Social dimensions of economic development and productivity: inequality and social performance

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Abstract

Stable, sustainable economic development cannot be achieved unless and until social development also takes place. Consequently, the social dimensions of economic development and productivity are as important as the economic dimensions. In Latin America, inequality is the social dimension of utmost concern. Income and social inequality in Latin America and the Caribbean is the highest in the world, and the performance of the social sector is inadequate. These conditions are severely hampering economic growth and individual prosperity. More attention and investment is needed to reduce inequality and improve social performance.

Part of this process of change is the improvement of social measurement and international statistical standards in the social areas. International development agencies are working to measure and analyse social dimensions of economic development and productivity with more frequency and precision, and these efforts are helping to better define social progress. In education, a large disparity in educational achievement exists among and within countries, which is borne out by the international analysis published annually in *Education at a Glance: OECD Indicators*. Culture also plays an important role in the development equation. The cultural indicators compiled by the United Nations Educational, Scientific and Cultural Organization (UNESCO) for the first *World Culture Report* suggest that cultural statistics as currently collected are primarily based on the market place and consequently exclude poor people.

ECLAC/CELADE analysis shows that the implications of the recent demographic trends in Latin America and the Caribbean and the continuing social equity concerns arising from the demographic and epidemiological transition have relevance for health conditions and the effects of population characteristics on national and regional development. The relation between economic growth on the one hand and income inequality and poverty on the other is borne out by ECLAC analysis from household surveys in a number of countries in the region. While economic growth reduces absolute poverty, it does not reduce income inequality. For solid social analysis to take place, a flow of reliable social data are needed. World Bank research has led to a new instrument to improve poverty monitoring and make it more affordable and timely.

I. Social dimensions of economic development and productivity: inequality and social performance. An overview

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A. Introduction

The genesis of this publication was the decision of the international statistical community to hold a global conference on Statistics for Economic and Social Development, and to ask a Latin American country to host it. Mexico's National Institute of Statistics, Geography and Informatics (INEGI), hosted the meeting, which was co-sponsored by the International Association of Survey Statisticians (IASS) and the International Association for Official Statistics (IAOS). In September 1998, over 300 distinguished statisticians representing about 70 countries attended the international conference held in Aguascalientes, Mexico. Dr. Carlos Jarque, President of INEGI, opened the Conference.

I was asked by the Chairman of the Scientific Programme to prepare one of the Invited Paper Meetings. As a staff member of the Economic Commission for Latin America and the Caribbean (ECLAC) and a person living and working in the region, I wanted to focus on some important regional issues, within an international

context. Latin America has the world's highest degree of inequality of its citizens. At the same time, the region has experienced strong economic growth and major social reforms in the 1990s, coupled with important demographic shifts.

A second motivation was to feature work in progress by ECLAC staff on these themes. Susana Schkolnik's paper on "Demographic Trends and Social Equity: Challenges for the Health Sector" arises from ongoing work on the impact of the epidemiological transition. "Growth, Poverty and Income Distribution in Latin America in the 1990s: An Uncertain Relationship" by Juan Carlos Feres and Fernando Medina draws on ECLAC household surveys for countries in the region and the *Social Panorama of Latin America*.

A third motivation was an interest to present current work by international organizations engaged in measuring and characterizing aspects of inequality and social performance as they affect economic growth and productivity. "Measuring Educational Performance and Disparities in Educational Outcomes in an International Comparative Context" by Georges Lemaitre and Andreas Schleicher analyses social performance in the education sectors of countries that are members of the Organization for Economic Cooperation and Development (OECD), using the programme Indicators of Education Systems (INES) compiled through the INES Technical Group consultative process. Leo Goldstone's paper on "Cultural Statistics and Poverty" is based on the international set of cultural indicators compiled for the first World Culture Report of the United Nations Educational, Scientific and Cultural Organization (UNESCO). Timothy Marchant's paper on "The Challenge of Finding Robust Poverty Indicators for Rapid Monitoring of Changes", representing World Bank research in 150 countries, addresses the need for appropriate, feasible and cost-effective tools for the rapid, frequent and up-to-date measurement of poverty and for its monitoring, suggesting that a national poverty monitoring system has to draw on a range of sources and tools.

B.   The development challenge

The real development challenge today and in the new millennium is the transition that countries must make in their social structures and human capital to achieve sustainable development. Policy makers and researchers have long recognized that economic development cannot happen without social change. For the most part, however, attention has continued to centre on the macroeconomic levers of development. The solutions have been top-down decisions and actions such as modifications in exchange rates, adjustment of interest rates, monetary policy, inflation management and openness in markets. It was thought that economic growth would trickle down to those at the bottom end of the scale and thus bring about social change. However, we have known all along that these economic solutions in themselves are not enough and that productivity and social development depend as much on changing human factors as on economic policy.

Research on the social side has largely focused on what to do about poverty and how to compensate the poor. Social ministries have been given the unenviable task of allocating social funds and targeting anti-poverty programmes with the aim of helping the needy. This is not to say that compensatory programmes are not important and not needed, but they are not a substitute for policies and programmes that make fundamental structural changes in society which give people greater access to opportunities to better themselves through their own efforts.

A pro-active, positive approach to social development aims for fundamental change in the underlying factors that determine social health and, in turn, economic development. Instead of incorporating a top-down approach, it is bottom up in its perspective, putting a human face on the determinants of social and economic development and the opportunities for their transition.

C. The situation in Latin America and the Caribbean

In Latin America and the Caribbean, two key factors have greatly impeded the speed and potential for economic growth and development: inequity in the distribution of income and wealth and in the access to social development; and high rates of poverty. This inequality was an initial historical condition that has been self-perpetuating and, as a consequence, it is harder to change. Wealth in Latin America, unlike that of North America, Australia and New Zealand, for example, belonged to a select few who then depended on others to make it productive. Ramos shows that the reasons behind today's income concentration stretch back to the birth of the region, with its initial condition of a highly concentrated distribution of income and an equally concentrated and cheap labour supply (Ramos, 1996).

Effective, efficient, and equitable social performance of governments and societies is a necessary public policy ingredient for making a fundamental transition in the structure of society. Social performance in education, and health and social security has to be made sufficient and sustainable over the long term in order for countries to prepare their citizens for today and for the future. In the 1990s, the countries of Latin America and the Caribbean came to realize that the problems of structural inequities and poverty could only be solved through basic, long- lasting reforms in education, health and social security. Major reform programmes are now underway. Measuring the social performance of these sectors is and will continue to be important, because they are fundamental factors in human capital formation and its performance.

In order to help place the processes of social development, social performance and social change on an equal footing with economic development, economic performance and economic change, investments and policy priorities are needed. Measuring social performance to the same extent as economic performance is necessary in order to understand the social situation and how it is evolving. The purpose of this publication is to examine the key social dimensions of economic development and productivity, including social performance, equity and poverty, and to discuss their measurement.

In 1997, Latin America overall recorded its best economic performance since 1982, growing at 5.3% (ECLAC, 1998b). The subsequent economic slowdown threatens this growing prosperity, and ECLAC estimated the average increase in 1998 at around 2.3% (ECLAC, 1998a). J.P. Morgan, a United States bank, forecasts no regional growth in 1999. Other forecasts are more optimistic, but there is general agreement that the region will experience little or no overall economic growth in the short term. This means rising poverty rates and falling per capita income levels.

The current financial scare in the region should give governments a powerful incentive to address some of the weaknesses in reform and social performance. Perhaps the most politically damaging failure of market reform in the region has been its failure to reduce deep-rooted inequalities.

The income distribution of Latin America and the Caribbean is the most unequal in the world. The 1998 Inter-American Development Bank report, "Economic and Social Progress in Latin America: Facing up to Inequality", deals with the problem at length and highlights a 1996 World Bank study on the subject (Deininger and Squire, 1996). This study shows that, in the region as a whole, the richest 10% of the population receives 40% of overall income while the poorest 30% receives only 7.5% of overall income. The ratio of the income share of the richest 20% of households to that of the poorest 20% of households in Latin America is 22 to 1, twice that of the next highest regional ratio of 11 to 1 in sub-Saharan Africa and three times the rate of 7 to 1 in industrial countries (UNESCO, 1998). Comparing the income share of the richest 10% to that of the poorest 10% places the Latin American region in an equally isolated position. This ratio is 46 to

1 in Latin America, twice the 24 to 1 ratio of sub-Saharan Africa and three times the overall ratio of 15 to 1 in industrial countries.

Figure I.1 dramatically shows how skewed the income distribution is in Latin America. Whether regions are richer than Latin America (e.g., Southeast Asia, developed countries) or poorer than Latin America (e.g., Africa, the rest of Asia), their income distribution is much more equitable. The Latin American rich are comparatively richer and the Latin American poor are comparatively poorer than in any other region in the world. Market reform and economic growth in our region may have reduced poverty rates, but they have failed to reduce income inequality.

The regional consensus is that the way to a more equitable society is through more, and more efficient, spending on education and health, particularly for the poor. It is essential to improve the performance of these two major social sectors, including both their public and private components.

Figure I.1
INEQUALITY IN LATIN AMERICA
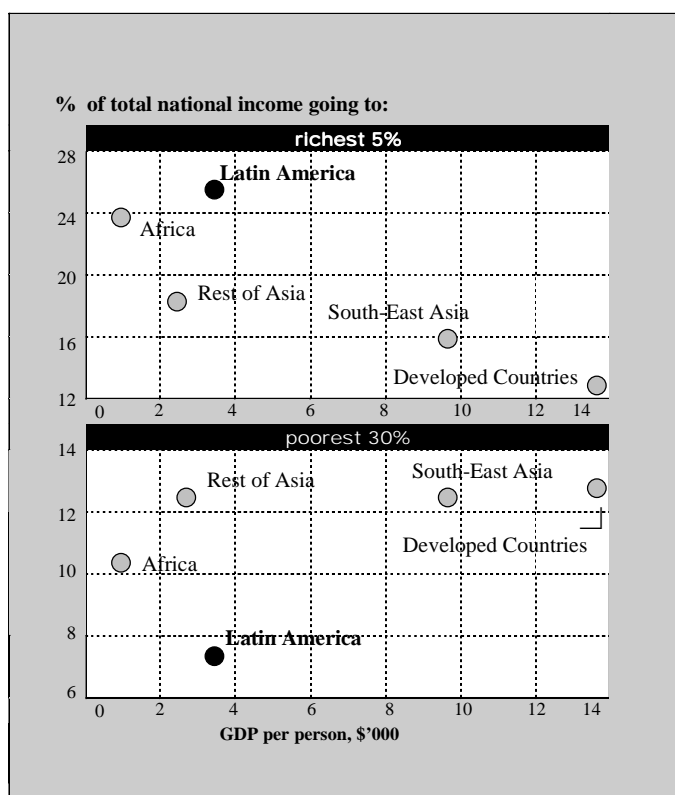
Source: Inter-American Development Bank (IDB); Klaus Deininger and Lyn Squire, "A new database measuring income inequality", World Bank Economic Review, vol. 10, No. 3, Washington, D.C., World Bank, 1996.

