

# “Changes in the labor market in LAC: What do they mean for education?”

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## 1. Introduction

There are four generalized trends observed in Latin American labor markets in the 1990s: (1) slow growth in GDP per capita; (2) high rates of unemployment; (3) rising wage differentials associated to tertiary education; and (4) declining wage differentials associated to gender and increased female labor force participation.

The decade of the 1990's in Latin America is characterized by moderate GDP growth and stagnant per capita GDP. Table 1 summarizes per capita GDP growth trends for the 1980's and 1990's. With an average increase in GDP per capita of 1.7% per year, the 1990s was a good decade in terms of economic growth. However, this performance followed significant output losses in the 1980s, leading to an average growth in per capita GDP for the 1980-2002 period of just 1/3 of a point per year.

Average unemployment rates reached the two digits mark in 2001 lead by Argentina, Panama and Colombia with 17%. More importantly, youth unemployment rates have been above 15% in most countries with the exceptions of Brazil, Costa Rica and Mexico where overall unemployment rates have been systematically lower.<sup>3</sup> (see Tables 3 and 4)

The most recent Economic and Social Progress Report of the IDB examines micro data for 17 countries in the region to document changes in wage differentials associated with schooling. The report concludes that “[D]uring the 1990s, the wages of workers with college degrees increased in relation to the wages of workers with lower levels of education.

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2 I am thankful to Viola Espinola for helpful comments and suggestions. I take full responsibility for any remaining errors

3 The youth to overall unemployment ratio is on average, 2.0 for European countries and 2.6 for the U.S. The corresponding ratio in Latin America is closer to 3 suggesting relative larger barriers to entry to the jobs market for LAC youth.

Perhaps surprisingly, a sustained rise in female labor force participation rates was observed throughout the 90s. Durvyea, Cox Edwards and Ureta (2001) report that female labor force participation increased in 8 of the 13 countries examined. They analyze the role of wages, as a partial explanation for the pattern of changes in labor force participation rates, and show that in the 1990's the adjusted female wage penalty was closing at a rate of nearly 1 percentage point per year, such that over the decade women's wages rose from lagging men's by 25 percent to lagging by 17 percent. While the year trend for the 1990's is significant at the 10 percent level, if they expand the sample to include the 1980's they find similar parameters, much more precisely estimated. These results suggest that women's earning opportunities in the labor force relative to men's were steadily gaining over two decades and may have played a role in attracting women to the labor force.

### Interpreting these Changes in the International Context

At the center of Latin America's modest performance in economic growth are two factors: (1) macroeconomic instability and (2) an overall low rate of productivity growth. As Table 2 shows, total factor productivity, which measures the increase in output over and above the expansion in employment and capital, has been very low during the last two decades. (Edwards, 2001).

Economists would argue that these two factors are primarily the result of policy failures; that fiscal discipline, and delegation of authority to the central bank to conduct monetary policy aimed at price stability leads to macroeconomic stability, and that market-oriented reforms lead economies to a better use of resources – and productivity increases.

On the other hand, the changes observed in Latin America regarding unemployment, wage differentials and female labor force participation are consistent with worldwide evidence on the effects of an increase in the relative demand for *skilled* labor, a force that would have been present irrespective of economic policy choices.

In 1994, the OECD published the "Jobs Study" which gained worldwide attention by its depth and policy relevance. The report addressed the concern of policy makers and observers regarding the increased unemployment in Europe and the rising disparities in income distribution in the United

States. The report argues quite effectively that the 1980s wave of financial-market liberalization and product market deregulation improved efficiency in most economies and also accelerated the pace of change. These developments challenged the capacity of economies and societies to adapt. In addition, the need to adapt was heightened by the new information technologies and by the trend towards globalization.

Yet, in the midst of this tumultuous period when so many forces were testing the flexibility of economies, policies to achieve social objectives were extended, with the unintended side-effect of making markets, including importantly labor markets, more rigid. This erosion of the ability to adapt to change was probably most pronounced in continental Europe and Oceania. In the United States, by contrast, there was a different response to new technology and globalization. Protective labor market and social policies were less extensive; labor markets remained highly flexible; and entrepreneurship was dynamic. The state did not become such an important employer. The number of new jobs grew very fast – almost five times the rate in Europe, for example – with the great majority of them in the private sector. Many of the new jobs were highly productive, paying high wages. But many others were low-productivity jobs. Workers in these jobs often had no option but to accept low wages, precarious conditions and few health or other benefits, because they lacked the skills needed for higher-paid jobs, and did not have the alternative of European-style social support. On the other hand, the social problems faced by many of these workers might well have been worse if inflexible labor markets had deprived them of even these jobs.

*“The appearance of widespread unemployment in Europe, Canada, and Australia on the one hand, and of many poor quality jobs as well as unemployment in the United States on the other, have thus both stemmed from the same root cause: the failure to adapt satisfactorily to change. Management skills, education and training attainments have failed to keep pace with the requirements of a more technologically advanced economy. Companies have not sufficiently improved the productivity of their operations; and workers have not become sufficiently trained. In the United States, where the economy is highly flexible, many of those with few skills could find only jobs with poor wages and conditions. In Europe, Canada and Oceania, by contrast, such low-wage jobs were, by and large, disallowed by society, whether through state-imposed or union-negotiated wage/income floors and employment protection. So the problem which appeared as a combination of low-wage jobs and unskilled unemployment in the United States took the form in Europe mainly of unemployment of the low-skilled.” (OECD, 1994)*

In the United States, during the last 30 years, the wages received by workers have become more unequal. To be noted, wages have become less unequal by race and gender and more unequal by *skill*. The word *skill* is used to encompass individual characteristics that explain wage variations. While this definition of *skill* is highly correlated with schooling and experience, there are large observed variations in *skill* within age and schooling categories. Most of the increase in wage dispersion occurred in the 70s and 80s, with little increase in this dispersion in the 90s. Most of the increase in wage dispersion occurred in the upper half of the wage distribution, especially among those working full time.

There is a high degree of consensus over the argument that *skill*-biased technological change explains most of the increase in wage inequality in the United States. The central support for this argument is the overwhelming evidence on rising wage premiums associated to schooling and experience. Autor, Levy and Murnane (2001) recognize that the substitution of machinery for repetitive human labor has of course been a central thrust of technological change dating at least from the industrial revolution. Computers, they argue, uniquely contribute to this process with the capability to calculate, store, retrieve, sort, and act upon information. The question they ask is; how precisely do computers affect the use of labor? Which precise *skills* become more valued in the presence of computers? Which ones become less so?

*“In the economy of the 1970s, long haul truck driving and double entry bookkeeping were both tasks routinely performed by workers with modest education, typically high school graduates. In the present economy, computers perform a vast share of the routine bookkeeping via database and accounting software but do little of the truck driving. Similarly, playing a strong game of chess and writing a persuasive legal brief are both skilled tasks. Current computer technology can readily perform the first task but not the second.” (Autor, Levy and Murnane, 2001)*

They argue that present computer technology has quite specific applications and limitations that make it an incomplete substitute for both well-educated and less educated human labor. They use US data and create representative observational metrics of job tasks from the Dictionary of Occupational Titles (DOT), to analyze the degree to which technological change has altered the cognitive and manual content of jobs between 1960 and 1998. They show in their Figure 1 (reproduced here as Figure 1 also) that the proportion of the labor force employed in occupations that made intensive use of non-routine cognitive tasks – both interactive and analytic – increased

substantially. In contrast, the percentage of the labor force employed in occupations intensive in routine cognitive, routine manual and non-routine manual activities declined over the period.<sup>4</sup>

They quantify the extent to which changes in the structure of work induced by computerization have contributed to recent observed increases in the relative demand for educated labor. More precisely, they find that a decline in the price of computer capital leads to an increase in the use of computers and substitution of computer capital for human labor in routine tasks. The effect is a reduction in the level of employment and wages of workers carrying out routine tasks. The impact of computerization is not confined to widely observed educational upgrading. In fact, within-education group changes in task structure appear at least equally important. In other words, *within nominally similar education categories, technologically intensive industries have differentially shifted the task content of employment against routine, repetitive tasks and towards tasks demanding cognitive flexibility.*

### Implications for the Latin America Region

The changes observed in labor use in the US reflect a worldwide phenomenon. Arguably, the extent to which this technological change leads to a substitution away from routine tasks in a given country depends on the local price of labor in routine tasks relative to computer capital, the local availability of complementary factors such as labor in non-routine cognitive tasks, and the relative importance of technologically intensive industries. What is more important however is that, given the extent of markets globalization, the adoption of computer technology in some areas/countries leads to rapidly evolving sources of comparative advantage, with effects in all countries. In practice, enterprises experience changes in demand for their goods or services, requests to lower prices in response to lower price competitors, and the need to adapt. This challenge is not new, but its importance has

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<sup>4</sup> To measure non-routine cognitive tasks, they employ two variables, one to capture interactive and managerial skills and the other to capture analytic reasoning skills. The variable DCP codes the extent to which occupations involve Direction, Control, and Planning of activities. This variable takes on consistently high values in occupations involving substantial non-routine managerial and interpersonal tasks. The variable GED-MATH, their second measure of non-routine cognitive tasks, codes the quantitative skills ranging from arithmetic to advanced mathematics that are required in occupations. They employ this variable as a measure of occupations' analytic and technical reasoning requirements. They identified STS, the acronym for adaptability to work requiring Set limits, Tolerances, or Standards, as an indicator of routine cognitive tasks and selected the variable FINGDEX (an abbreviation of Finger Dexterity) as an indicator of routine manual activity. Finally, they selected EYEHAND, short for Eye-Hand-Foot coordination, as a measure of non-routine motor tasks. This variable takes on high values in occupations requiring physical agility, such as firemen.

been highlighted first, by increasing globalization, lead by lower cost of communications and transportation, the process of trade reform that many countries have followed, and third, by technological improvements. This is addressed in section 3.

These changes present great opportunities in terms of productivity increases and at the same time challenge individuals and organizations to adapt. Policy makers must lead the population to be less resistant to change and seize any opportunities to learn new tasks. Education can play a key role to the extent that it makes individuals more adaptable; more capable of being reallocated to different jobs; more prone to be retrained; and or to be lifelong learners. But the education systems also are challenged to develop individuals' analytical and communication skills in favor of memorization and repetition. The evidence indicates that the availability of computer technology at declining prices has changed the composition of demand for labor in favor of non-routine cognitive, analytic and interactive tasks. This is addressed in section 4.

Recent calculations suggest that the average Latin American and Caribbean generation born in 1970 received 8.8 years of schooling (see Behrman, Durvyea, and Székely, 1999). This average masks large cross country variations (see Table 5), within country differences between rural and urban areas and significant deficiencies among the indigenous population. On average, there was an increase of 4.6 grades of schooling in the 18 LAC countries between the cohort born in 1930 and their counterparts born in 1970. The largest increases were in Mexico, Dominican Republic, Chile, Ecuador, Bolivia and Venezuela, for all of which there was a gain of more than five grades during the period. The smallest changes were in Jamaica, Paraguay, Brazil and Nicaragua, all with less than four grades. Behrman, Durvyea and Szekely (1999) compare the advances in the LAC region with those observed in Korea and Taiwan where the average grades of education in the 1930s compared to those of Chile and Panama and increased by 6.8 and 6.5 respectively, placing the 1970 generation above all LAC countries. In fact, recent generations in Taiwan and Korea are approaching schooling levels in the United States.

