage of organized instruction, designed primarily to introduce very young children to a school type environment i.e. to provide a bridge between the home and the school based atmosphere.

The primary level of education (ISCED 1) usually begins at age 5, 6 or 7 and generally lasts for 4 to 6 years. Programmes at the primary level require no previous formal education although it is becoming increasingly common for children to have attended a pre-primary programme before entering primary education. The programmes are normally designed to give pupils a sound basic education in reading, writing and mathematics along with an elementary understanding of other subjects such as history, geography, natural science, social science, art and music.

The lower secondary level of education (ISCED 2) continues the basic programmes at the primary level, although teaching is typically more subject-focused, often employing more specialized teachers who conduct classes in their field of specialization. Lower secondary education may either be terminal (i.e. preparing the students for entry directly into working life) or preparatory (i.e. preparing students for upper secondary education). This level ranges from 2 to 6 years of schooling.

The upper secondary level of education (ISCED 3) usually corresponds to the final stage of secondary education. Instruction is more organized along subject matter lines and teachers need to have a higher level or more subject specific qualification than in ISCED 2. The duration of programmes range from 2 to 5 years and they may either be terminal or preparatory.

The post secondary non-tertiary level (ISCED 4) covers programmes that straddle the boundary between upper secondary and post secondary education from an international point of view although they might clearly be considered as upper secondary or post secondary in a national context. These programmes cannot, considering their content, be regarded as tertiary programmes although students are typically older than students in ISCED 3. Programmes have a full time equivalent duration of between six months and two years.

The first stage of tertiary education (ISCED 5) normally requires the successful completion of programmes at the ISCED 3 or ISCED 4 levels. They must have a cumulative theoretical duration of at least two years from the beginning of level 5 leading to a recognized academic or technical qualification but not lead directly to the award of an advanced research qualification (those programmes are at ISCED 6). Programmes may be largely theoretically based and intended to provide sufficient qualifications for gaining entry into advanced research programmes and professions with high skill requirements (ISCED 5A) or be practical/technical/occupationally specific (ISCED 5B).

The second stage of tertiary education, leading to an advanced research qualification (ISCED 6) consists of tertiary programmes that lead to the award of an advanced research qualification. They require the submission of a thesis or dissertation of publishable quality that is the product of original research, represents a significant contribution to knowledge, and is not solely based on course work.



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