D.   The Aguascalientes papers

The five papers presented at the Aguascalientes conference deal with various aspects of the challenge of improving social performance, inequality and poverty, including the problems that arise from the special characteristics of Latin American society. The papers on demography and income distribution focus exclusively on Latin America and the Caribbean, while the papers on culture and poverty indicators take a global perspective. The education paper presents an OECD perspective as part of a broader, separately published study in which Latin American countries also feature (OECD, 1998).

1. ***The education paper*** by LeMaitre and Schleicher discusses the many disparities in educational outcomes among OECD countries and examines in depth the achievement of 4th and 8th grade students in standardized mathematics tests. It concludes that considerable differences in achievement exist both among countries and within countries, especially in the 8th grade, but no clear relationship is found between the distribution of achievement and overall performance levels. It also shows that educational attainment is positively related to individual performance in the labour market. People with higher levels of education are more likely to participate in the labour market and face lower risks of unemployment. Education and earnings are positively linked, whatever the level of economic development, and post-secondary education and training give a high return. In this connection, Latin American countries and the OECD countries display some very striking differences (Carlson, 1998). The proportion of students in Latin America who graduate from upper secondary education is less than half the proportion graduating in the OECD countries. They also spend fewer years being trained at the upper secondary level. Our region needs to expand this scarce resource and to use it more productively in order to equip Latin American industry with an adequate supply of skilled workers.

The rising skill requirements of labour markets, an increase in unemployment in recent years and the higher economic expectations of individuals and societies have given rise to a growing global concern with the need for technical and vocational programmes in upper secondary education as opposed to general programmes. Increasingly, upper secondary education is seen as a route to obtaining skilled, well-paid employment, and not just as a prerequisite for university. Rising skill demands are making an upper secondary qualification the minimum-level credential for successful labour market entry.

**ENROLMENT IN TECHNICAL AND VOCATIONAL PROGRAMMES
AT THE UPPER SECONDARY LEVEL, 1996**

Country	Upper secondary graduates as % of typical age of graduation	Distribution of enrolment in upper secondary education by type of programme		
		General programmes (%)	Technical and vocational programmes (%)	Of which wholly school based (%)
Portugal	91	74	26	100
Germany	86	24	76	48
OECD country mean	85	46	53	66
Spain	73	61	39	95
United States	72	..	..	..
Chile	49	58	42	100
Brazil	34	..	..	..
Argentina	34	67	33	100
Mexico	26	84	16	100
Uruguay	..	80	20	100
Paraguay	..	91	9	100

Source: ECLAC, on the basis of data published in Organization for Economic Cooperation and Development (OECD), *Education at a Glance: OECD Indicators,* Paris, 1998.

Table I.1 shows that, on average, more upper secondary students are now attending vocational or apprenticeship programmes than general programmes in OECD countries. By contrast, the emphasis in Latin American countries is still overwhelmingly on general programmes. In Chile, 42% of upper secondary students attend technical and vocational programmes. In Argentina it is 33%, and in the other Latin American countries it is 20% or less.

In the OECD, one third of the upper secondary students in vocational and apprenticeship programmes receive training that is both school based and work based (see figure I.2). In Chile and throughout Latin America, the dual-system apprenticeship programmes appear hardly to exist, and upper secondary vocational and technical training is almost wholly school based. Creating work-based training programmes would be one way to expand technical education in Latin America without perpetuating the inequitable distribution of educational opportunities. In this respect it is interesting to note that the large gap between Latin American and OECD countries in the proportion who graduate from upper secondary education does not occur in tertiary education. About 19% of the population aged 20-29 in OECD countries is enrolled in education in one form or another. The figure is 17% for Argentina and Uruguay and 16% for Brazil —fairly close to the OECD average. The disadvantaged leave school much sooner in Latin America than in the OECD countries. By contrast, the privileged go on to university in similar proportions. The inequitable distribution of educational and cultural opportunities in Latin America reflects the inequitable distribution of income and wealth.

Figure I.2
TECHNICAL TRAINING IN UPPER SECONDARY EDUCATION (1996):
THREE PROFILES
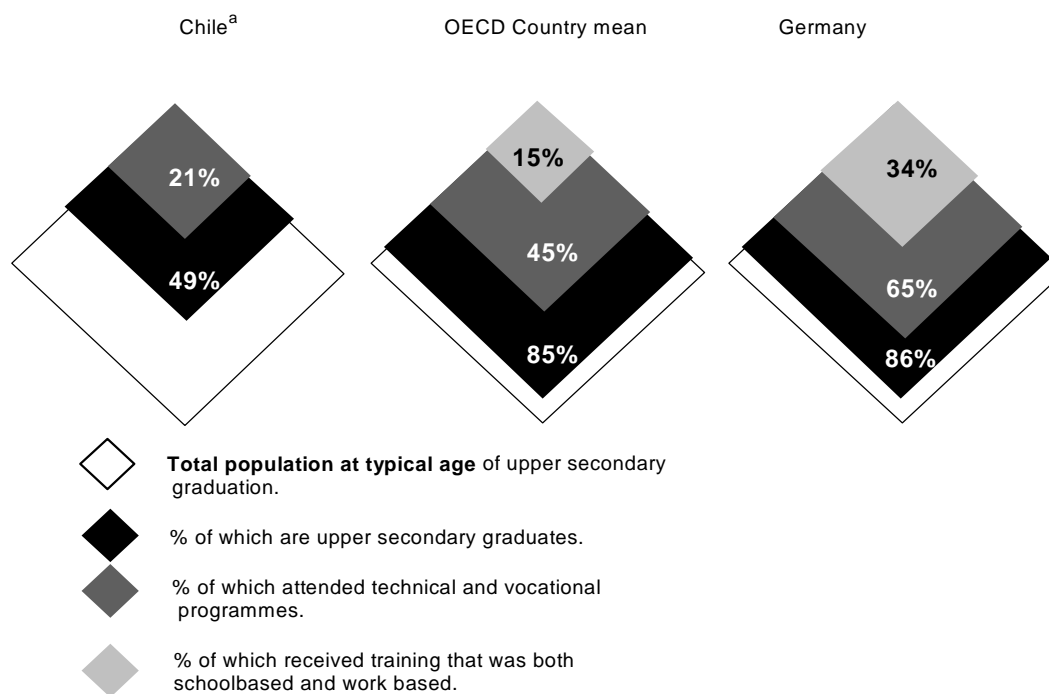
Chile[a]   OECD Country mean   Germany

21%   15%   34%

49%   45%   65%

85%   86%

◇ **Total population at typical age** of upper secondary graduation.

◆ % of which are upper secondary graduates.

◆ % of which attended technical and vocational programmes.

◆ % of which received training that was both schoolbased and work based.

Source: ECLAC, on the basis of data published in Organization for Economic Cooperation and Development (OECD), *Education at a Glance: OECD Indicators*, Paris, 1998.

[a] All technical and vocational programmes are wholly school based.

2. ***The income distribution paper*** by Feres and Medina examines the urban areas of 13 countries in Latin America. The study shows that whereas economic development or growth alone reduces the size of the population living in poverty, it does not reduce income inequality in either the short term or the long term, despite various hypotheses to that effect by leading economists like Kuznets. It would be interesting to see if these conclusions would hold in an analysis of the countries as a whole, including the incomparably poorer rural areas.

The Luxembourg Income Study (Buhmann and others, 1988) defined poverty as a relative condition, not an absolute level. Living in poverty was defined as having an income level below a certain percentage of the average income level of the country, usually 50% or 40% of the average level. Poverty of this nature, like income inequality, is not reduced by economic growth alone. As countries develop, the relative poverty measure becomes more appropriate (Schwartzman, 1998).

The relative definition of poverty is much more than a different way of calculating poverty; it is a different way of seeing poverty. Poverty is not just the absence of goods and services. The poverty of a person without many goods and services in a society where very few people have these goods and services is sociologically and politically a completely different state from the one where nearby, or in the distant houses where the poor person works as a domestic or a street vendor, there are multitudes with more goods and services than the poor person can imagine.

3. The exclusive nature of poverty and the opportunities that are denied as a result of poverty worldwide are discussed in **the culture paper** by Goldstone. Cultural statistics, as currently practiced, exclude the minority of poor people in rich countries and the majority of poor people in poor countries. This creates a self-perpetuating, value-laden, exclusive definition of culture —the culture of the comparatively rich as expressed through the market place. As with the inequitable distribution of educational opportunities, however, the real reason that poor people are classed as culturally inferior and are culturally excluded is that they are poor. Their poverty thus acts as a barrier to their development as human beings.

The World Culture Report, which served as the basis for the culture paper, discusses the effect of poverty on urban cultural life, particularly in the cities of Latin America, with their growing social conflicts, crime, drug use and homelessness (Jelin, 1998). The vast majority of unskilled workers share an excluded social space which is highly fragmented in terms of ethnicity; they build defensive communities that struggle against each other to gain a larger share of services and to preserve their social networks.

In São Paulo in 1890-1940, for example, cleaning up the centre of the city implied pushing working classes to the periphery (Caldeira, 1996). In 1940-1980, a clear centre-periphery differentiation developed, with the rich in the well-served centre and the poor in the outskirts, while some attempts were made to improve periphery conditions. The economic recession in the 1980s caused an increase in violent crime and fear, leading to a new model of segregation based on the notion of security.

"From 1980-1987, 217 buildings containing 50,000 housing units were constructed in Morumbi, a rich area of São Paulo. The novelty was the type of building. Most of them are residential complexes of either houses or high-rises called 'closed condominiums'. They offer the amenities of a club, are always walled, have as one of their basic features the use of the most sophisticated technology with the continual presence of private guards. Each building is endowed with distinguishable luxury features and foreign names. All this luxury contrasts with the view from the apartments' windows: the thousands of shacks of the *favelas* on the other side of the high walls which supply the domestic servants for the condominiums nearby" (Caldeira, 1996).

São Paulo is not alone in Latin America in this pattern.