Data from the US suggests that advancements in average schooling beyond 12 –the average for the generation born in 1930—are more difficult to obtain. The US generation born in 1970 gained 1.1 years of schooling on average relative to their 1930 counterparts. Perhaps for similar reasons,

schooling progress in LAC was considerably greater for the generations born between 1930 and 1950 -- a gain of 2.7 grades – than for those born between 1950 and 1970 -- a gain of 1.9. However, the slowdown appears to be steeper in Honduras, Dominican Republic, Venezuela, three countries with low averages for the 1950 generation; and Panama with only 8.8 years for the average individual born in 1950. Berhman, Durvyea and Szekely (1999) use cross-country variation to identify country characteristics associated with school attainment. They report that agricultural land per capita reduces attainment and urbanization increases it among males. These two variables can be considered more structural and are associated to the relatively higher costs of schooling in rural areas. They also report that school attainment increases with trade openness and falls with volatility in GDP per capita. These are two policy variables that Latin American countries have recognized as important for economic growth and policy changes in this direction will likely contribute to increase school attainment.

Given that a number of countries in the region are currently approaching average school attainment close to the United States, it is of interest to compare the school to work transition for individuals age 16 to 24. I use survey data for 17 countries in the region. Because schooling levels are lower in rural areas and the relative size of the rural population varies considerably across countries, I focus on urban areas. The surveys used are all from the period 1995 to 1998.

## **2. School-to-Work Transitions for Latin American Youth**

Latin America is doing relatively well in terms of the education “coverage” of young adolescents (12-13). In a recent study, Menezes-Filho (2003) uses household surveys for 17 Latin American countries collected in the late 1990s, and establishes that more than 75 percent of individuals observed in this age group were in school. In fact, a large fraction of students starts secondary education, but school dropout rates are very high between the ages of 16 and 18. Several studies have noted that the key variable that explains which individuals are in school in each country is parental education. Parental schooling as a proxy for household permanent income, therefore the link between parental schooling and survival in the school system is indicative of borrowing constraints among poor households.

Figure 1 uses the cross-section data from each survey to show the percentage of each age group that attends school (at the time of the survey). Figure 2 uses the same data to show the percentage of age group that works. I added the equivalent percentages for US data to Figures 1 and 2 in an attempt to have a benchmark. The first important observation to be drawn from Figure 1 is that in the US, more than 90% of individuals stay in school to age 17, which typically indicates high school graduation. In the LAC region, between 60 and 88% of 16 year olds are in school. In fact, the largest differences in school attendance by age between LAC countries and the US are observed at age 16, which roughly corresponds to the first year of high school. In essence, LAC countries present high dropout rates at the start of the secondary cycle, but the observed decline in school attendance at older ages relative to age 16 are comparable across countries.

The cross section data suggests that the region is currently facing the challenge to broaden up coverage at the secondary level, and at the same time, to avoid an increase in dropout rates among those in the secondary system. One may suspect that 16 year olds in the LAC region dropout to school to join the labor market. However, if we turn to Figure 2 we make the surprising observation that the fraction of 16 to 19 year olds that works is typically lower in LAC countries relative to the United States.

To get a better idea of what is different between the LAC region and the US with respect to school retention and labor market participation, the data is organized by country in Figure 3. Each graph shows the fraction of individuals within a given age group in one of five mutually exclusive categories: (1) Attends school and does not work; (2) Attends school and works part time; (3) Attends school and works full-time; (4) Does not attend school and works; (5) Does not attend school and does not work. In every case, the definition of work excludes work in the household but it includes unpaid family work, which corresponds to the ILO definition.

The green section in each graph (at the bottom) represents the fraction in school; the yellow section (second from the bottom) represents those in school and working part time; the gray section (third from the bottom) represents those in school and working full time; the black section represents workers; and the white section those that do not work or study. Except for the height of the green bar, at first sight, the graphs show similar shapes across countries. However, the USA figure is

significantly different in that the yellow section represents about 20% of each bar from age 16 to 21. In fact, if one focuses on the fraction of teenagers working, it is not unusual for a country in Latin America to have 45% of 19 year olds in the labor force. Interestingly enough a similar fraction of 19 year olds works in the United States. However, while teenagers in the US continue in the school system and work part-time, in Latin America those that work typically are out of the school system and work full time.

There are a few countries among those examined in Figure 3 that have a significant fraction of the young population in school and working part time. These countries include Peru and to a lesser extent Uruguay.<sup>5</sup> This evidence raises several questions: (1) Is the difference in work patterns of students a cultural phenomenon? or (2) Are there specific characteristics of the education systems or labor market opportunities that explain it?

If access to high school education is currently restricted by poverty, arguably an expansion in part-time job opportunities would allow more young workers to complete secondary education.

### **3. Labor Policy Issues**

Information technology in general, and the internet in particular, are about freedom, creativity and dynamism. As pointed out above, there is abundant microeconomic empirical evidence suggesting that the effects of the computer technology are greater when labor relations are flexible and dynamic. Labor legislation in Latin America, however, is generally rigid and does not facilitate the rapid redeployment of workers across companies and sectors. Moreover, in many countries collective bargaining still takes place at the industry-level. These centralized labor negotiation practices tend to ignore the peculiarities of specific firms that in the midst of technological change may face very particular circumstances. (Edwards, 2001)

Textbooks usually mention minimum wages as the predominant labor market distortion to be removed in market-oriented reforms. At the present time, however, this is not the most pressing issue in Latin America. In fact, with a few exceptions, minimum wages have declined throughout

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<sup>5</sup> We are unable to measure the extent of parttime employment in Brazil.

the region in the last few years and have largely become a non-binding restriction. This, of course, does not mean that (potential) hikes in minimum wages will not have negative employment effects in the future.

The most serious labor market distortions in Latin America can be classified in three categories: (a) high costs of dismissal that reduce flexibility and make a firm's restructuring difficult and slow; (b) high payroll taxes that reduce the incentives to expand employment, and negatively affect the degree of international competitiveness of local firms; and (c) regulations that reduce the scope of collective bargaining at the firm level.

### Job Security

In a recent paper, Nobel Laureate James Heckman and Carmen Pages, from the Interamerican Development Bank, analyzed labor legislation in Latin America and concluded that it restricts labor mobility significantly. Moreover, these authors compared employment protection under labor legislation in Latin America, several European countries and the U.S. They found that, contrary to popular belief, employment protection in Latin America is, in general, significantly higher than in the European nations and higher than in the U.S., which is the most unregulated of all. The authors also find evidence that more restrictive labor legislation has resulted in slower job creation and a larger “informal” labor market. Efforts to reform labor legislation, and introduce greater flexibility while enhancing workers’ rights, have been largely unsuccessful.

Figure 5 reproduces Graph 1 from Heckman and Pages (2000) which summarizes the costs of advance notice and compulsory severance pay in Latin American, and the Caribbean for 1990 and 1999. This graph reveals that even after many countries have reduced dismissal costs during the nineties, the average cost of dismissing a worker is still higher in Latin America than in our sample of industrial countries. In comparison, the countries of the Caribbean basin exhibit much lower dismissal costs.

Pagés and Montenegro (1999) develop a model in which job security related to tenure, biases employment against young workers and in favor of older ones. As severance pay increases with tenure, and tenure tends to increase with age, older workers become more costly to dismiss than

younger ones. If wages do not adjust appropriately, negative shocks result in a disproportionate share of layoffs among young workers. Therefore, job security based on tenure results in lower employment rates for the young, relative to older workers, because it reduces hiring and *increases* firings for young workers. Thus, one can argue that higher job security provisions reduce turnover rates and bias the composition of employment against formal and young workers.

Heckman and Pages (2000) examine data for OECD and Latin America spanning from the 1980s to the 1990s to extract the link between job security and employment. They control for the state of the business cycle in a given year using GDP growth, and different types of variables to control for country specific factors that may be correlated with job security. The results suggest a negative and large effect of job security on employment rates. The magnitudes of the elasticities are quite large: an increase in expected dismissal costs equivalent to one month of pay is associated with a 1.8 percentage points decline in employment rates. Given that in Latin America the average dismissal cost in 1999 was 3.04 months (See Figure 5), the estimated loss in employment –as a percent of total working population-- due to JS provisions is about 5.5 percentage points. Estimates suggest that job security does not affect the employment rates of all workers in the same fashion. In particular, job security reduces LAC youth employment rates by almost 10 percentage points.<sup>6</sup>

### Payroll Taxes

A payroll tax tends to reduce net wages and increase labor costs. Thus, one would expect that the higher the payroll tax, other things equal, the lower will be labor force participation and employment. Using time series data for Chile spanning over the period 1960 to 2002, Edwards (2003) estimates that a 10 points reduction in the payroll tax would lead to a 2% increase in employment, and that 10 points reduction in the payroll tax would lead to a 0.7 points expansion in labor force participation. Current payroll taxes in the LAC region (calculated as a percent of gross wages) range from 36 percent in Argentina to 17 percent in Nicaragua.

### Collective Bargaining

A number of authors have argued that the degree of rigidities embedded in labor legislation will affect the equilibrium level of unemployment. This has been, for example, the view of many authors

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<sup>6</sup> These magnitudes are consistent with the ones obtained in Pagés and Montenegro (1999) for Chile.

that have attempted to explain the high degree of unemployment in Europe during the last decade and a half, and has been expressed in particularly strong terms by the *OECD Jobs Study* (OECD, 1994).

Most attempts at testing this general proposition have been based on comparisons across countries with different regulatory environments, and in particular on comparisons between the countries of Europe and the United States. Nickell (1997), however, concludes that the received wisdom is only partially right, and that some (but not all) labor market regulations in Europe cause higher unemployment. Blanchard and Katz (1997) take a similar view, and argue that restrictions to firing workers increase unemployment duration and workers' flows, but do not "necessarily led to a higher rate of unemployment (p. 59)."

In analyzing the effects of labor market regulations, some authors have focused on their effects on the *dynamics of unemployment*, and in particular on its degree of persistence. For example, in their analysis of European and U.S. unemployment patterns, Blanchard and Summers (1986) argue that due to greater rigidities, and in particular because of the more active role of unions, unemployment has been more persistent in Europe than in the United States. They argue further that the extent of unemployment persistence is affected by the state of the economy, with unemployment being more persistent in "bad times" than in "good times."

Because of the major reforms of the last thirty years, Chile provides a unique opportunity for analyzing the effects of changing labor regulations on unemployment and other labor market outcomes within a particular country. If the "regulations hypothesis" is correct, one would expect that Chile's labor market would exhibit a greater degree of flexibility and fluidity in the post reforms period. Edwards and Edwards (2000) quantify the extent of Chile's reform in collective bargaining and follow Blanchard and Summers (1986) to link the degree of unemployment *persistence* and the characteristics of the collective bargaining system in Chile. Their results indicate that in the post reforms period, Chile's labor market experienced, both a reduction in persistence and in the natural rate of unemployment, and their analysis indicates that the collective bargaining reform contributed greatly to these two changes.

To sum, economic growth and particularly, total factor productivity growth in LAC countries will greatly benefit from labor market reforms in three key areas. First, a reduction in costs of dismissal will contribute to employment creation, particularly among the youth, and will also facilitate the reallocation of employment to increase overall productivity. Second, a reduction of payroll taxes will contribute to higher labor force participation, and an increase in employment. Third, reforms to labor legislation that collective bargaining which increase the scope of collective bargaining at the firm level tend to contribute to higher flexibility and reduce the persistence of unemployment.