4. **The demographic paper** by Schkolnik discusses the transition which has taken place in the 20 most populous countries of Latin America in recent decades and which has significantly changed the demographic profile of all the countries of the region. These changes, often called the epidemiological transition, present major challenges to the performance of the health sector. In particular, they affect the delivery of adequate health services to the most deprived social groups.

What has happened in the region is a shift from infectious diseases to degenerative diseases. At the same time, the child population is decreasing and the elderly population is increasing. The industrial countries have already completed their demographic and epidemiological transitions, and their health priorities are clear. Most countries in Latin America, however, are still in the process of transition: the young population is still significant, but the old population is growing rapidly. The coexisting demands arising from this dual situation create great pressure on the health system, which is already burdened by the poor health care coverage typical of rural areas.

Although health conditions have improved, the most positive changes in reducing infant mortality and providing improved reproductive health care to women of childbearing age have not been evenly distributed among the various social groups. The poorest and most disadvantaged groups have made the greatest relative progress, but long-standing economic and social inequalities are still being perpetuated. Adverse health outcome indicators like high infant and child mortality are still consistently associated with low paying occupations, substandard living conditions, lower

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educational level of the mother, residence in a rural area and membership in an indigenous community. Thus, as in education and culture, the inequitable distribution of health services and the benefit of good health in Latin America also closely reflect the inequitable distribution of income and wealth.

5. ***The poverty indicators paper*** by Marchant argues that the increased focus on reducing global poverty has introduced new information needs that present challenging demands on already-overextended national statistical systems. The classic poverty analysis tool of an integrated household survey with a strong expenditure and consumption component, while still playing an important role, is insufficient to meet the growing demands for rapid data on short-term trends.

The paper advances the idea, initiated by the World Bank in collaboration with a number of international agencies, of a standard Core Welfare Indicators Questionnaire (CWIQ) for monitoring indicators of access, usage and satisfaction as complementary indicators to the classic poverty measures. CWIQ is not designed to measure whether poverty levels are decreasing or increasing, as it does not collect income or expenditure data. Rather, it is intended as a tool for measuring whether public services and economic and social development programmes are reaching and benefiting the poor. Indicators of access, usage and satisfaction are simpler, albeit more approximate, attributes to measure than are indicators of income, expenditure and consumption.

In the pilot country in which CWIQ was tested (Ghana), little variation was found in the access to and usage of basic education, but there was an enormous disparity in the levels of satisfaction. In urban areas the level of satisfaction was 60%, double the 30% satisfaction level in rural areas. The rural poor had a satisfaction level of only 20%. (Households were classified using a weighted consumption index designed from an existing Living Standards Survey.)

Satisfaction is a surrogate for quality. The results of the CWIQ pilot suggest that good quality education is being distributed inequitably even if the classical education indicators of access (distance to school) and usage (enrolment rates) show uniform improvement. The inequitable distribution of good quality education between poor and rich communities is a major problem in education systems in Latin America and is a determinate of the successful reform and performance of the education sector. This easy-to-handle survey could provide a feasible, if approximate, instrument for monitoring this.

E.   The measurement challenge

Quantifying the social dimensions of economic development and productivity presents significant challenges for the region's statisticians. In much the same way that economic growth and development have received the bulk of attention to date, the measurement of economic indicators has received the bulk of attention as well. When we as a region ask "How are the countries of Latin America and the Caribbean doing?", the answers are usually expressed in terms of standard economic indicators. The analysis on which these answers rest has benefited from more than seventy-five years of research on national economic performance. This ongoing effort has created the tools and language for economic discourse. Hundreds of universally recognized indicators, indices, and benchmark reports are issued monthly, quarterly, and yearly to assess the progress of national economies. Government agencies continually use this information to shape economic policy.

Social indicators are far less developed empirically, theoretically and in terms of their impact. No entity or network of entities is charged with assembling available social indicators, providing them with a context and framework, preparing an overall assessment of national and regional social performance and generally advancing the concepts and application of social

indicators to measure social performance. The public dialogue regarding social performance, social problems and the shaping of social policy has suffered as a result.

The difficulties of measuring social development on the national level also occur for the region as a whole. Social analysis has meant different things to different people, and it has tended to become both too general and very fragmented, often reflecting the interests of special advocates and activists. Social analysis has often lacked an empirical base. Without an empirical base, it is hard to assess the real social situation and social performance, evaluate the issues or differentiate among and within countries.

In recent years ECLAC has undertaken its quantitative social analysis mainly through household surveys which address poverty, employment and income distribution. While poverty analysis is important, it is not a substitute for overall social analysis. Focusing on poverty to represent the social statement threatens to marginalize the social dialogue. "Poverty groups" and "poverty lines" form an important component of social analysis, but it is only one component and only one approach to the analysis of the social state of a nation or of the region. Social measurement and social indicators are severely deficient. They are out of date, not well understood or used and underfinanced, partly because social change has for so long been associated with the negative optic of poverty, the underprivileged, ethnic minorities, etc.

Taking the discussion of social development beyond poverty moves it to a meaningful concern for society as a whole, and not just the poor. It transforms the perspective from one of charity and concern for the poor, to one of self-interest and concern for the well-being of all members of society, who probably have children to be educated, will fall ill from time to time and require decent housing with adequate services. Politically, an inclusive social welfare model of analysis which encompasses the status of all people while expressing a concern for equity is more likely to receive serious attention from those empowered to make change. It also provides a comprehensive view, which is necessary to achieve an overall understanding of social issues. Thus, in our own self-interest and not out of the kindness of our hearts, we not only need to monitor the economic pulse of the region and the nations in the region, but we must simultaneously monitor the social pulse and the relationship between the two.

Economic and social issues are related, and failure in one area will lead to failure in the other. The past failure to build up adequate human capital or make social spending more equitable undermines future economic progress, just as a failure to make economic progress would severely restrict a country's ability to improve its educational level. We need to undertake an ongoing comparative structural analysis of the key institutions of the major social sectors, their infrastructure and the equity of the availability and distribution of their services in order to characterize national and regional progress and make regional assessments.

Those concerned primarily with economic progress should ask another question. Why have countries like Argentina, Chile, Uruguay and Venezuela, which were among the richest countries in the world fifty years ago, slipped in their global economic ranking? This has happened at the same time that countries which are not all that dissimilar economically, industrially and ethnically, like Australia, New Zealand and even Canada, have maintained or improved their global position and now have a gross national product (GNP) per capita adjusted for purchasing power parity (PPP) at least twice as high as the leading countries of Latin America. Could part of the answer be the failure of the countries of the region to deal adequately with their social problems and above all with the social divide that pertains in these countries?

Non-monetary differentials within countries have narrowed considerably in the region. These include life expectancy, infant and child mortality, adult illiteracy, enrolment in basic education, availability of electricity and access to clean water and adequate sanitation. Nevertheless, the

disparity between the richest and poorest households in Latin America is still greater than in any other region of the world. This severe disparity is reflected in the continued unequal access to and benefit from the social sector systems. These inequities cripple the capacity of countries to make effective and efficient use of their potential human capital so as to ensure steady economic growth.

F.   Measuring the social dimensions of economic reform

Economic and market reform programmes are underway in most Latin American countries, with the major emphasis on economic growth and employment. However, the issues of equity and social performance cannot be overlooked, particularly in the light of the social problems that are discussed in this publication. The social context of reform provides critical information for understanding the distinct challenges countries face in implementing reforms. It provides the basic social and demographic indicators needed to link macroeconomic and social policies with economic and social outcomes at the micro level of individuals and households. We therefore need to measure the social dimensions of economic reform better. This involves describing the social and demographic context in which economic reforms were introduced and how that context evolved during the period of reform. Such a project would chronicle the central structural social conditions in population, human capital formation and health, examining constraints as well as opportunities. It would review major social reforms and policies being implemented and provide a synthesis of their progress and impact.

Demographic indicators would provide the population context for both social and economic analyses. An urban/rural breakdown is needed because social and economic conditions differ greatly between the two; it is especially important in countries that still have a sizeable rural population. A gender breakdown is required because most social indicators need to be shown separately for males and females. An age breakdown is necessary because education and health requirements vary significantly for different age groups and because the region has undergone a fundamental population transition. Fertility rates, population growth rates and projections allow us to easily describe population changes.

Human capital and education indicators would provide an overview of the coverage, functioning and cost of the educational system, with particular reference to secondary and higher education as this is the source of most future skilled human capital. Educational attainment indicators describe the stock of human capital and allow us to see what past educational systems have produced. Enrolment indicators highlight the educational flows into the future stock of skilled human capital, focusing on the second and third levels of education. They also show the degree to which the critical areas of technical and science education are part of the educational system. Educational outcome and quality indicators portray the functioning of the educational system and its level of efficiency, wastage, and quality. Educational expenditure indicators show the broad cost of education, including the growing area of private education.

A country aiming at economic growth requires a healthy population to sustain it. Health indicators would provide an overview of the functioning, outcomes and cost of the health system. Health access indicators describe the availability and accessibility of basic health services and facilities, including some specific health services with universal demand, which can be taken as representative of the health service system as a whole. Health outcome indicators show the most obvious results of good or bad health: longevity, early mortality, avoidable mortality, and maternal and child malnutrition. Health expenditure indicators show the broad cost of health and social security, costs that are rapidly increasing everywhere, including the growing area of private health systems.

II. Measuring educational performance and disparities in educational outcomes in an international comparative context

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A. Introduction

The demand for highly skilled labour in modern economies cannot be satisfied by a small intellectual elite, but rather requires excellence throughout education systems. Countries therefore aim not only at reaching high levels of educational performance, but also at minimizing disparities in educational achievement within the country. Both parents and the wider public have become aware of the gravity of the phenomenon of low educational achievement and the fact that school-leavers who lack basic skills face poor labour market prospects. Throughout member countries of the Organization for Economic Cooperation and Development (OECD), underachievement has become: (a) punitive for the individual, as the subsequent analysis on the earnings and employment perspectives of low achievers shows; (b) a problem for the society, in terms of reduced economic competitiveness and social cohesion; and (c) a heavy burden

for education systems, considering the resources wasted due to inefficiency in a time of restraint in government spending.

The first section of this paper examines the relations between educational attainment, employment and earnings, contrasting job opportunities and earnings prospects of workers with high and low levels of educational attainment.

The second section of this paper provides an analysis of how disparities occur in the educational achievement of young children and how they evolve as students progress from primary to middle school. This analysis, which builds on a comparative examination of the distribution of mathematics achievement among fourth-grade and eighth-grade students, sheds some light on the extent to which education systems moderate and reinforce early educational disparities.