#### **4. The Implications for Education Policy**

To the already well know challenges of continue to expand coverage, particularly in Central America, the rural areas, and amongst the indigenous population, there is a challenge of modify what schools currently offer.

Recent data – both from surveys as well as from formal standardized tests -- indicate that education deficiencies in Latin America are substantial. Indeed, studies that have focused on the quality of education – as opposed to its coverage – show that the Latin American region is seriously lagging behind other nations. For instance, recent survey results on the quality of math and science education place every Latin nation, with the exception of Costa Rica, in the bottom third of a sample of 59 countries (U. Michigan, 2000).

Results from these standardized tests, which were taken by more than 150 thousand students in 38 industrial and emerging countries, are strictly comparable across nations. The only Latin American country that participated in the *Third TIMSS* project on mathematics and science for eighth graders was Chile. In mathematics, Chile placed 35th out of 38 countries, with a score 20% below the average for all nations. In science it also placed 35th; this time, however, Chile's score was *only* 14% below the average for all countries.<sup>7</sup>

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<sup>7</sup> The complete TIMSS results can be found in: <http://timss.bc.edu>

A possible objection to these results is that they refer to *unconditional* test scores. However, econometric analyses suggest that even after conditioning by a number of factors – including GDP per capita, education coverage, class size and expenditure in education – Chile’s test scores are among the lowest in the sample (see Edwards. 2001) When these findings are projected to the rest of Latin America, the picture that emerges is one of a region where children are not being adequately trained for a technologically oriented future.

“Education systems throughout the region are more successful in putting and keeping youth in school than in truly teaching requisite skills. Indeed, learning goals often are compromised by factors and conditions—e.g., inadequate teaching, too little time on task, lack of teaching materials, and inadequate management and incentives” (de Moura Castro and Verdisco, 2002)

Under the current circumstances, it is worth spending resources on education research. The same technology that is challenging us to modify how children are taught can be used to figure out what leads children to learn analytical and communication skills. In the past, educators have been reluctant to rely on the use of tests to make school management decisions. Their basic complaint is that tests scores are only partially a measure of teaching, and mostly a measure of the child’s socio-economic environment. But, good research on education does take into account the effect of a particular program or method, controlling for the characteristics of the parties involved.

#### Dynamic Relationship between Formal Education System, Job Training, and Employment

It helps to classify a country’s skills development system as having three parts: (i) general education system with its primary, secondary and post-secondary levels, (ii) in-school training (provided at the secondary or post-secondary level), and (iii) in-house training provided on the job. While on-the job training is in the realm of private agreements between employers and employees, in-school training is an alternative to general education, and can be part of the public as well as the private education systems. Parents and/or young adults choose to invest or not to invest in training or education according to the perceived costs and benefits. However, these investments are often constrained by access to credit. This justifies policy intervention via subsidized education or subsidized credit to

access education. In all LAC countries there is subsidized education and in many students can apply to subsidized credit towards postsecondary education. These funds are generally channeled through the Ministry of Education. Latin American countries have searched for innovative ways to expand primary and secondary school coverage on the basis of limited resources. In some cases (notably Colombia, El Salvador and Chile) public financing methods are successfully attracting complementary funds from parents and/or private organizations. The experience of Chile in leveraging funds provided by the Ministry of Education towards technical-vocational education with private sector resources is quite valuable. (see Box 1)

At the post-secondary level, an interesting formula to channel funds to help the most needy students is for the state to fund jobs for student-workers within post-secondary institutions. In the United States, for example, the Federal Work Study Program provides funds earmarked to pay for employment of undergraduate and graduate students with financial need attending eligible postsecondary schools. In most cases, these funds are complemented with state and school funds. Work-study programs help students fulfill the American tradition of working one's way through school. Pay is based on federal minimum wage standards, but varies with job requirements, skill, and experience levels.

Although there is very little data or literature on firm provided training in developing economies, the available evidence does suggest that firms in Latin America do train their workers. Data from the 1999 World Business Environment Survey, a joint WB-IADB survey that assess the enabling environment for private enterprise in 20 Latin American countries, contains information on training practices of private firms. The survey is based in interviews of a random sample of 100 modern sector firms in the manufacturing (40%) and service sectors (60%). In the first place, the percentage of firms in the region that train their workers is not too different than the one in the US and Canada. Three out of four firms in the region do train their workers, and firms that have recently introduced some innovation (be it in products or processes) are almost 30% likelier to train than firms that have not innovated. Firms in the services sector are 5% more likely to train, and small firms are fully 25% less likely to have some kind of training program. Foreign firms are slightly more likely to have training programs, while family owned firms are less likely to do so. Though older, more established firms are more likely to train, this effect is minor relative to the other effects studied in the survey.

This pattern of incidence of training according to firm characteristics is very similar to the one described in the literature for developed countries. In addition, when looking at workers, the pattern of training by schooling level looks very similar to that revealed in the literature on developed countries: the more educated workers are the ones chosen by firms to be trained and for longer periods (Marquez, 2001)

Given the high rates of unemployment among the youth in the region, and the unbalance between the demand for and the supply of skills, it becomes more important to build policies to strengthen the alignment between the education, training and the labor market. Throughout the world, the private sector is playing a growing role in education and training production. It is generally better for the private sector to produce training because industry's demand is rapidly changing, and trainees have needs that vary according to their interests, preferences, and expectations. The private sector can adapt to these changes more easily than the public sector. If the public sector is the dominant producer of training services, the linkage with the labor market is likely to be weak.

Countries do not need a government institution running training programs, which can be run by specialized professionals. However, in the absence of a training authority that channels funding, low-income individuals have limited access to training. In the case of Chile, the training authority – SENCE - manages two policy instruments: (1) a government tax credit available to all private enterprises, (2) a program of training scholarships financed with government funds and targeted to specific groups of individuals. Training can be implemented in service, or can be obtained externally. Training organizations must have a previous SENCE approval if enterprises want to obtain the requested tax credit. In essence, SENCE role regarding the tax credit is one of a clearinghouse. However, the system in place allows SENCE to maintain an up-to-date register of training organizations, reserving the right to inspect both training institutions and enterprises that qualify for tax credit towards in-house training, and facilitates the ongoing *evaluation* of these organizations' work.

The scholarships program has many arms, including Chile Joven. SENCE captures the demand for these scholarships at the local level, when individuals apply for these vouchers or training grants (see Box 2). There are minimum qualifications for applicants, and if their request is approved, they

typically receive free training, a subsidy towards meals and transportation and accidents insurance. Previously registered training institutions can bid on specific courses/programs, and SENCE selects among applicants according to merit. The current setting of the Chilean system can lead to the accumulation of data that permits adequate evaluation of specific program design. The evaluation of training programs has received significant attention in the United States in the last 20 years and led to the use of sophisticated econometric techniques that can lead to appropriate evaluation and help policy making in the LAC region (See Box 3).

### **Box 1: Vocational Education for Chilean Farming: The Codesser Model**

Since 1982, the Corporation for Rural Development (CODESSER --Corporacion de Desarrollo Social del Sector Rural), a non profit organization has taken on the administration of a number of vocational schools. The management style of CODESSER's schools is based on six elements and merits special attention because it has turned out graduates with marketable skills.

#### **1. *Private sector participation in Management***

Schools report to a Regional Directory, made up of seven recognized farmers or industrial entrepreneurs. The involvement of the private sector also offers a direct connection to the job market, and an effective medium to bring about organizational and productive innovations in the schools. The school management combines the expertise of professional managers and educators.

#### **2. *Teachers hired as Private Sector Employees***

The agreement through which the vocational schools were transferred to CODESSER in the early 1980s, terminated all contracts (teachers and other personnel). In 1994, between 60 and 70% of the personnel in some schools was comprised of people that were teaching under the old system. However, new contracts were offered under the general labor code, and teachers are private sector employees. CODESSER has established a clear personnel policy, including selection and promotion criteria, teachers' salaries are about 50% above municipal schools, and there has been a consistent effort to update teachers' training.

#### **3. *New Educational Programs.***

CODESSER's educational programs aim at delivering a solid general knowledge in humanities and sciences, prepare students to perform in a family of occupations, to be problem solvers, and to continue learning. The schools also emphasize personal growth and the development of responsibility, leadership, and personnel management. The effectiveness of the programs depends on the connection between the curriculum and the work opportunities available. In the case of agricultural schools, CODESSER conducted a thorough field study, surveying more than 1,200 farms from the IV to the XII Regions (more than 2/3 of the national territory). This study was used to determine the needs of technicians by region, and the technical profile required. This data, along with follow up studies to graduates, were the base for new Plans and Programs, which were subsequently presented for the approval of the Ministry of Education. Similar studies directed to industries and agro-industries, were conducted in 1987, to design the curriculum of the industrial schools.

#### **4. *Curriculum Revisions***

After the first and major revision of each school's curriculum, CODESSER conducts periodic surveys of the job profile requirements in the surrounding area of each school. These surveys allow CODESSER to keep track of employment opportunities for graduates, and adjust the vocation-specific component of the curriculum accordingly. CODESSER provides teachers with the training required to implement these curriculum revisions.

#### **5. *Students' Selection***

To be considered for admission, students must have obtained a minimum of grade 5 in each course in levels 7th and 8th. (grades go from 1 to 7, where 7 represents excellence). Students must also present a recommendation letter from their teachers.

#### **6. *Funding***

Schools receive public subsidies but also develop independent means. In 1982, the public subsidy represented the bulk of the school's budget. By 1991, the public sector support represented about 50% of the combined budget of all schools. (One of the sources of funding is found in training provided under SENCE programs – See Box 2).

***Box 2: The mechanics of a voucher system: The case of Chile***

The National Training authority (SENCE) manages a targeted training program in a decentralized way using vouchers. The first step in the process is to identify the population in need. This is very much a demand-driven process where qualified individuals apply for specific training programs. In response to this demand, SENCE calls for bids to select trainers for specific courses. Training institutions (public or private) compete for the opportunity to offer the courses and SENCE selects on the basis of merit.

The selected institutions establish a contract with SENCE and promise to deliver a specific training activity. Each institution invests a fraction of the total cost of the program with SENCE, and this amount would be lost if the activity failed to take place. SENCE has specific requirements in terms records keeping, and compliance with these requirements is key to obtain full reimbursement of the program's cost. One of the key goals of SENCE is that trainees complete the programs and that they find employment. They have to mechanisms to induce training institutions to adapt the same goals. First, training institutions that let trainees drop out before completion are unable to recover the full cost of training. Second, training institutions with a weak placement record of their trainees, are unlikely to obtain new contracts.

Training institutions have the opportunity to define the population of trainees they want to attend and they are encouraged to develop an understanding of this population. They can design the course content that will maximize the chances of success and that would help retain students, and finally, they have the responsibility to distribute the meal and transportation subsidies, which give them another opportunity to affect incentives.

### **Box 3: Effectiveness of Government Training Programs: The importance of Evaluation**

The Employment and Training Administration (ETA) is the agency of the US Department of Labor responsible for government initiatives dealing with training of the workforce and the placement of workers in jobs through employment services. In 2000, ETA was allocated \$ 5.5 billion towards funding of training programs. This represents 16% of the Labor Department's budget, is equivalent to 15% of the Department of Education's budget, and is equal to 1.5 times the budget of the National Science Foundation. Given the significance of the resources involved, there have been a number of evaluations of these programs since the late 1970s. The program evaluations have raised a number of conceptual issues revealing the complexity of the evaluation question. The jury is still out on the implications of these evaluations for the key policy question, namely "What is the most effective way of improving the labor market opportunities of the unemployed poor?" However, the main lesson that this process has taught is that there is a lot to be learned from the experimental approach, and those lessons cannot be learned in the absence of evaluation efforts.

#### **a. Comparing Earnings of Trainees Before and After the Program**

A number of studies estimated program's impact on earnings by comparing earnings of trainees before and after training.<sup>11</sup> Estimates from these studies suggest that, typically, women benefit more than men from training. Women's estimated increase in postprogram annual earnings are in the range of +\$20 to + \$2,200, and men's are in the range -\$1,875 to +\$1,170. Estimates for disadvantaged youth are typically lower than men's and often negative. However these calculations suffer from self-selection bias. The problem is that the measure obtained reflects the impact of the program on workers that choose to be trained, but cannot be extended to a different population.

#### **b. Randomized Experiments. Differences in Differences**

In an effort to reduce or eliminate the self-selection bias, there have been some randomized experiments. In these, potential trainees are assigned randomly to participate in a training program. Lalonde (1986) estimated the impact of the National Supported Work Demonstration (NSW) program. He found that the typical worker who was treated by the program earned \$1,512 annually in the pre-training period and \$7,888 after the training. The \$6,376 gain of the typical trainee has to be compared to the gain experienced by those that received no training. It turns out that the control group experienced a \$4,969 increase in annual earnings. Thus, the estimated impact of the program is the difference in differences or \$1,407 per year. Lalonde's work caused a revolution in program evaluation work, because he used the experimental data to demonstrate the size of biases that can arise using the before and after comparisons. Experimental evaluations have allowed researchers to narrow down some of the results and be more confident with respect to their interpretation. In particular, the evidence points at modest but significant positive impacts of low-cost search assistance on adult women's earnings. Results for disadvantaged youths and adult males are less encouraging. However, this methodology still suffers from selection problems. In particular, (1) only those interested in training are part of the treated or control group cases, (2) the random selection may not work out if some of the chosen candidates fail to show up for training, and (3) some of the individuals in the control group may receive training from other sources.

#### **c. Matching Samples**

The latest methodology developed to estimate the impact of programs (such as training) is non experimental. It consists in a two-stage evaluation methodology that (a) estimates the probability that a person will participate in a program, and (b) uses the estimated probability in extensions of the classical method of matching (see Heckman, Ichimura, and Todd, 1994). The critical condition to obtain good estimates in the absence of random controls is to have a very rich data set to allow construction of non-experimental comparison groups. The proponents of this method argue that "placing non-participants in the same (narrowly defined local) labor market as participants, administering both the same questionnaire, and weighting their observed characteristics in the same way as that of participants, produces estimates of program impacts that are fairly close to those produced from an experimental evaluation." (pp 646)

#### **Application: The Case of Gain in California**

As a result of recent reforms of the welfare programs, many states have refocused their Welfare-to-Work programs from an emphasis on human capital acquisition to an emphasis on "work-first," moving welfare recipients into unsubsidized employment as quickly as possible. The willingness of policy makers to make this policy change was highly influenced by results from the experimental evaluation of California's Greater Avenues to Independence (GAIN) programs conducted by the Manpower Demonstration Research Corporation. The evaluation found that, compared to programs in other counties that emphasized skill accumulation, the work-first program in Riverside County had larger effects on employment, earnings, and welfare receipt. In addition, the Riverside program was cheaper per recipient than the other programs (see for example, Friedlander, Greenberg, and Robins, 1997).

## Conclusions

There are four generalized trends observed in Latin American labor markets in the 1990s: (1) slow growth in GDP per capita; (2) high rates of unemployment; (3) rising wage differentials associated to tertiary education; and (4) declining wage differentials associated to gender and increased female labor force participation. The changes observed in Latin America are consistent with worldwide evidence on the effects of an increase in the relative demand for *skilled* labor. The appearance of widespread unemployment in Europe, Canada, and Australia on the one hand, and of many poor quality jobs as well as unemployment in the United States on the other, have thus both stemmed from the same root cause: the failure to adapt satisfactorily to change. Management skills, education and training attainments have failed to keep pace with the requirements of a more technologically advanced economy.

If one takes the view that the changes observed in labor use in the US in the 1980s and 1990s are manifestations of a worldwide phenomenon, given the extent of markets globalization, the adoption of computer technology in some areas/countries leads to rapidly evolving sources of comparative advantage, with effects in all countries. These changes present great opportunities in terms of productivity increases and at the same time challenge individuals and organizations to adapt. Policy makers must lead the population to be less resistant to change and seize any opportunities to learn new tasks. Education can play a key role to the extent that it makes individuals more adaptable; more capable of being reallocated to different jobs; more prone to be retrained; and or to be lifelong learners. But the education systems also are challenged to develop individuals' analytical and communication skills in favor of memorization and repetition.

Perhaps is important to keep in mind that education and training are investments that generate clear benefits for those that receive them. Yet, there are large portions of the LAC youth that do not have the means to finance their schooling, and targeting of public sector resources towards this population can lead to broader coverage of the education system as a whole. The task ahead is of great magnitude and the policy response has to keep sight of the limited resources. Formulas the leverage public sector funds with private sector efforts in education are particularly appropriate, and formulas

that use public sector funds to provide training for low-income workers to make them gain employment are of the essence.

Throughout the world, the private sector is playing a growing role in education and training production. It is generally better for the private sector to produce training because industry's demand is rapidly changing, and trainees have needs that vary according to their interests, preferences, and expectations. The private sector can adapt to these changes more easily than the public sector. If the public sector is the dominant producer of training services, the linkage with the labor market is likely to be weak.

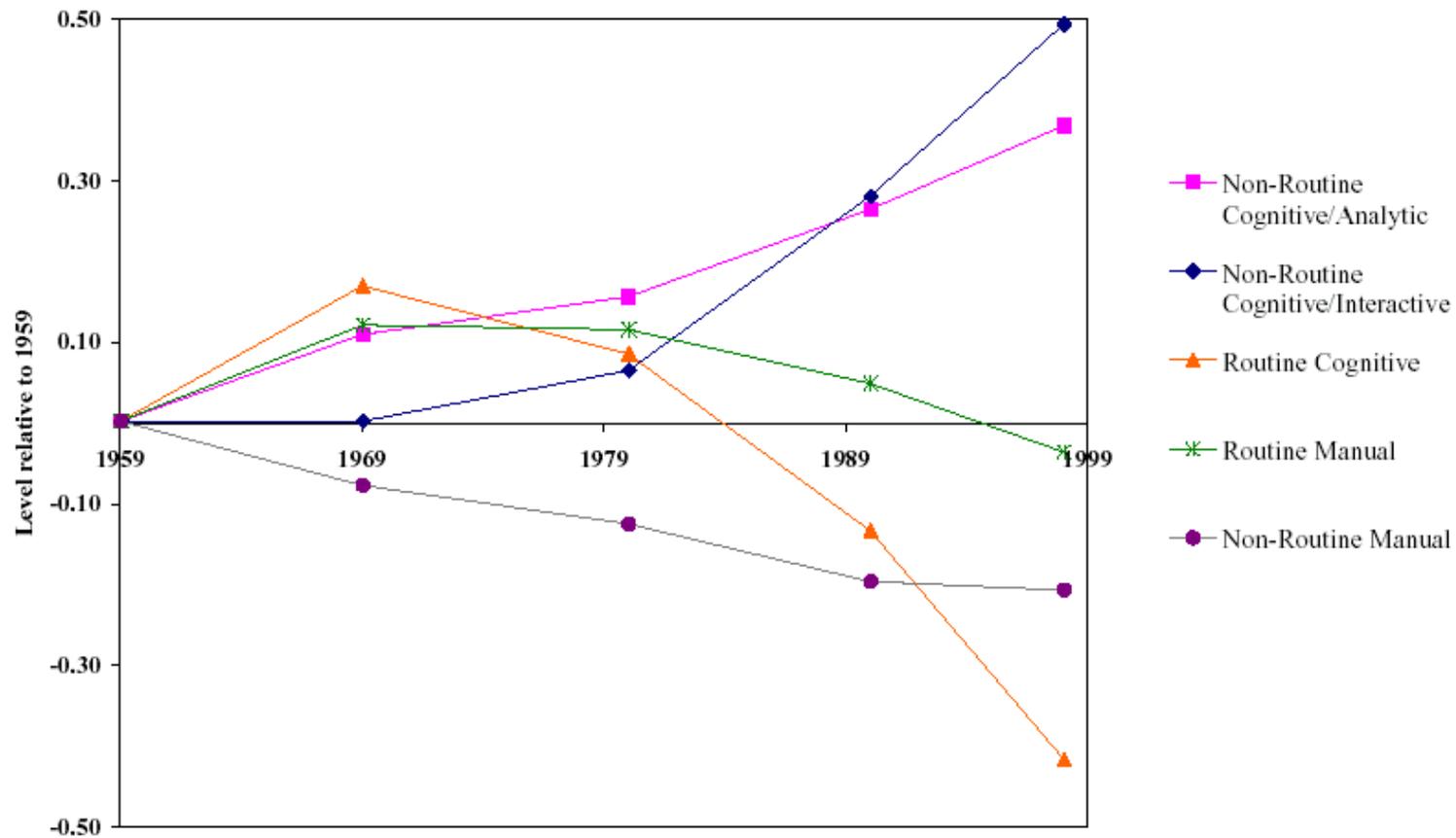
There are interesting experiences throughout the region that offer lessons on both the benefits and shortcomings of delegating the delivery of training and or schooling to privately run institutions. Delegation of authority naturally leads to data collection (on attendance, retention in grade, etc). Data analysis becomes a significant component of research on education, something that is urgently needed under the current circumstances. Another advantage of the delegation model is that the Ministry of Education can become a more objective evaluator of programs and methods, and can disseminate good practices.

Evidence presented in this paper suggests that the student-worker in the post-secondary system is rare in the LAC region. In contrast, in the United States, the fraction of students above 16 that work part-time rises with from about 20% at age 16 to close to 50% between ages 20 and 22. The opportunity to work for US students contributes to a higher school attainment overall. We know that labor regulations that grant job security have the unintended effect of restricting access to jobs (or part-time jobs) among youth. This is a challenge that education authorities must take up to the labor authorities in every country.