The third section of this paper takes the analysis further by examining what percentage of the overall variation of achievement among students originates within the education system, as evidenced by variation among classes and schools, and what percentage originates at the student level. Teachers, schools and education systems must address the variation in achievement that exists within classes, within schools and within the country as a whole. Such variation can result from the socio-economic background of students and schools, the human and financial resources that are available to schools, curricular differences and the way in which instruction is organized and delivered.

This paper takes an international comparative perspective which enables the reader to see educational outcomes and disparities in achievement in a particular country in the light of other countries' performance. For many OECD countries, such comparisons have become an essential tool for assessing the performance of education systems and the adequacy of students' preparation for an increasingly global economy. They can also serve as measures of accountability that inform key stakeholders in education, such as taxpayers, employers, educators, parents and students, on the results of their investments.

The increasing importance of internationally comparative policy analysis and evaluation in education has resulted in OECD's Indicators of Education Systems (INES) project, which represents a major effort by OECD countries to strengthen the collection and reporting of such internationally comparable statistics and indicators in education and training. These indicators, which are now published annually in OECD's flagship publication *Education at a Glance*, represent the consensus of professional thinking on how best to measure internationally the current state of education, tempered, of course, by the availability of valid, reliable and comparable information. They are designed to assist policy makers in evaluating student and school performance, monitoring the functioning of education systems and managing resources and educational services. This paper draws on a selection of these indicators published in the 1998 edition of *Education at a Glance*.

B. Employment and earning perspectives of persons with low and high levels of educational attainment

OECD economies and labour markets are becoming increasingly dependent on a stable supply of well-educated workers to further their economic development and maintain their competitiveness. Greater labour market opportunities, higher earnings and improved social status are just a few of the reasons why students seek higher levels of education. Cross-country comparisons of the differences in labour market status (i.e., employed, unemployed or outside the labour force) and relative earnings of individuals with different levels of educational attainment are useful indicators of the economic incentive for individuals to continue their formal education.

Although economic outcomes for individuals reflect a complex interaction between the supply of and demand for skills in the labour market, these indicators can serve as indirect measures of how well the labour markets in different countries are making use of the outputs of their respective education systems. Increased personal satisfaction, social position, civic participation and better health are other important outcomes of educational participation.

1.   Education and labour force participation

Men's labour force participation rates are generally higher for those with higher educational qualifications. Exceptions to this trend can be observed only in Greece, Korea, Switzerland and Turkey, as well as in Brazil, the Philippines and Malaysia. In OECD countries, the difference in the participation rates between men who are university graduates and those whose highest level of attainment is upper secondary ranges from below 2% in Hungary, Ireland, New Zealand, Spain and Switzerland to over 6% in Austria, the Czech Republic and Germany. The gap in participation rates is generally much wider between upper secondary graduates and men who have not completed an upper secondary qualification. In 14 out of 26 OECD countries, it exceeds 10 percentage points. Only half of Hungarian men with less than upper secondary attainment are participating in the labour force.

In contrast, women's labour force participation rates show marked differences. As one moves from less than upper secondary to upper secondary, the difference is 20 percentage points or more in 18 out of 26 OECD countries and slightly less in 7 out of the 9 non-member countries for which data are available. The gap between upper secondary and university graduates is 10 percentage points or more in 20 countries. The exceptions are Denmark, Finland, France, Korea, Sweden and Switzerland, where participation rates of women with upper secondary education approach those of women with university attainment (a 7 to 8 percentage points difference). Participation rates of women with less than upper secondary attainment are particularly low, averaging 49% for OECD countries as a whole and 35% or below in Hungary, Ireland, Italy and Turkey. Rates for women with university attainment approach or exceed 80% everywhere except in Korea and Turkey, but they remain, on average, 10 percentage points below those for men. Although a gender gap in labour force participation remains among those with the highest levels of educational attainment, the gap is much narrower than among those with lower levels of educational attainment. On average across OECD countries, with each additional attainment level, the difference between the participation of men and that of women decreases by 10 percentage points: from about 30 percentage points at the less than upper secondary level, to 20 at the upper secondary level and 10 at the tertiary level.

2.   Unemployment rates by level of educational attainment

The unemployment rate is a measure of a particular economy's ability to supply a job to everyone who wants one. To the extent that employers recognize educational attainment as an indicator of skill, it can act as a signal of the potential knowledge, capacities and workplace performance of job candidates. The employment prospects of persons at various educational attainment levels will depend both on the requirements of labour markets and on the supply of workers at the various attainment levels. Those with low levels of education are, therefore, at particular risk of economic marginalization, as they are both less likely to be labour force participants and more likely to be without a job if they are actively seeking one.

In half the OECD countries, male labour force participants age 25 to 64 without an upper secondary qualification are more than 1.5 times as likely to be unemployed as their counterparts who have completed upper secondary. Also, the unemployment rate for male upper secondary graduates is at least 1.5 times greater that the unemployment rate of university graduates. In most

countries, the disparity in unemployment rates across levels of educational attainment is even wider for men 30 to 44 years old. The association between unemployment rates and level of educational attainment is similar for women, although the gap between upper secondary and university is even wider in many countries.

The large variation among countries in unemployment rates observed at low attainment levels is the consequence of a number of factors. In some countries (especially Finland and Spain), the high unemployment rates at these levels reflect generally difficult labour market conditions that particularly affect individuals with low levels of education. Unemployment rates among those without an upper secondary qualification are also relatively high in some countries where labour markets are less regulated (e.g., Canada, the United Kingdom and the United States), although not in others (e.g., Australia and New Zealand). Unemployment rates tend to be low in countries where agriculture is still an important sector for employment (e.g., Greece, Korea, Portugal and Turkey). Finally, where overall labour market conditions are particularly favourable (e.g., Austria, the Czech Republic, Luxembourg, Norway and Switzerland), jobs appear to be available for workers with low as well as high levels of education.

3. Labour force status over the life cycle

The effect of educational attainment on the labour force status of an individual manifests itself not just at a single point in time, but over the entire life cycle. It affects the total number of years over a lifetime which are spent in employment, in unemployment and outside the labour force. While social and labour market policies are often designed to deal with the immediate labour force status of an individual, the effects of educational attainment on labour force activity are cumulative and likely to have a larger long-term impact.

The number of expected years in employment tends to rise with the level of educational attainment in most countries. From the ages of 25 to 64, persons with tertiary attainment in OECD countries can expect to spend 2.7 more years in employment, 7 months less in unemployment and 2.1 years less out of the labour force than persons with upper secondary education. The gaps between men with an upper secondary qualification and men with less than upper secondary are even greater in most countries. The impact of educational attainment on expected years of employment among men is strongest in the Czech Republic, Hungary, the United Kingdom and the United States and weakest in Greece, Korea, Switzerland and Turkey. With the exception of Israel, the level of educational attainment had a weaker impact on expected years in employment among males in the non-member countries for which data are available (where employment rates are above the OECD average at all levels of educational attainment) than in OECD countries.

For women, the differences in expected years in employment across levels of education are even wider than those for men in most countries, although Korea is a notable exception. The difference between the expected years in employment between women with less than an upper secondary education and women with a tertiary qualification ranges from less than 9 years in New Zealand, Sweden and Switzerland (which have above-average employment rates for women) to 15 or more years in Ireland, Italy, Luxembourg and Spain (which have below-average employment rates for women). Among non-member countries, the impact of educational attainment on expected years of employment was similar to OECD countries, with the exception of Israel (where the employment rates for those with less than upper secondary education are notably low) and Thailand (where employment rates are above the OECD average at all levels of educational attainment).

4.   Earnings and educational attainment

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 levels of education. The pursuit of higher levels of education can also be viewed as an investment in human capital, with the higher earnings that result from increases in human capital representing the return on that investment and the premium paid for enhanced skills and/or higher productivity. Earnings differentials are a measure of the current financial incentives in a particular country for an individual to invest in further education.

The economic benefit of completing tertiary education can be determined by comparing the ratio of the mean annual earnings of those who graduated from tertiary education with the mean annual earnings of upper secondary graduates. The earnings disadvantage of not completing upper secondary education is apparent from a similar comparison. Variations in relative earnings (before taxes) between countries reflect, of course, a number of factors, including skill demands in the workforce, minimum wage legislation, the strength of unions, the coverage of collective bargaining agreements, the supply of workers at the various educational attainment levels, the range of work experience of workers with high and low educational attainment, the distribution of employment across occupations and the relative incidence of part-time and part-year work among workers with varying levels of educational attainment.

Educational attainment and earnings display a strong positive relation. University graduates earn significantly more than upper secondary graduates in all countries. Earnings differentials between university and upper secondary education are generally more pronounced than those between upper secondary and below, suggesting that upper secondary education is a break point for many countries beyond which additional education attracts a particularly high premium. Among countries reporting gross earnings, the earnings premium for university education ranges from less than 40% for men aged 25-64 in Denmark and the Netherlands to 80% or more in Finland, France, Hungary, Portugal and the United States.

For women in the same age range, the premium ranges from around 30% in Denmark and Italy to about 90% in Ireland and the United Kingdom. University education enhances earnings relative to secondary-level education more for women than for men in Canada, Ireland, the Netherlands, Norway, Spain, Switzerland, Turkey and the United States, whereas the reverse is true for the remaining countries.

The earnings of men and women with less than upper secondary attainment tend to be between 60% and 90% of those persons who have completed upper secondary education. In 10 out of 20 OECD countries, men with lower levels of education fare slightly better than women relative to upper secondary completers of the same gender. While both men and women with upper secondary or tertiary attainment have substantial earnings advantages compared with those who do not complete upper secondary education, earnings differentials between men and women with the same level of educational attainment remain significant.

When all levels of education are taken together, women's earnings at age 30 to 44 range from about 50% of men's earnings in New Zealand, Switzerland and the United Kingdom to over 77% of men's earnings in Finland and Hungary. In a number of countries, especially Canada, the Netherlands and Switzerland, earnings differentials between men and women narrow with increasing levels of educational attainment. In a number of other countries, however, including the Czech Republic and Italy, the reverse relation tends to be true, that is, earnings differences between men and women tend to increase with educational attainment. Thus, although higher educational attainment levels are generally associated with higher earnings for both men and women, they do

not seem to contribute systematically to reductions in gender inequality in earnings. Some of the differences in earnings between men and women may be explained by differences in career and occupational choices between men and women, differences in the amount of time men and women spend in the labour market and the relatively higher incidence of part-time work among women.