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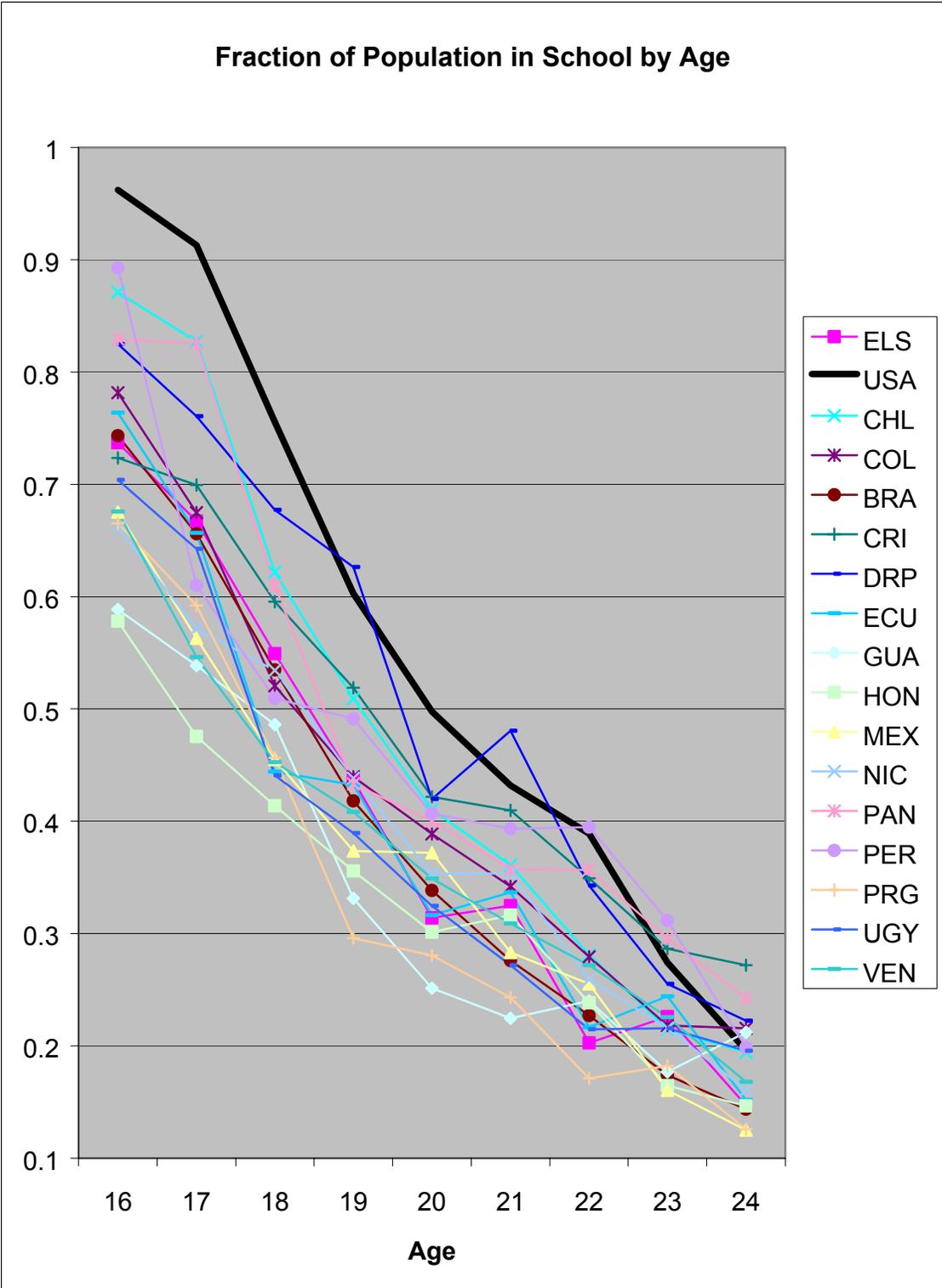
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Figure 1. Economy-Wide Measures of Routine and Non-Routine Task Input:  
1959 - 1998 (1959 = 0)

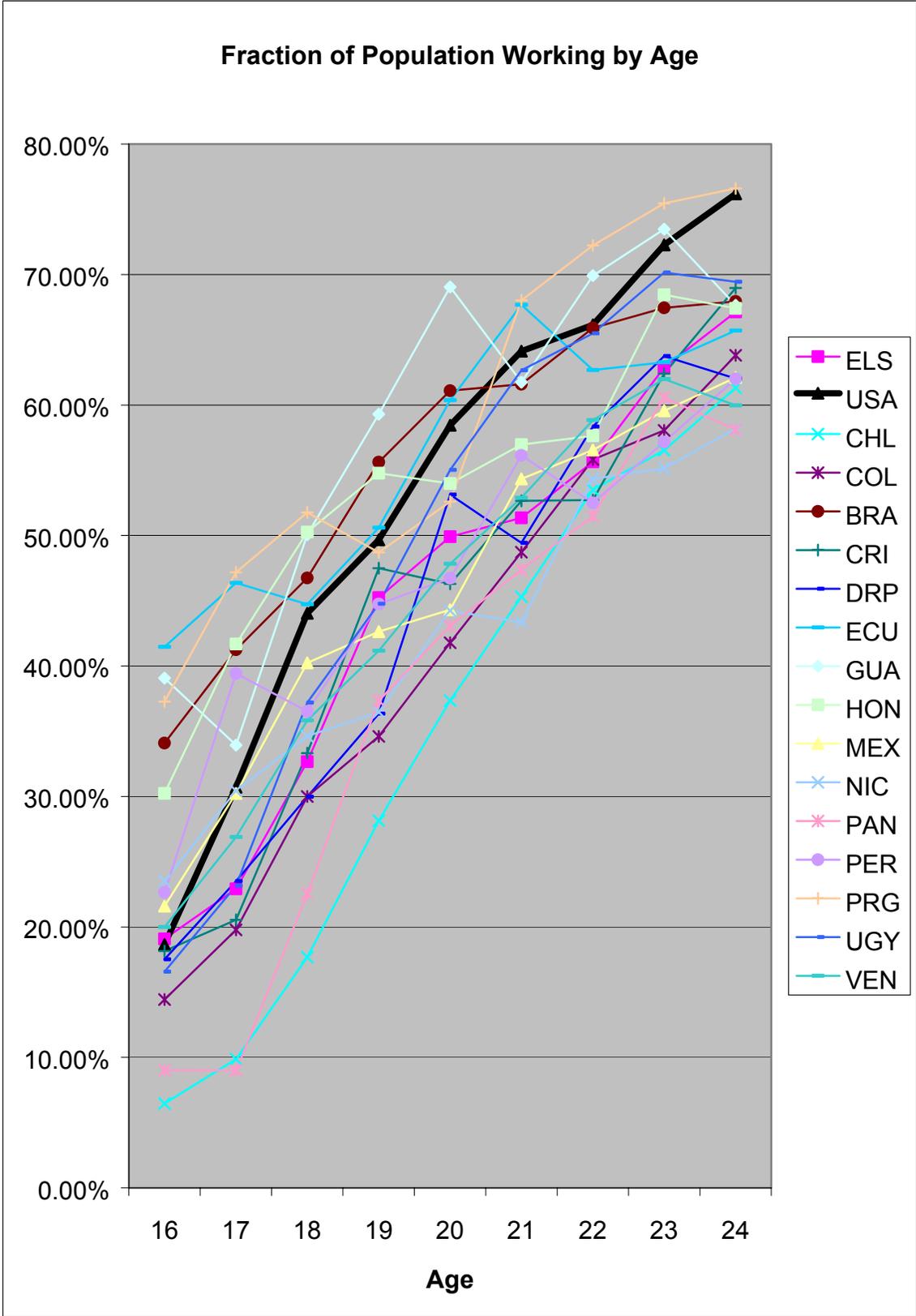


Source: Autor, Levy and Murnane (2001)

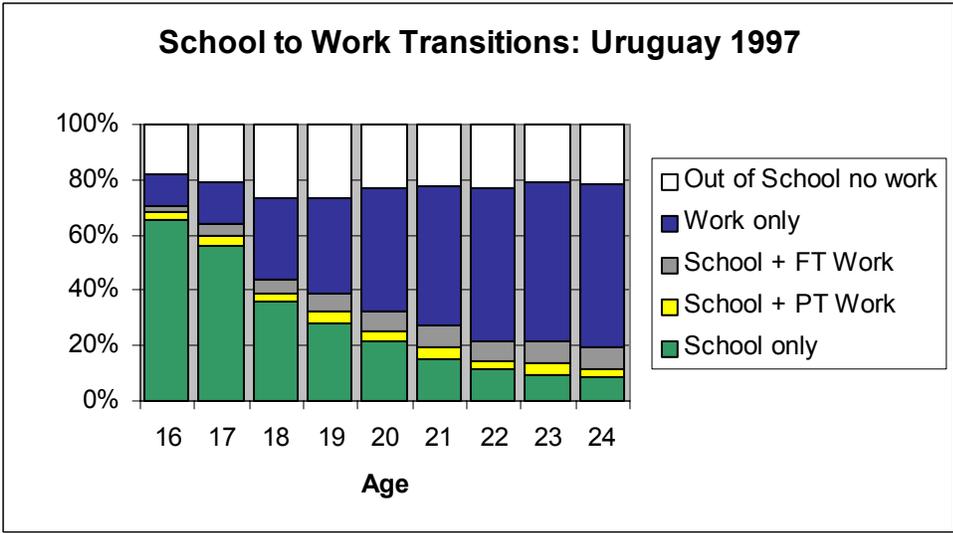
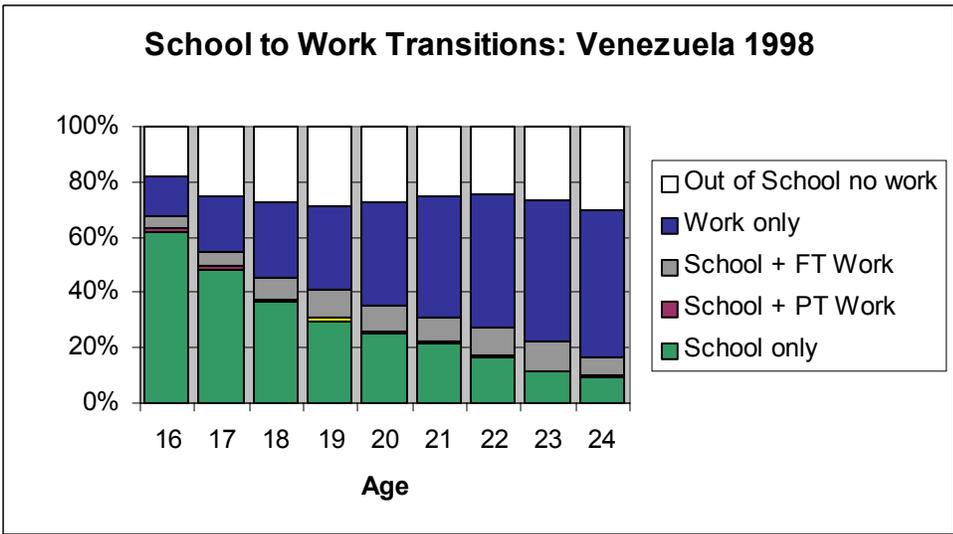
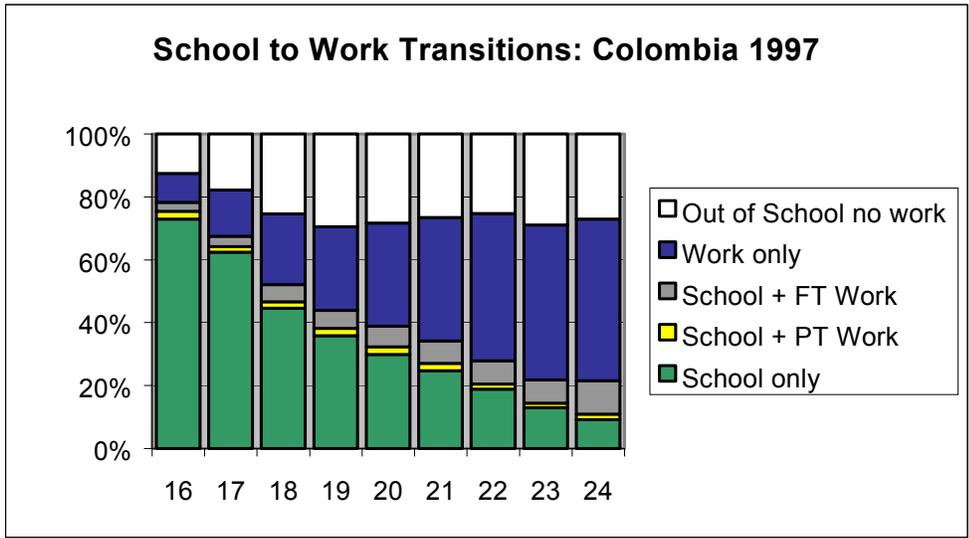
Figure 2



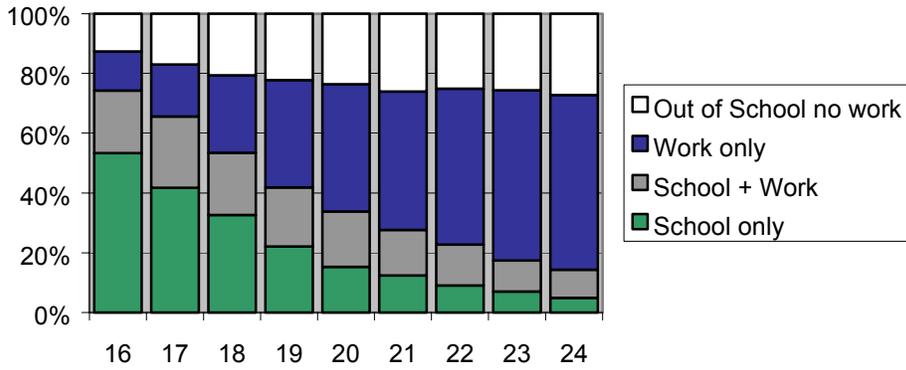
**Figure 3**



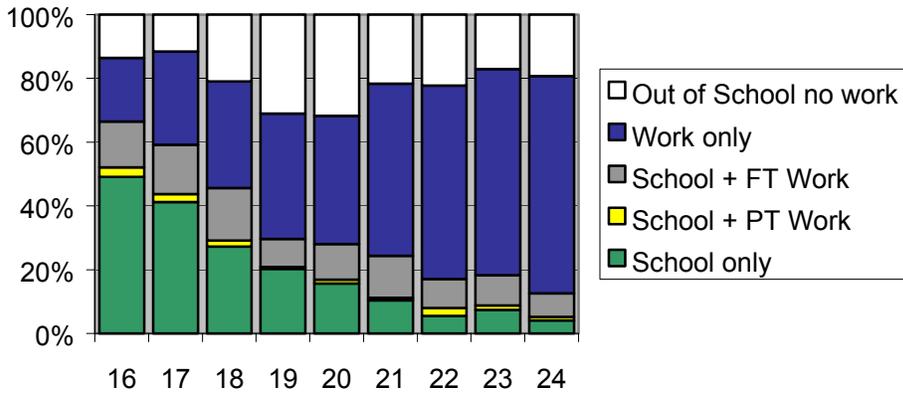
**Figure 4: School to work transitions in LAC and the US**



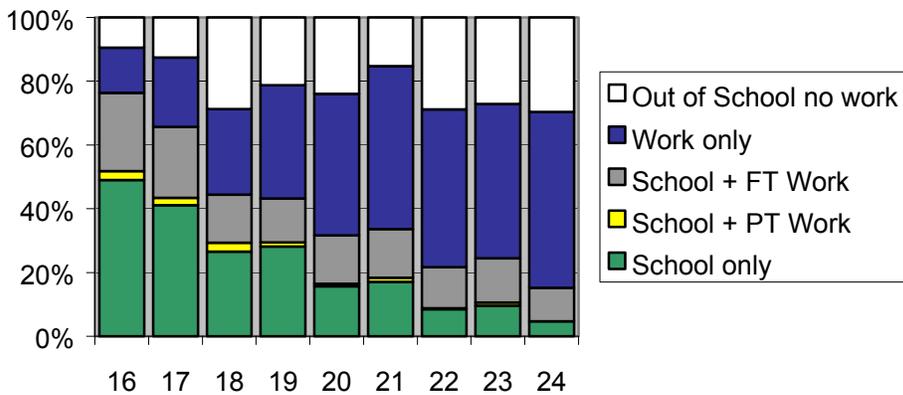
### School to Work Transitions: Brazil 1996



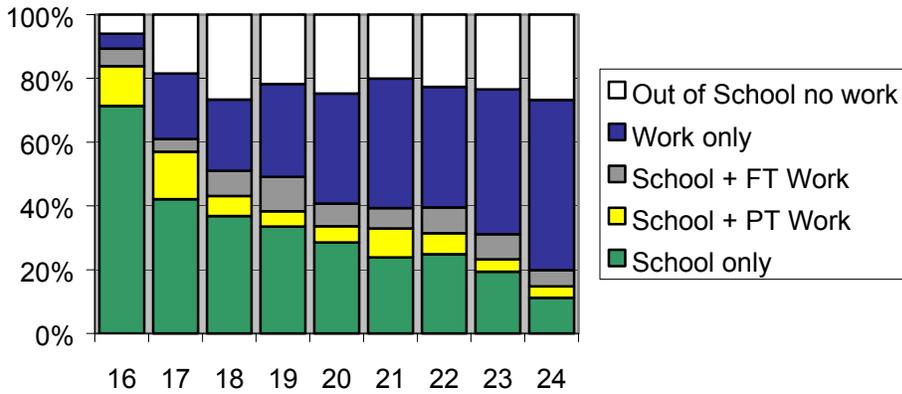
### School to Work Transitions: Paraguay 1998



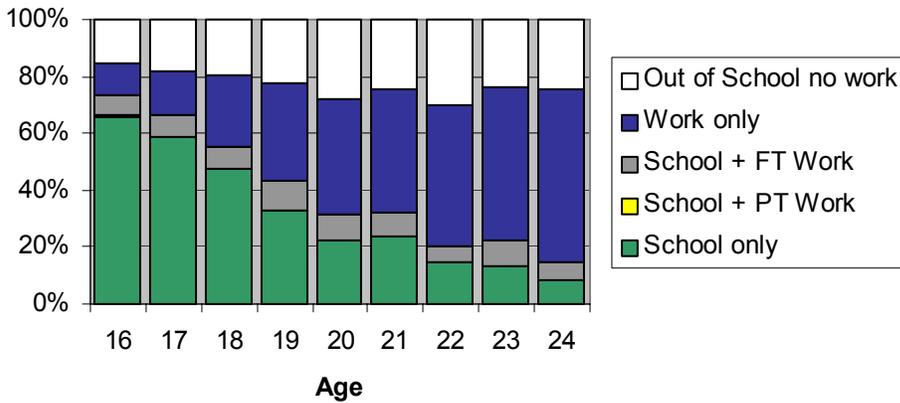
### School to Work Transitions: Ecuador 1998



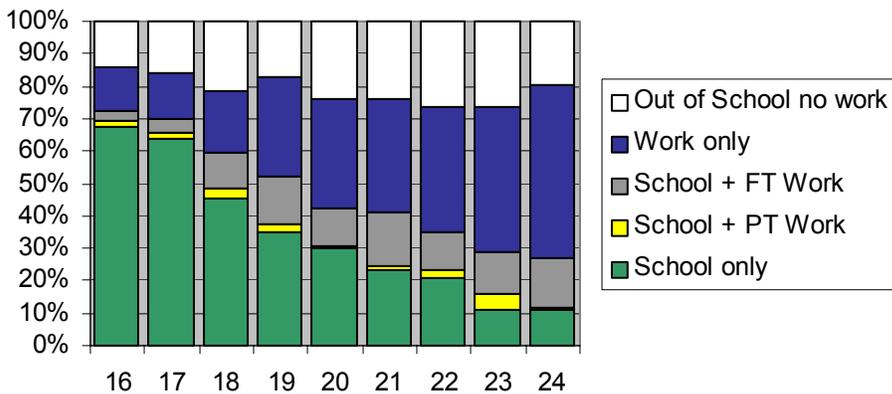
### School to Work Transitions: Peru 1997



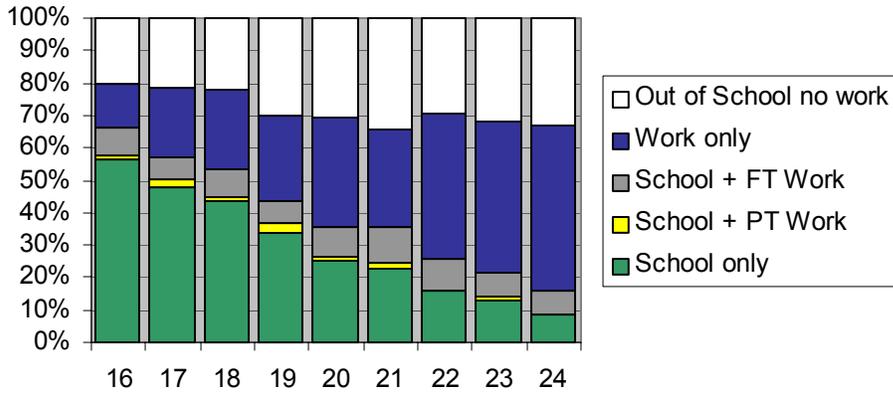
### School to Work Transitions: El Salvador 1998



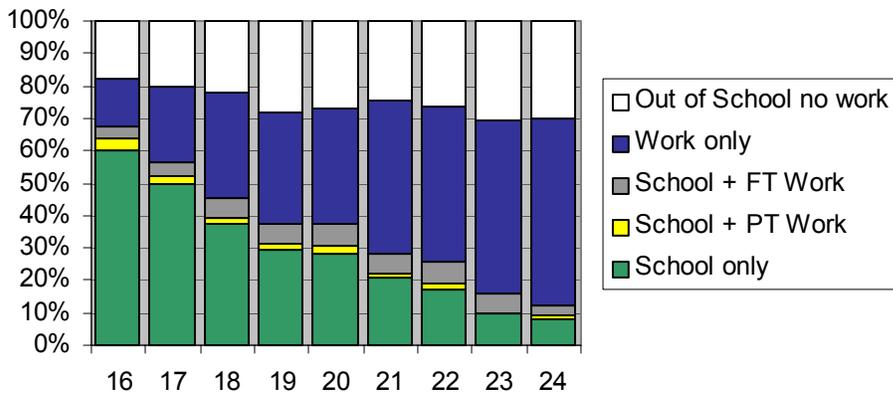
### School to Work Transitions: Costa Rica 1997