C. Disparities in educational achievement at early ages

The preceding section shows the consequences of low educational achievement in terms of poor labour market and earnings prospects. This section will now examine how disparities in educational achievement evolve as students progress through the school system. By comparing the distribution of mathematics achievement of fourth-grade and eigth-grade students, we can shed light on the extent to which education systems and societies moderate or reinforce early educational disparities. OECD countries differ in how they divide students for instruction and how they structure the curriculum; it is therefore instructive to ask whether such differences contribute to differences in the dispersion of student outcomes within countries.

The achievement scores shown in tables II.1 and II.2 are based on tests administered as part of the Third International Mathematics and Science Study (TIMSS), undertaken by the International Association for the Evaluation of Educational Achievement (IEA) during the school year 1994-1995. In many countries, a sizeable number of students fall behind in performance and may face difficulties in following the programmes of study set out in the curriculum.

1. Variation in student performance at the fourth-grade level

Table II.1 shows a large variation in the achievement of the top-performing fourth-grade students across countries. Less than 5% of fourth-graders in Iceland and Portugal reach the average level of mathematics performance of their Korean counterparts, while more than a quarter of Japanese and Korean students score higher than nearly all students in Greece, Iceland, New Zealand, Norway and Portugal.

The interquartile range (i.e., the difference between scores at the 75th and 25th percentiles) varies among countries in both mathematics and science, although the variation is wider in science. In half of the countries, the differences between the 25th and 75th percentiles of fourth-grade students' performance in mathematics is about twice the average progress in achievement for fourth graders over the whole school year, which represents a significant challenge for schools and teachers. The interquartile range is narrowest in Iceland, at 92 scale points, and widest in Australia, at 118 points.

DISTRIBUTION OF MATHEMATICS ACHIEVEMENT SCORES, OF FOURTH-GRADE STUDENTS, 1995

(Percentile) [a]

	Mean	5th	25th	75th	95th	Standard deviation	Standard error of standard deviation
Australia[b]	408	261	350	468	553	88	(8.1)
Austria[b]	421	286	371	473	544	76	(8.0)
Canada	395	261	341	449	528	81	(8.1)
Czech Republic	428	293	372	485	568	83	(8.1)
Greece	356	210	301	415	496	86	(8.4)
Hungary[b]	410	271	352	467	552	84	(8.1)
Iceland	338	227	290	382	455	69	(8.0)
Ireland	412	268	359	470	544	82	(8.0)
Japan	457	323	407	512	582	78	(7.9)
Korea	471	353	426	519	583	71	(8.0)
Netherlands[b]	438	327	391	484	547	68	(8.0)
New Zealand	362	218	305	422	500	86	(8.3)
Norway	365	244	319	412	482	71	(8.0)
Portugal	340	209	290	394	465	77	(8.1)
United Kingdom:							
England[c]	376	234	317	430	530	87	(8.1)
Scotland	383	241	325	442	525	85	(8.1)
United States	407	265	352	463	540	82	(8.0)
Country mean	**399**	**266**	**347**	**453**	**529**	**79**	

Source: International Association for the Evaluation of Educational Achievement (IEA). *The Third International Mathematics and Science Study (TIMSS)*, 1995.

[a] 5% (or 25% or 75% or 95%, respectively) of students score below this point.
[b] Did not meet TIMSS sampling requirements.
[c] Partially met TIMSS sampling requirements.

2. Variation in student performance at the eighth-grade level

Table II.2 shows even greater variation among eighth-grade students than was seen among fourth graders. For example, the difference between the 25th and 75th percentiles of student performance in Australia, Austria, the Czech Republic, Ireland, Japan and Korea is 137 points or more, which is more than four times the average progress in mathematics achievement made by students in all OECD countries between seventh and eighth grades (33 points). Only two countries (Portugal and Spain) have interquartile ranges of 100 score points or below (that is, about three grade-year equivalents). However, less than 5% of eighth-grade students in Portugal reach the average mathematics performance standards of eighth graders in countries such as Korea, Japan, the Flemish Community of Belgium and the Czech Republic. To the extent that achievement gaps at age 13 can be regarded as predictive of later achievement disparities, deficiencies observed at this stage have significant implications both for education systems and for the future highly skilled information society.

Countries with similar levels of average performance can show considerable variation in disparities of student achievement. For example, Australia and France show a similar average level of mathematics performance, but the 25th percentile in France is 24 score points above the 25th percentile in Australia, indicating that the weaker performers in Australia have markedly lower scores than their counterparts in France. At the other end of the scale, the stronger performers in Australia score more highly than the stronger performers in France. The same contrasts can be observed when comparing Norway with England. Comparing the range of achievement within a

country with its average performance thus shows that a consistent level of achievement is not a necessary condition for a system to attain a high level of average performance.

Table II.2
DISTRIBUTION OF MATHEMATICS ACHIEVEMENT SCORES,
OF EIGHTH-GRADE STUDENTS, 1995

	Mean	Percentile [a]				Standard Deviation	Standard error of the standard deviation	Difference between 4th and 8th grade standard
		5th	25th	75th	95th			
Australia [b]	530	372	460	600	690	98	(1.5)	10
Austria [b]	539	394	474	608	693	92	(1.9)	16
Belgium (Flemish community) [c]	565	416	502	631	710	92		
Belgium (French community) [b]	526	385	467	587	658	86		
Canada	527	389	468	587	670	86	(1.4)	5
Czech Republic	564	423	496	633	725	94	(2.3)	11
Denmark [b]	502	369	443	561	641	84		
France	538	415	484	591	666	76		
Germany [b]	509	368	448	572	661	90		
Greece [b]	484	347	422	546	633	88	(1.0)	2
Hungary	537	391	471	602	693	93	(1.6)	9
Iceland	487	365	435	540	615	76	(1.5)	7
Ireland	527	381	462	594	681	93	(2.0)	11
Japan	605	435	536	676	771	102	(0.9)	24
Korea	607	418	540	682	786	109	(1.4)	38
Netherlands [b]	541	397	477	604	688	89	(3.6)	21
New Zealand	508	366	443	570	663	90	(1.8)	4
Norway	503	372	445	560	649	84	(1.2)	13
Portugal	454	357	411	495	569	64	(1.1)	-13
Spain	487	376	436	536	616	73		
Sweden	519	384	460	579	661	85		
Switzerland [c]	545	401	485	607	685	88		
United Kingdom: England [c]	506	361	443	570	665	93	(1.5)	6
United Kingdom: Scotland [b]	499	364	436	559	649	87	(2.4)	2
United States [c]	500	356	435	563	653	91	(1.4)	9
Country mean	**524**	**384**	**463**	**586**	**672**	**88**		**9**

Source: International Association for the Evaluation of Educational Achievement (IEA), *The Third International Mathematics and Science Study (TIMSS)*, 1995.

[a] 5% (or 25% or 75% or 95%, respectively) of students score below this point.
[b] Did not meet TIMSS sampling requirements.
[c] Partially met TIMSS sampling requirements.

3. Growth in disparities between the fourth and eighth grades

How do education systems and societies moderate or reinforce variation in student achievement? Can policy intervention improve results, or are these inequalities in student performance inevitable features of society? One way of answering this is by comparing countries' variation in achievement at the fourth grade, when school has not yet had much of an effect, and again a few years later, to see if school and society had an impact on inequalities during this time.

The last column in table II.2 shows the differences between the fourth-grade standard deviations and those of the eighth grade. The standard deviation is presented here rather than the interquartile range, which was used above, because the standard deviation can be estimated more reliably than the interquartile range and thus provides more precise information about differences across grade levels.

Across OECD countries, the standard deviation rises over the four grades tested, increasing from 79 points in the fourth grade to 88 points in the eighth grade. This indicates that, on average, the spread among students in mathematics achievement is larger as students enter secondary school than it is in the early elementary school years. The growth of these disparities display considerable differences across countries, however. While some countries with relatively large variation in mathematics achievement in the fourth grade also exhibit relatively large variation in the eighth grade, some countries with low variation in the fourth grade have, relative to other countries, high variation in the eighth grade.

Korea, which has one of the smallest standard deviations at the fourth-grade level, shows the largest disparity at the eighth-grade level, with a growth in the standard deviation of 38 points. Similarly, Japan and the Netherlands show a growth of over 20 points, which is two times the average growth in OECD countries. The Netherlands moves from the position with the least variation at the fourth-grade level to the seventh position at the eighth-grade level; Japan moves from the fourth position to the second last at the eighth-grade level (based on the 17 OECD countries who took part in TIMSS at both grade levels). In Greece and Scotland, on the other hand, the difference between the standard deviations at the fourth- and eighth-grade levels are not statistically different, so that variation in student performance does not seem to have increased. Iceland and Norway show some of the lowest standard deviations at both grade levels.

Three conclusions emerge from this. First, the variation within one grade of children in their early teens is large. Even in the middle half of the population, the lowest performing students would have to study several additional years to catch up with the best. Second, this difference varies greatly by country, from over four to two and a half years of a students' typical progress over a grade year. Third, no clear relation emerges between the distribution of achievement and overall performance levels. France manages to get most students above the OECD mean of eighth-grade mathematics achievement within a relatively narrow range of performance, whereas Japan gets high scores over a wide range of performance.

D.   Disparities within and between schools

This third and final section takes the above analysis one step further by examining what percentage of the overall variation among students originates within the education system, as evidenced by variation among classes and schools and what percentage originates at the student level. Teachers, schools and education systems must address the variation in achievement that exists within classes, within schools and within the country as a whole. Such variation can result from the socio-economic background of students and schools, the human and financial resources that are available to schools, curricular differences and the way in which instruction is organized and delivered. Some countries pursue policies of non-selective school systems, with the aim of providing all students with the same learning opportunities. Such countries may leave every school to cater to the full range of students' abilities. Other countries deal with the range of students' abilities explicitly by forming homogeneous student groups through selection either within or between classes and schools, with the aim of addressing the specific needs of the students. How do the policies and historical patterns that shape each country's school system relate to the overall variation in student achievement and to the overall performance levels in countries?

The index in table II.3 ranges from 0 to 100. If the variation among students in the same class and school in a particular country is close to zero, then there are virtually no differences across schools or between classes within schools with respect to mathematics achievement. A value of 50 means that 50% of the variation is between groups (i.e., classes and schools) and 50% is between students within the classes and schools.

In most countries, differences in achievement are mainly associated with students rather than with the schools. This is partly because school environments vary much less than the home environments of students in the countries under review. Countries with relatively large differences among classes and schools (i.e., more than 30% of the overall variation in student performance) are Austria, Belgium (Flemish community), Germany, Ireland, the Netherlands, New Zealand, Switzerland and the United States. In contrast, Denmark, Iceland, Japan, Korea, Norway and Sweden display relatively small proportions of variance associated with schools and classes. Here, the overwhelming proportion of differences in student achievement (i.e., more than 90%) occurs among students in terms of home environment, attitudes towards maths and expected further education.