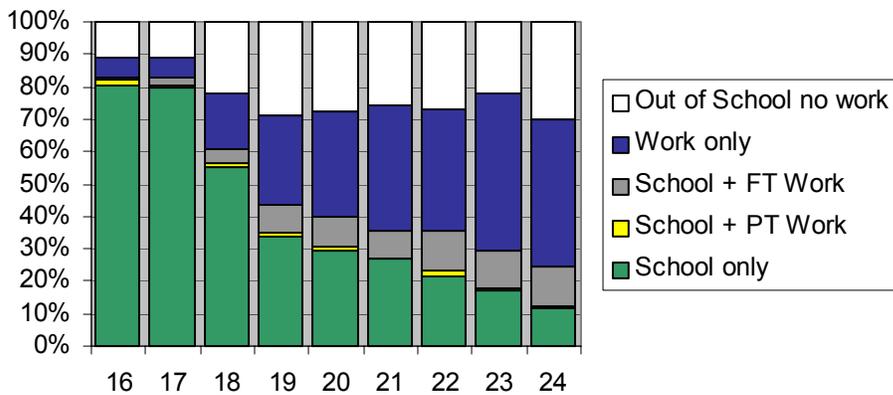
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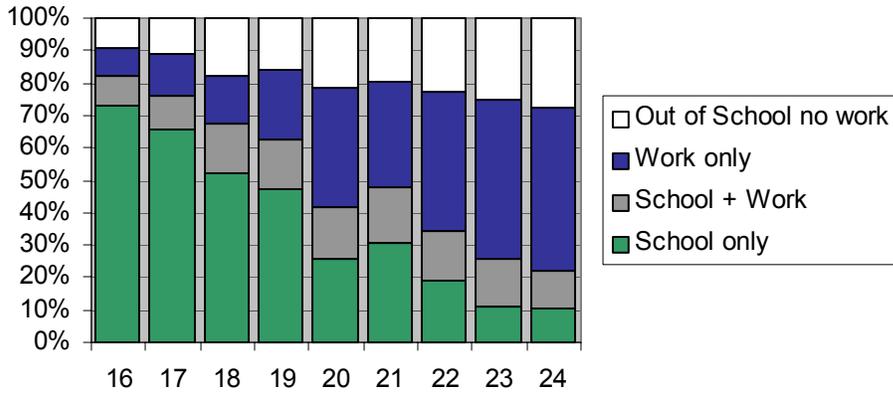
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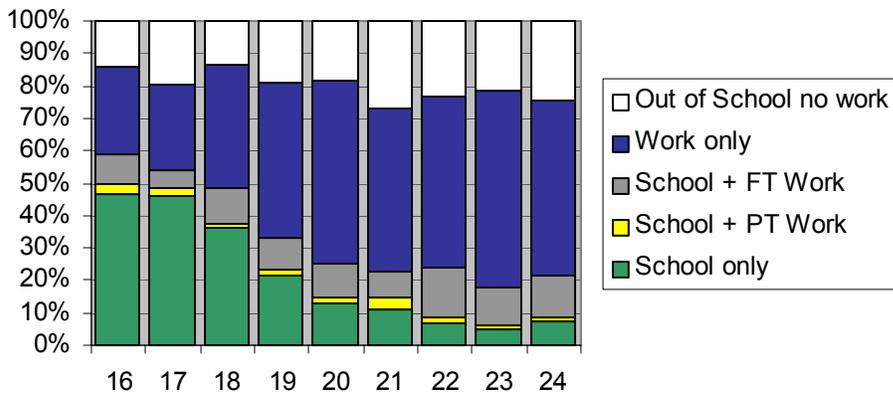
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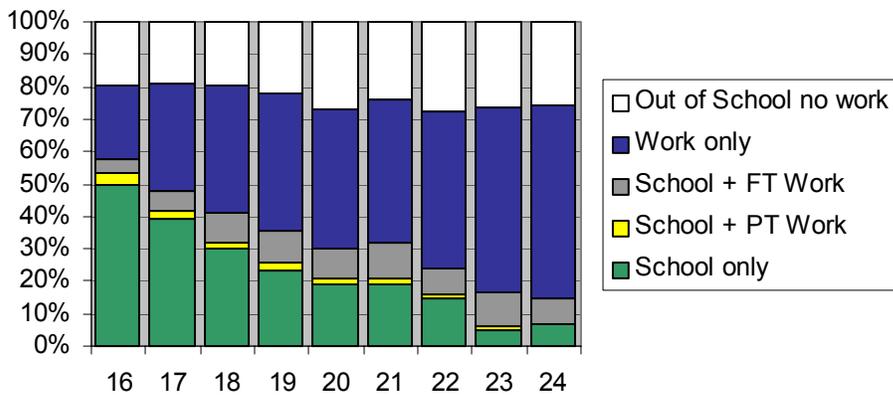
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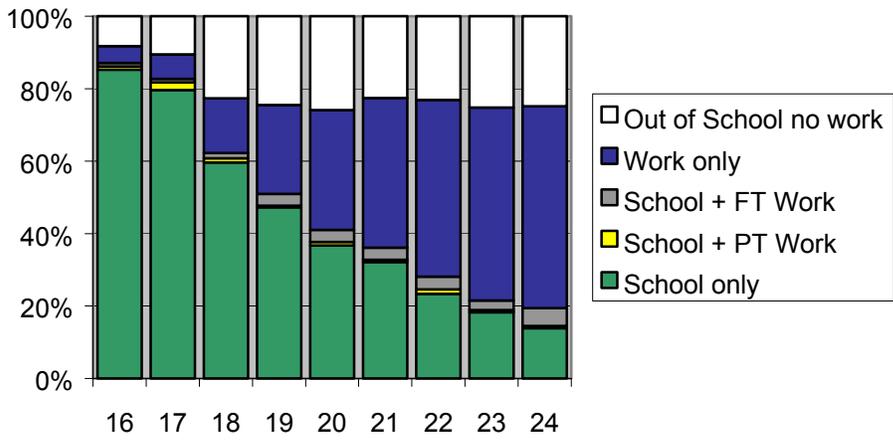
### School to Work Transitions: Guatemala 1998



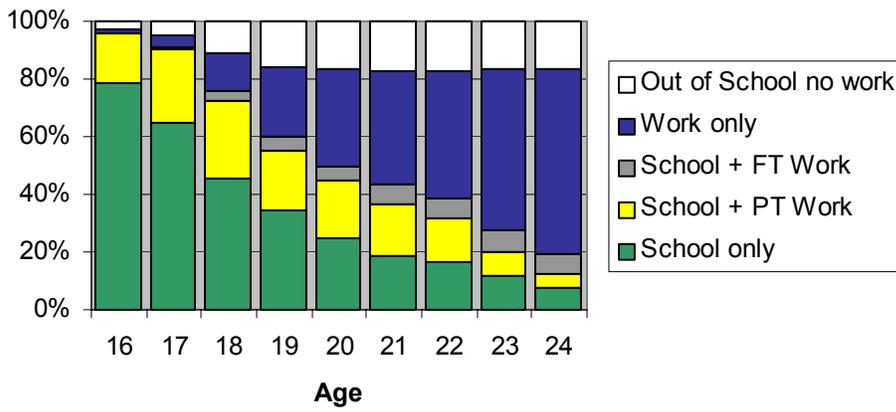
### School to Work Transitions: Honduras 1998



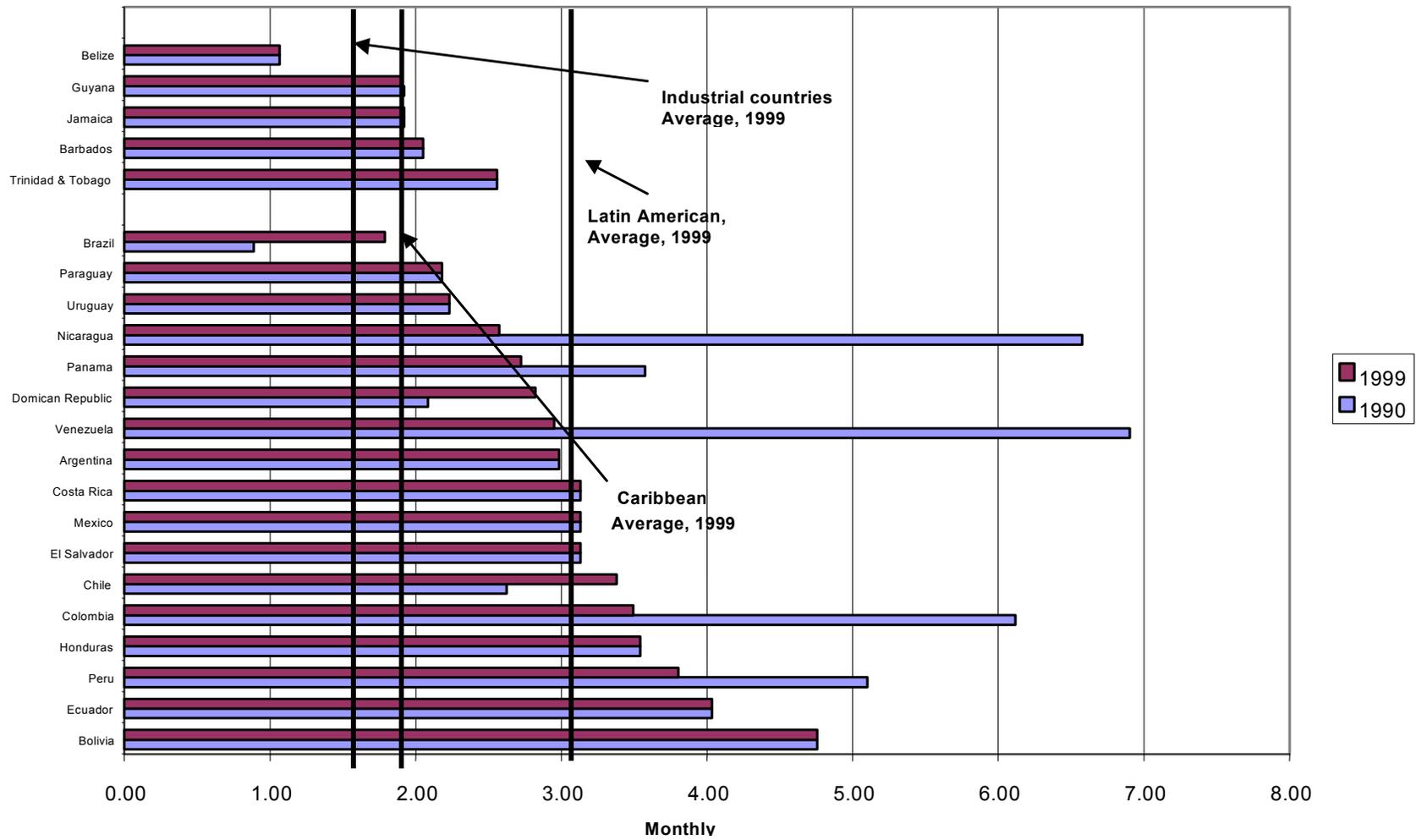
**School to Work Transitions: Chile 1996**



**School to Work Transitions: USA 2002**



**Graph1: Job Security Index**  
 (Expected discounted cost of dismissing a worker, in multiples of monthly wages)



**Figure 5**

Source: Heckman, James and Carmen Pages (2000)

**Table 1: Average GDP pc grew by a third of a point per year between 1980 and 2002**

Country	1980-2002	1990-2002
ARG	0.00%	0.00%
BLZ	2.57%	1.28%
BRA	0.00%	0.00%
BRB	1.83%	
CHL	3.19%	3.97%
COL	0.00%	0.00%
CRI	3.69%	4.05%
DOM	0.00%	0.00%**
ECU	-1.86%	0.00%
GTM	0.00%	3.96%
GUY	0.00%*	
HND	-2.40%	2.39%
HTI	0.00%	0.00%
JAM	2.30%	4.07%
MEX	1.85%	3.31%
NIC		0.00%
PAN	0.00%	1.71%
PER	0.00%	0.00%
PRY	-3.18%	-3.28%
SLV	2.52%	6.02%
SUR	0.00%	
TTO	-3.00%	2.85%
URY	2.41%	0.00%
VEN	-2.24%	4.69%
<b>AVERAGE</b>	<b>0.33%</b>	<b>1.67%</b>

\* data up to 1997

\*\* growth between 1900 and 2002 is estimated at 6% per year. However the fall in the currency relative to the US dollar during 2003 drops the growth rate to zero.

Note: Estimates are based on GDPpc figures from IMF data, in dollars, and deflated by the US GDP deflator (Chain Index). Growth rates were estimated by fitting a regression to the log of real GDP per capita. If coefficients were non significantly different from zero, we report a best estimate of zero.

**Table 2: Total Factor Productivity Growth in Selected Latin America Countries During the 1980s and 1990s**

Country	Estimated TFP Growth (%) 1980-1990	Estimated TFP Growth (%) 1990-2000
ARG	-2.4	1.1
BRA	-1.5	0.7
CHL	1.0	2.0
COL	0	-1.6
ECU	-1.3	-0.6
MEX	-2.4	-1.5
PAN	-2.9	-1.1
PERU	-3.3	3.9
REGION'S MEAN	-1.6	0.4
MEDIAN	-2.0	0.1

Source: Goldman-Sachs for the period 1980-1997; Edwards, 2001 for 1998-2000.

**Table 3 Latin America – Rate of Unemployment in Urban Areas 1990 - 2002**

Country		1985	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
Argentina	a/	6.1	7.5	6.5	7	9.6	11.5	17.5	17.3	14.9	12.9	14.3	15.1	17.4	21.5	m/
Bolivia	a/	5.7	7.2	5.9	5.5	5.9	3.1	3.6	4	4.3	4.1	7.2	7.5	8.5	...	
Brasil	b/	5.3	4.3	4.8	4.9	5.4	5.1	4.6	5.4	5.7	7.6	7.6	7.1	6.2	7.3	n/
Chile	c/	17	7.4	7.1	6.2	6.4	7.8	6.6	5.4	5.3	6.4	9.8	9.2	9.1	9.3	n/
Colombia	d/	13.8	10.5	10.2	10.2	8.6	8.9	8.8	11.2	12.4	15.2	19.4	20.2	16.9	16.8	n/
Costa Rica	a/	7.2	5.4	6.0	4.3	4.0	4.3	5.2	6.2	5.7	5.6	6.0	5.2	6.1	6.8	n/
Ecuador	a/	10.4	6.1	8.5	8.9	8.9	7.8	7.7	10.4	9.3	7.0	10.9	9.7	7.9	6.3	n/
El Salvador	a/ ...		10	7.5	6.8...		7.0	7.0	5.8	7.5	7.6	6.9	6.5	7.0	6.2	n/
Honduras	a/	11.7	6.9	7.1	5.1	5.6	4.0	6.6	6.6	5.2	5.8	5.2	...	6.3	...	
México	e/	4.4	2.8	2.7	2.8	3.4	3.7	6.2	5.5	3.7	3.2	2.5	2.2	2.4	2.8	n/
Nicaragua	a/	3.2	7.6...		14.4	17.8	17.1	16.9	16.0	14.3	13.2	10.7	9.8	11.3	...	
Panamá	f/	15.7	20.0	20.0	18.2	15.6	15.8	16.4	16.9	15.4	15.6	13.6	15.3	17.0	16.1	n/
Paraguay	g/	5.1	6.6	5.1	5.3	5.1	4.4	5.3	8.2	7.1	6.6	9.4	10.0	7.6	...	
Perú	h/	10.1	8.3	5.9	9.4	9.9	8.8	7.9	7.9	8.4	8.2	8.3	7.0	9.2	9.7	n/
Rep Dom	i/ ...	...	...	19.6	20.3	19.9	16.0	15.8	16.5	15.9	14.3	13.8	13.9	16.4	...	
Uruguay		13.1	9.2	8.9	9.0	8.4	9.2	10.8	12.3	11.6	10.2	11.8	13.6	15.3	16.5	n/
Venezuela	a/	14.3	11.0	10.1	8.1	6.8	8.9	10.3	11.8	11.4	11.3	14.9	13.9	13.5	15.8	o/
Latin America	j/	9.5	8.1	8.5	8.6	8.8	8.5	9.2	9.8	9.3	9.1	10.1	10.4	10.5	11.3	
	k/	8.3	5.7	5.6	5.7	6.3	6.6	7.4	7.9	7.5	8.1	8.9	8.5	8.3	9.2	
Caribbean Region l/																
Barbados		18.7	15	17.3	23	24.3	21.9	19.7	15.6	14.5	12.3	10.4	9.2	9.9	...	
Jamaica		25.0	15.3	15.7	15.4	16.3	15.4	16.2	16.0	16.5	15.5	15.7	15.5	15.0	...	p/
Trinidad		15.7	20.0	18.5	19.6	19.8	18.4	17.2	16.2	15.0	14.2	13.1	12.1	10.8	...	n/

Source: ILO Panorama Laboral 2002

a/ Urban b/ Six metropolitan areas c/ National d/ Seven metropolitan areas (1995-99) and 13 from 2000. e/ National until 1998, 3 metropolitan regions from 1999. f/ 39 urban areas g/ Asuncion h/ Lima until 1995. National afterwards i/ Includes hidden unemployment j/ Simple average k/ Weighted average l/ Not included in the average because of difference in methodology m/ average first quarter n/ average first three quarters o/ average jan-aug.

**Table 4: Latin America: Rate of Youth Unemployment – Urban Areas 1990 - 2002 (annual average)**

Country	Age Group	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Latin America														
Argentina a/	15-19	21.7	16.3	16.4	26.8	32.3	46.6	44.3	39.7	35	35.9	39.5	37.6	46.1 n/
	15-24	15.2	12.3	13	...	21.2	30.1	31.1	27.2	24.4	26.4	...	...	...
Bolivia b/	15 - 19	13.3	13.1	8.3	8.6	4.9	5	7	...	...	...	...	...	...
	20-29	9.5	7.3	7	8.2	4.5	5.4	...	...	...	...	...	...	...
Brazil c/	15-17	...	11.6	14.4	12.2	11.9	11	13	14.3	18.8	17.8	17.8	14.8	17.0 n/
	18-24	...	9.1	11.2	10.3	9.6	9.3	10.5	11.4	14	14.5	14.7	12.5	14.7 n/
Chile d/	15-19	15.9	13.7	12.6	13	16.8	15.8	15	19.9	20.8	27.6	26.1	29.0	28.1 o/
	20-24	12	12.4	10.3	10.2	11.9	10.1	12.2	13.6	15.1	19.8	20.1	18.9	20.7 o/
Colombia e/	12-17	...	23.8	20.7	18.4	19.1	21.0	31.8	29.1	33.3	42.2	44.7	35.6	31.8 p/
	18-24	...	18.4	18.0	15.7	14.5	16.6	22.0	23.7	29.2	36.3	34.8	33.1	33.4 p/
Costa Rica f/	12-24	10.4	14.1	9.3	10.2	9.8	13.5	13.9	13.1	12.8	14.9	10.9	14.0	13.8 o/
Ecuador f/	15-24	13.5	18.5	17.3	15.7	14.9	15.3	20	19.4	22.6	...	17.4	14.8	
El Salvador f/	15-24	18.6	14.6	14.3	14.4	13.5	13.3	13.1	14.6	15	13.9	14.3	13.2	
Honduras f/	10-24	10.7	12.3	6.6	9.7	6.7	10.2	9.7	8.7	10	0	10	...	...
	12-19	7	5	6.9	7.3	8.3	13.1	11.5	8.4	7	5.7	5.4	5.6	6.7 o/
Mexico g/	20-24	...	...	4.4	5.7	6	9.9	8.8	6.5	5.9	4.5	4.1	4.6	5.2 o/
	15-24	...	38.8	37	31.6	31.1	31.9	34.8	31.5	31.7	29.5	32.6	35.9	
Paraguay l/	15-19	18.4	9	14.1	9.8	12.3	10.8	29.1	13.7	...	21.2	...	15.3	
	20-24	14.1	9.5	7.3	8.8	5.5	7.8	12.6	12.7	...	13.4	...	12.3	
Peru j/	14-24	15.4	11.2	15.8	16.1	13.7	11.2	14.9	14.5	14.1	15.7	17.1	14.6	15.1 o/
Uruguay k/	14-24	26.6	25	24.4	23.3	25.5	25.5	28	26.8	26.1	27.1	31.7	36.2	38.4 o/
Venezuela l/	15-24	18	15.8	13.4	13	15.9	19.9	25.4	23.1	21.9	26.6	25.3	23.2	26.4 q/
Caribbean Region m/														
Barbados	15-24	...	33.8	36.4	43.2	41.7	37.8	27.5	28.9	27.4	21.8	18.5	23.6	
Jamaica	15-24	30.7	29.2	28.3	29.5	28.9	34.1	34.4	34.2	33.3	34	32.1	33.0	
Trinidad	15-24	36.4	34.2	34.8	38.9	39.9	31	28.5	35.3	25.8	23.7	23.2	22.6	

Source ILO. Panorama Laboral 2002

a/ Metropolitan Buenos Aires b/ Urban National 1996 (15 – 25) c/ Six metropolitan areas. 2001 First semester only d/ National e/ Seven metro areas September of each year f/ Urban National g/ 41 urban areas h/ Metro Region i/ Asuncion j/ Lima. Since 1996 urban areas k/ Montevideo l/ National Urban m/ Not included in the average because of difference in methodology n/ Average first semester o/ Average first three trimesters p/ Average first trimesters q/ Average Jan-May

**Table 5: Schooling in Latin America and The Caribbean**

Country	Average years of schooling by birth cohort					Change 1930-1950	Change 1950-1970	Change 1930-1970
	Year of Birth							
	1930	1940	1950	1960	1970			
Honduras	1.4	3.2	4.6	5.6	6.1	3.2	1.4	4.7
Nicaragua	2.0	3.2	4.3	5.8	5.8	2.2	1.6	3.8
El Salvador	2.1	3.2	4.1	5.7	7.0	2.0	2.9	4.9
Brazil	2.8	3.6	5.2	6.2	6.7	2.4	1.5	3.9
Mexico	2.9	4.2	6.7	8.2	9.3	3.8	2.6	6.4
Dominican Republic	3.2	4.2	7.0	8.6	9.1	3.9	2.1	5.9
Venezuela	3.2	5.1	6.9	7.9	8.3	3.7	1.4	5.1
Bolivia	3.3	4.5	6.3	7.0	8.6	2.9	2.3	5.2
Paraguay	3.8	5.1	6.1	7.4	7.3	2.3	1.2	3.5
Ecuador	3.9	4.5	6.5	8.5	9.5	2.6	3.0	5.6
Colombia	3.9	4.4	6.2	7.7	8.4	2.3	2.2	4.4
Costa Rica	4.3	5.7	7.1	8.8	8.4	2.8	1.3	4.1
Chile	5.2	7.1	8.9	10.1	11.1	3.7	2.1	5.8
Panama	5.8	6.9	8.8	10.3	10.1	3.1	1.3	4.4
Peru	6.0	6.3	7.4	9.4	10.0	1.4	2.6	4.0
Uruguay*	6.3	7.4	8.8	10.0	10.7	2.5	1.9	4.4
Jamaica	6.9	7.9	8.3	9.6	10.6	1.4	2.3	3.7
Argentina*	7.5	8.3	10.0	11.0	11.3	2.5	1.3	3.8
Average LAC	4.1	5.3	6.9	8.2	8.8	2.7	1.9	4.6
Korea	5.3	7.7	9.5	11.0	12.0	4.3	2.5	6.8
Taiwan	5.8	5.8	8.9	11.0	12.3	3.2	3.3	6.5
USA	12.3	12.9	13.6	13.3	13.4	1.3	-0.2	1.1

Source: Berhman, J. S. Durvyea and M. Szekely (1999)