The variation among schools and classes as shown in table II.3 stems from different sources. Some countries, such as Austria, Belgium, the Czech Republic, Germany, Ireland, the Netherlands and Switzerland, deal with the variation in student achievement explicitly by forming student groups through selection within a differentiated school system, with the aim of teaching eighth graders according to their specific needs. The comparatively large proportion of achievement variation among schools and classes in these countries may result primarily from these policies.

Table II.3

DECOMPOSITION OF VARIANCE COMPONENTS IN MATHEMATICS ACHIEVEMENT OF EIGHTH GRADERS

	Variance associated with student level (x100)	Variance associated with school level (x100)	Variance explained at student level (x100)	Variance explained at school level (x100)	Total variance explained (x100)
Australia [a]	74	26	11	48	21
Austria [a]	67	33	7	54	23
Belgium (Flemish community) [b]	64	36	4	39	17
Belgium (French community) [a]	74	26	11	41	19
Canada	83	17	12	20	14
Czech Republic	78	22	16	42	22
Denmark [a]	94	6	8	41	10
France	75	25	9	13	10
Germany [a]	53	47	9	34	21
Greece *	86	14	11	41	15
Hungary	83	17	13	52	20
Iceland	92	8	9	13	10
Ireland	55	45	4	17	10
Japan	98	2	7	9	7
Korea	94	6	21	90	25
Netherlands [a]	49	51	8	25	16
New Zealand	62	38	8	27	15
Norway	94	6	15	25	15
Portugal	84	16	8	38	12
Spain	84	16	11	26	14
Sweden	89	11	11	43	14
Switzerland [b]	61	39	8	18	12
United Kingdom: England [b]	73	27	10	48	20
United Kingdom: Scotland [a]	73	27	7	47	17
United States [b]	69	31	11	35	19

Source: International Association for the Evaluation of Education Achievement (IEA), *The Third International Mathematics and Science Study (TIMSS)*, 1995.

[a] Did not meet TIMSS sampling requirements.
[b] Partially met TIMSS sampling requirements.

However, countries such as Australia, New Zealand and the United States, in which such explicit tracking in terms of different school types for different ability levels does not occur, also show considerable variation among classes and schools. In these countries, this variation may stem from regional variation in school systems and their curricula, from a differentiation of students across classes based on their ability, from a socio-economic segregation of students (e.g., some schools may perform poorly because their students largely come from a poor neighbourhood), from the different educational and material resources available to schools or from the tracking within schools according to student ability.

In countries such as Denmark, Japan, Norway and Sweden, major efforts are devoted to providing all students with a similar learning environment, irrespective of student ability. Table II.3 shows that such policies have been successfully implemented in these countries, with around 10% or less of the variation remaining either among schools or among classes within schools.

How do the policies and historical patterns that shape each country's school system affect the overall variation in student achievement? Do countries with explicit tracking and streaming policies show a higher level of overall disparities in student achievement than countries which have non-selective education systems? Table II.3 shows no clear relation between the size of the relative variance components and the overall variation in student achievement. There is also no uniform relation between the size of differences among schools and classes and overall levels of achievement in countries.

Japan and Korea display both the highest overall performance levels of eighth graders in mathematics and the highest variation in achievement. Only a very small percentage of this variation (less than 6%) results from differences among schools or among classes within schools. France is an example of a relatively high-performing country in which overall variation in achievement is small but a large part of this variation results from differences either among the schools or among classes within schools. The low variation in France may, however, be attributable to a comparatively high incidence of grade repetition.

The Netherlands and Switzerland both display a highly differentiated school system at age 13. Both countries perform very well and, at the same time, show only a moderate level of overall variation in student achievement, of which 40% or more lies among schools and their classes. The situation is similar for Austria, although the overall variation among students is slightly higher than in the Netherlands and Switzerland. The Netherlands, Germany and Ireland all have a relatively large proportion of variance associated with the school level. In addition, all of these countries are similar in their differences between high and low performing students. However, while Germany performs below the OECD mean and Ireland at around the OECD mean, Dutch students perform above the OECD average.

Germany and the United States both perform below the OECD average and show similar levels of overall variation in student performance. In Germany, a differentiated school system is in place, but the relatively high variation among schools in the United States stems from other factors.

E.   Conclusion

The first section of this paper has shown that educational attainment is positively related to individual performance in the labour market. Those with higher levels of education are more likely to participate in the labour market, and they face lower risks of unemployment. Similarly, education and earnings are positively linked, whatever the socio-economic system or the level of economic development. For many OECD countries, upper secondary education acts as a break point, beyond which additional education attracts a particularly high premium.

The second section of this paper analysed how disparities occur in the educational achievement of young children and how they evolve as students progress from primary to middle school. Three conclusions emerged from this analysis. First, the variation within one grade of children in their early teens is large. Even in the middle half of the population the lowest performing students would have to study several additional years catch up with the best. Second, this difference varies greatly by country, from over four years to two and a half years of a students' typical progress over a grade year. Third, no clear relation emerges between the distribution of achievement and overall performance levels. France manages to get most students above the OECD mean of eighth-grade mathematics achievement within a relatively narrow range of performance, whereas Japan gets high scores over a wide range of performance.

Countries with similar levels of average performance show considerable variation in disparities of student achievement. For example, Australia and France show a similar average level of mathematics performance, but the 25th percentile in the United States is 24 score points above the 25th percentile in Australia, indicating that the weaker performers in Australia have markedly lower scores than their counterparts in France. At the other end of the scale, the stronger performers in Australia score more highly than the stronger performers in France. The same contrasts can be observed when comparing Norway and England. This indicates that a consistent level of achievement is not a necessary condition for a system to attain a high level of average performance.

Across OECD, variation in student performance rises from the fourth grade to the eighth grade. But again, considerable differences pertain in the growth of these disparities across countries. While some countries with relatively large variation in mathematics achievement in the fourth grade also exhibit relatively large variation in the eighth grade, some countries with low variation in the fourth grade have a relatively high variation in the eighth grade. Such differences among countries show that the growth in disparities in not an inevitable outcome of education systems.

In OECD countries, school environments usually vary much less than the home environments of students, but some countries show relatively large differences in achievement among classes and schools. The relation between the relative variance components and overall levels and variation in student achievement is mixed: Japan and Korea show high average performance but, at the same time, large variation among eighth graders in mathematics performance. France reaches high average performance with low variation which, in turn, is largely explained by differences among classes and schools. The Netherlands and Switzerland perform well with only moderate variation most of which occurs among schools and classes and results from a highly differentiated school system. Germany and the United States perform below the OECD average, with similar levels of overall variation but very different differentiation policies.

III. Demographic trends and social equity: challenges for the health sector

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A. Introduction

Over the past 30 years, Latin America has seen major changes in its population dynamics, with declining fertility and mortality rates, a slowing of the growth rate, major waves of internal and international migration and an acceleration of urban growth. This demographic evolution has taken place within the context of economic and social changes which have occurred in the region since the 1960s. Economic growth has laid the foundations for an increase in real income for broad sectors of the population, the expansion of education and health coverage, universalization of communications, dissemination of the most recent medical advances, improvements in nutrition and other achievements. This has not only lengthened people's lives and improved their health, but also brought about changes in values, beliefs and behaviour related to the concept of the family and the desired number of children, thus leading to a decline in mortality and fertility rates.

Between approximately 1960 and 1995, the population of the region increased from 160 million to 469 million, life expectancy rose from 52 to 69 years, the number of children ever born per woman fell from 6 to 3 and the annual average rate of population growth slowed from 2.7% to 1.6%. Some of these changes were attenuated by the economic crisis of the 1980s, but the demographic transition proceeded, generating changes in human resources and the demand for goods and services.

While population growth rates have fallen sharply, the Latin American population is still projected to expand by 216 million between 1995 and 2025. Of this number, 3.4 million will be under the age of 15 and will place additional demands on the school system; 152 million will be of working age and will thus swell the ranks of the labour force; another 61 million will be over 60 years old and will therefore be entitled to old-age pensions and other social security benefits. The health-care and education systems, the labour market and many other social structures will need to adapt to these changes by meeting a variety of challenges. This document explores the impacts of demographic changes on the health sector, mainly associated with the epidemiological transition and reproductive health.

B.   Demographic transition and fertility transition

All Latin American countries are already undergoing a process of demographic transition, albeit to varying degrees of intensity. This process, which may be observed empirically, is characterized by a shift from slow population growth marked by high birth and mortality rates to slow growth featuring, lower birth and death rates. In the interim, because the decline in these rates is not synchronized, there is a period of rapid population growth. Generally, the following phases have been observed in the region, although with differences among countries.

The pre-transitional situation, which existed at the beginning of this century, was characterized by a life expectancy at birth of about 30 years and a total fertility rate of six to seven children per woman. The population was in equilibrium, with high mortality and fertility rates and a low growth rate. One of the distinctive features of the transition in Latin America that sets it apart from the process observed in Europe is the higher level of fertility in this phase, which is attributed to early marriage and to a lower percentage of persons who remained single.

The mortality rate declined in the first half of this century, followed by an increase in fertility in the 1950s. The two phenomena together resulted in an increase in the rate of population growth. Mortality started to decline first, descending slowly at the beginning of the century and with greater intensity from about the 1930s on. In 1950-1955, life expectancy in the region was 52 years and the infant mortality rate was around 127 per thousand. Advances in the following two decades caused life expectancy at birth to rise to 60 years in the 1970s. The increase in fertility was probably due to earlier declines in mortality rates, which meant that women could conceive over a longer period, and to improvements in nutrition and health conditions, which were also conducive to higher rates of reproduction.

Mortality rates continued to fall and fertility rates also started to decline, producing a slowdown in population growth. The change in fertility, which occurred after the change in mortality, was most significant in the mid-1960s, coinciding with the so-called "second contraceptive revolution", in which modern methods such as oral contraceptives, intra-uterine devices and sterilization became widespread. The process is now tending towards a new equilibrium with low levels of growth. Fertility is expected to stabilize at close to replacement levels, and mortality rates should remain low.

Patterns vary among countries in terms of when mortality and fertility started to decline, their rate of descent and their initial and current levels. These differences have resulted in the coexistence of different phases —both between countries and between different social sectors within countries— which can be detected through an examination of socio-economic differentials and demographic studies on poverty (INEI/PRES/FONCODES/CELADE, 1996). Notwithstanding this heterogeneity, demographic indicators allow us to identify certain recurrent patterns which the Latin American and Caribbean Demographic Centre (CELADE) has used as a basis for the classification of countries according to their stage of demographic transition (ECLAC/CELADE, 1993). These stages are as follows: **incipient transition**, which is characterized by high birth and mortality rates, with moderate natural rates of population growth (e.g., Bolivia and Haiti); **moderate transition**, which is marked by high birth rates and moderate mortality rates, resulting in high natural growth rates (e.g., El Salvador, Guatemala, Honduras, Nicaragua and Paraguay); **full transition**, which incorporates moderate birth rates and moderate or low mortality rates, resulting in moderate natural growth (e.g., Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Peru and Venezuela); and **advanced transition**, in which low birth rates and moderate or low mortality rates cause low natural growth rates (e.g., Argentina, Chile, Cuba and Uruguay).

The decline in fertility has been the preponderant factor in terms of the changes in the size and age structure of the population. In the early 1960s, all the countries of the region except Argentina, Uruguay, Chile and Cuba had an average total fertility rate of six to eight children per woman. In 1990-1995, however, only Bolivia, Guatemala, Haiti, Honduras, Nicaragua and Paraguay averaged as high as, approximately, five children per woman. In the great majority of countries (13), women were having between 2.5 and 3.5 children; only Cuba was below the replacement level with an average of 1.6 per woman. If current projections of fertility trends in Latin America are borne out, over half the countries in the region will have reached replacement level by 2020-2025. In short, the decline in fertility rates is tending to spread as part of what seems to be an inevitable and irreversible historical trend. This, in conjunction with the processes set in motion by this decline, will bring about major changes in the future age structures of the countries' populations.

The most significant effect of the decline in fertility has been the change in the size and relative weight of the different age groups. The decline in fertility implies a slowdown in the rate of increase in the annual number of births and, in some cases, a decrease in the absolute number of births as well. This has a direct impact on the base of the age pyramid, giving rise to a gradual ageing of the population, with a relative decrease in the young population and an increase in the proportion of adults and elderly persons. The decline in mortality contributes to this process: whereas increased infant survival does not entirely counterbalance the effect of declines in fertility, higher rates of survival at advanced ages (an increase in life expectancy beyond the age of 60, for example) swells the top of the age pyramid, which thus tends to become more rectangular. Over time, as the decline in fertility stabilizes, this will bring about a reduction in the absolute numbers of young people, some degree of ageing of the active population and an increase both in the population of senior citizens and in their average age.

To sum up, in demographic terms the ageing process is the result of a change in fertility trends and, to a lesser extent, in mortality trends. Migration may also contribute to the ageing process. If international migration had little or no effect on a population, then changes in the age structure would be caused mainly by a reduction of the base of the age pyramid as a result of fertility decline and, to a lesser degree, the widening of the top of the pyramid due to the cumulative effect of the decline in fertility and the increase in older persons' life expectancy.

In the countries of Latin America, a clear relation exists between the total fertility rate and the proportion of persons under 15 years of age, irrespective of the stage of transition: when fertility is higher, so is the proportion of children. A total fertility rate of five or more children per woman is associated with an under-15 age group that accounts for over 40% of the population. At the other extreme, a replacement-level rate (around 2.1) is associated with an under-15 age group representing just slightly over 20% of the population. In countries at an incipient or moderate stage in the transition, the percentage of the population under the age of 15 is still high (currently around 40%), although it has been on the decline. In countries in a full-fledged transition, this percentage has declined to 30%-35%, and among countries at an advanced stage in the transition, the proportion is under 30%. With respect to the growth of the population at the top of the pyramid, the greatest difference is still found between countries in an advanced transition and the rest: whereas the proportion of people over 60 is approximately 6%-7% in the latter, in the former it is already above 10%; in the case of Uruguay, it is over 15%.

C.   Mortality and health

1.   Demographic transition and epidemiological transition

The demographic transition and, in particular, the decline in mortality have been accompanied by a set of processes which has come to be known as the 'epidemiological transition', whose main features are changes in the structure of causes of death and in their age distribution (PAHO, 1990). The hallmark of the epidemiological transition has been a shift in prevalence away from infectious and parasitic diseases and towards tumors, degenerative diseases (especially of the circulatory system) and external causes (i.e., accidents, homicides, suicides).

The changing pattern of morbidity and mortality entailed by the epidemiological transition goes hand in hand with changes in the population's age structure (i.e., a reduction in the child population and an increase in the percentage of older people), which helps to modify the health-care sector's demand profile still further. These changes in the prevalence of certain diseases and causes of death are a consequence of the development of medical knowledge, health education and the increase of general sanitary conditions. They are also influenced by the decline in fertility and the subsequent changes in the age structure of the population. All of these factors contribute to shifts in the demand for health care.

The main source of demand in countries in the advanced stages of transition is, and will continue to be, the adult and elderly population. The ageing process is relatively advanced in these countries. Health-care systems are consequently coming under pressure to deal with degenerative and chronic diseases or conditions which require more complex and more costly diagnostic, treatment and rehabilitation techniques. As demographic and epidemiological changes grow more pronounced, the frequency and severity of non-communicable chronic diseases increases (PAHO, 1990).

In short, demographic changes in these countries are leading to a stabilization or even a decline in the health-care requirements of the population under 15 years of age, a slight rise in the level of care required by young adults and a marked rise in services for older adults. Although the health-care systems in these countries have a broad coverage, they now face the challenge of maintaining and improving their levels of care while at the same time taking steps to cope with the growing demands of the elderly. It is to be hoped that these countries can maintain the levels of care they have achieved with respect to infectious and parasitic diseases while they work to improve the coverage and quality of care for lower-income sectors through preventive and health education programmes which target the most vulnerable groups.

The outlook for countries classified as being in a full-fledged transition is less certain, as their demographic characteristics create co-existing demands (Chackiel and Plaut, 1993). In these countries the younger population still figures prominently in the age distribution of deaths, but the elderly have come to account for an increasingly larger percentage. This suggests that, while striving to implement health-care strategies which target the child population and the prevention and cure of communicable diseases, health services must also confront a wider, more varied set of demands than in the past.

Although the health-care requirements of the child population will tend to stabilize, these countries still have to cope not only with the growth of the elderly population, but also with the unsatisfied demands of large sectors of the low-income population. Rapid urbanization and the poor health-care coverage typical of the rural areas of Latin America exacerbate this situation.

In countries where the transition is at an incipient or moderate stage, maternal and child health continues to be one of the most serious problems. Children under 15 years of age account for the highest proportion of deaths, with infectious and parasitic diseases being among the most prominent causes. This type of morbidity also affects the adult population in these countries. For this reason, while health-care initiatives must concentrate on mothers and children, they also need to devote greater attention to other age groups. The distribution of causes of death in these countries indicate that they still have morbidity and mortality patterns characteristic of developing countries, a problem compounded by malnutrition and the low income levels of substantial sectors of their population. Improving the population's health therefore requires not only specific actions by the health sector, but also broad-ranging sanitation policies and measures to strengthen health-care structures in both urban and rural areas.

2. Infant mortality and social inequalities

Health conditions have improved significantly in the region. As a result, life expectancy at birth has increased and the infant mortality rate has dropped. The infant mortality rate for the region as a whole has fallen from 127 per 1,000 in 1950-1955 to 41 per 1,000 in 1990-1995, with probably a much greater decline among the poor. Substantial differences exist among countries, with rates ranging from 75 per 1,000 in Bolivia and Haiti to less than 15 in Chile and Costa Rica and 10 in Cuba.

In spite of these achievements, the risk factors for death affecting the various sectors of the population in any given country differ significantly, generating greater disparities than those seen among countries. Numerous studies[1] based on censuses and, more recently, on demographic and health surveys[2] have shown that the levels of infant mortality are still high among the most disadvantaged social groups, reflecting significant inequalities in access to health care.

Social differentials in the risk of death in childhood have been observed at all stages of the demographic transition. The differences are more substantial, however, when mortality is higher, and they narrow significantly when mortality is low. This is due to greater health service coverage, control of major pockets of communicable disease and the higher level of education attained by the population, among other factors.

Today, internal differentials with respect to infant mortality have been identified, and they are clearly associated with socio-economic and health-care variables. Two studies by CELADE —Research on Infant Mortality in Latin America (IMIAL) and Research into Fertility Using the Own-Children Method in Latin America (IFHIPAL)— found a systematic association

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[1]   Research on Infant Mortality in Latin America (IMIAL) and Research into Fertility Using the Own-Children Method in Latin America (IFHIPAL), both conducted by CELADE between 1975 and 1985, approximately.

[2]   Demographic and Health Surveys (DHS), undertaken by the Institute for Resource Development/Macro International Inc. in conjunction with national institutions in several Latin American countries.

between high levels of infant mortality and residence in a rural area, a low educational level on the part of the mother, low-paying occupational categories, substandard living conditions and membership in an indigenous community. Demographic studies on poverty have yielded similar results, with major differences being found in levels of infant mortality between poor and non-poor families (INEI/PRES/FONCODES/CELADE, 1996). In addition, the Demographic and Health Surveys (DHS) programme undertaken by the Institute for Resource Development has demonstrated the link between infant mortality rates and such factors as the age of the mother at the time of birth, the length of birth intervals, birth order, the existence of medical care prior to and at the time of birth and birth weight.

The greater an indicator's level of disaggregation, as in the case of the mother's educational level, the greater are the differences found between social groups. Among the cases observed, infant mortality rates in Peru, the Dominican Republic and Bolivia reveal the greatest differences between uneducated women and those who completed secondary school. These differences would be greater still if data were available on groups with the highest level of educational attainment. Such disparities tend to narrow as mortality rates decline, with the various groups tending to converge. Efforts to identify and quantify the most vulnerable groups may help policy makers determine health-care priorities and redefine the objectives and requirements of health services, in order to concentrate on those sectors most at risk of morbidity and death.

D. Fertility and health

As in the case of mortality, fertility decline has important implications for the health-care sector, since the trend affects the extent and type of demands made on this sector. The consequences include the following: (a) a lower rate of growth in the number of births and of women of childbearing age, which reduces the demands for maternal and child health care and thus makes it possible to shift resources into improving the quality of care; and (b) a rejuvenation of the age structure for fertility, with lower rates for the age groups at the two extremes, which helps reduce maternal and child mortality.

1. Trends in birth rates

Although the increase in Latin America's birth rate has slowed dramatically in the past 30 years and will probably continue to do so in the future, the number of births per year has not actually decreased in absolute terms. The number of births is rising much more slowly than before, however. If fertility trends turn out as expected, then the number of births in the region as a whole will begin to decline in the early years of the coming century, with a trend to stabilize at around 11 million. As is only to be expected, the situation differs from one group of countries to the next.

In the countries that are at an advanced stage in the demographic transition, fertility has levelled off at low rates and as a result, the number of births per year has levelled off as well (Argentina, Chile and Uruguay) or has even begun to decline (Cuba). This will relieve some of the pressure exerted by maternal and child health-care requirements on the health-care system. It will help create better conditions than in other countries of the region for investments in upgrading the quality of care and training specialized personnel within a health-care system whose coverage is already relatively broad.

Because of the countries' internal heterogeneity, however, and the existence of social groups whose health-care needs have never been met satisfactorily, services need to be directed towards improving the care provided to high-fertility, low-income sectors. Efforts to accomplish this will be facilitated by the fact that these countries already have extensive health-care infrastructure and predominantly urban populations.

In countries that are undergoing a full-fledged transition, birth rates will also level off around the year 2000. Nevertheless, with the exception of Costa Rica, where the coverage of the health-care system is quite extensive, the countries in this group need to expand their services and perhaps make a greater effort in terms of both funding and training in order to meet the needs of lower-income groups. Brazil and Mexico may confront the most formidable challenges in the field of health care because of the size of their populations, their striking internal social disparities and the fact that their populations are just beginning to age.

Finally, in high-fertility countries where the demographic transition is just beginning or is at a moderate stage, the birth rate is still rising sharply, particularly in countries such as Guatemala and Nicaragua. The greatest demands on the health-care sector will therefore continue to be in the area of health care for mothers, children and young adults. Morbidity and mortality patterns in these countries are still typical of those found in less developed countries, with a greater prevalence of infectious and parasitic diseases. These countries also have higher levels of malnutrition and sharp internal differentials in fertility rates and infant and maternal mortality rates. Additionally, high-risk groups exposed to unhealthy environmental conditions constitute a large percentage of their national populations. The need for an integrated approach to health care involving the expansion of drinking water distribution networks and sanitation services, together with public educational campaigns, is therefore much greater in these countries than in relatively more developed nations.

2.   Age-related fertility risks

The fact that the decline in fertility is associated with a rejuvenation of its age structure has important positive implications for the health of women and children. It implies a shift away from the two extremes and towards central reproductive ages, which are less problematic in terms of fertility-related health risks. In effect, a woman's age constitutes a risk factor in relation to reproductive health when she is below the age of 20 or over the age of 34. Women of these ages are more likely to suffer from high blood pressure and anemia and to have a greater percentage of premature births and low birth-weight babies. They are also at a higher risk of obstetric complications than are women in the central ages of the reproductive cycle (Maine and Allman, 1990).

All this leads, in turn, to higher infant and maternal mortality. Infant mortality rates, for example, are higher for women under 20 years of age, decline for women between 20 and 30, and then rise again as women approach the end of their childbearing years (ECLAC/CELADE/IDB, 1996). The level of risk is also higher when the mother is in poor psychological or physical health, which depends on a complex set of biological, social, economic and cultural factors. If women who conceive at a biologically high-risk age are subject to high-risk socio-economic conditions as well, then an entire chain of factors is brought into play that will have a negative impact on following generations (Winikoff, 1990), thereby perpetuating poverty and deprivation. Consequently, the decline in fertility and the change in its age structure, particularly among women whose substandard living conditions place them at higher risk, have been beneficial for the health of mothers and their children in all the countries, regardless of what stage in the demographic transition they have reached.

Fertility decline has been less marked among women below 20 years of age, however, than among those who are near the end of their reproductive period. This therefore continues to be a strongly negative factor for both current and succeeding generations. Although fertility rates for this age group have diminished, the percentage of total births accounted for by adolescent mothers has actually increased because of the sharper decrease in births among women over 34 years of age. The absolute number of births to teenage mothers has risen as well and will continue to do so, since

the number of adolescent women is growing as a consequence of high fertility rates in the past. In fact, the female population between 15 and 19 years of age in Latin America jumped from 14.2 million in 1970 to 24.3 million in 1995; it is expected to continue to grow, although more slowly, reaching 26.4 million by the year 2025.

In the countries with the highest population growth rates, particularly those where the transition is at a moderate stage, adolescent women have accounted for a large percentage of the total fertility rate since 1960-1965. In El Salvador and Guatemala, they account for an even higher percentage than do women over 34 years of age. Over the past 30 years, their share of total fertility has climbed from approximately 15% to 22%, whereas the percentage for women over 34 years of age has declined from about 15% to 10%-12%. Younger women's share of total fertility is expected to decline over the next 20 or 25 years, although it is not likely to fall below the figures recorded for 1960-1965.

The situation has been somewhat uneven in the countries that are in the midst of the demographic transition. In Brazil, Colombia, Costa Rica, Mexico and Venezuela, the relative share of total fertility accounted for by adolescents has expanded, whereas in the Dominican Republic, Panama and Peru, it has held fairly constant. The countries at an advanced stage in the transition have not been entirely homogeneous either: the relative weight of adolescent fertility increased in Argentina, Cuba and Uruguay and held steady in Chile between 1960 and 1990 approximately.

In view of its adverse impact on the health of mothers and their children and its negative social implications (ECLAC, 1998c), this problem demands effective solutions in terms of preventive measures based on increased sex education and greater access to family planning services and to suitable medical care. These needs are apparent in the vast majority of the countries, since educational and public health authorities in countries with widely differing economic and social conditions have not made a determined effort to confront the situation.

Because they are just entering into their reproductive period, adolescents as a group are particularly vulnerable and may be assumed to be subject to a high rate of unwanted pregnancies and a large number of abortions. The higher fertility rates found in this age group are concentrated among girls with little or no education (i.e., no formal schooling or completion of primary school only). The rates are higher in rural areas than in urban zones, which heightens this group's exposure to relevant risk factors. Fertility rates for young women between 15 and 19 years of age who live in rural areas are as much as twice as high as they are for their urban counterparts. Teenage pregnancies are more likely than pregnancies among other age groups to result in abortion, interruption of schooling, the loss of better job opportunities and the formation of households headed by single mothers. They are also more likely to contribute to the inter-generational transmission of poverty, although they are not its determining factor.

3.   Fertility-related social inequalities

Differences in the various countries' fertility levels according to the stage reached in the demographic transition are indicators of a lack of equity in living conditions, in levels of schooling and in access to basic services, medical care and the mechanisms that permit people to lead healthy reproductive lives suited to their needs and desires.

High-fertility groups can be found in any country, but in countries in which the demographic transition is less far along, such groups represent a large proportion of the total population and are chiefly associated with rural areas, low-level jobs, low levels of schooling, poverty, indigence and indigenous communities (ECLAC/CELADE, 1993). For example, it is known that rural women tend to have more children than urban women, but the differential between the two can range from one child (Chile) to more than three children (Peru). The same is true of other variables, such as

membership in an indigenous ethnic group or the characteristic of being "poor". By the same token, the differential in the average number of children born to women in the highest educational category and to women with no schooling at all can range from as many as five children in countries such as Brazil, Colombia and Peru to less than one in Chile and Cuba (INE/CELADE, 1989; CEE, 1987). Thus, internal fertility differentials diminish as the demographic transition progresses, with rates in the countries at the most advanced stage in that transition clearly tending to converge.

In short, the fertility differences associated with various geographic, socio-economic and cultural characteristics of the mother, the father and the household not only provide a picture of contrasting situations but also provide information that can be used in targeting vulnerable groups and designing demand-based health-care programmes.

It has been demonstrated that high fertility is associated with poor, less-educated, rural women. These women also tend to begin their married life at an earlier age, to regulate their fertility less, to obtain prenatal medical care or medical assistance during childbirth less frequently, to have more closely spaced pregnancies and to be more likely to become pregnant in the first few or last few years of their reproductive lives.

High fertility levels cannot be attributed to socially determined differences in the desired number of children, however. According to DHS data, the number of children desired by less educated women is fairly low (generally two to three children) and quite similar to the number cited by more educated women. The gap between desired and observed fertility is quite substantial: in the case of uneducated women, the differential in the number of desired and observed children is around four in Bolivia and Peru and around two in Brazil, Colombia, the Dominican Republic, Ecuador and Paraguay. This holds true even when the sectors lagging the farthest behind in both socio-economic and demographic terms have already begun to show a decline in fertility rates (Chackiel and Schkolnik, 1997). Nevertheless, factors can also be identified that are associated with a slow rate of decline and with the perpetuation of high rates of unwanted pregnancies, along with all their psychological and health-related consequences.

Studies conducted on the basis of proximate determinants of fertility, such as the frequency of conjugal unions, infertility following childbirth and the use of contraceptives, have shown that contraceptive use has been the most decisive factor in the decline of fertility in the region (Weinberger and others, 1989; Moreno and Singh, 1992; Rosero, 1992). Abortion, one of the main proximate determinants of fertility in Latin America, is usually not included in these studies because of lack of statistical data to quantify its contribution to fertility decline. Indirect evidence indicates its importance in the decline of fertility in the region, however.

In the countries that are the farthest along in the transition, contraceptive use is high and the more modern methods of contraception predominate. In contrast, the proportion of contraceptive users is much lower in countries at an incipient stage. According to the latest DHS data, the proportion of women who use modern contraceptives is 70% in Brazil (DHS-96, 1997), 59% in Colombia (DHS-95, 1996), 52% in the Dominican Republic (DHS-96, 1997), 48% in El Salvador (FESAL-93, 1994), 45% in Ecuador (ENDEMAIN-94, 1995), 41% in Paraguay (ENDSR-95/96, 1997), 41% in Honduras (ENESF-96, 1996), 33% in Peru (DHS-92, 1993), 27% in Guatemala (DHS-95, 1997), 18% in Bolivia (DHS-94, 1995) and 14% in Haiti (EMMUS-II-94, 1995). The survey findings indicate that this is also true for the most disadvantaged groups, since an increase in contraceptive use has been associated with the decline in the total fertility rate. In countries where fertility levels among uneducated women are around five children per woman (e.g., Brazil, Colombia, the Dominican Republic and El Salvador), modern contraceptive use is generally reported by between 45% and 55% of women, while in those countries where the fertility levels of

uneducated women are still over six or seven children per woman (e.g., Bolivia, Ecuador, Paraguay and Peru), contraceptive use ranges from 3% to 25%.

The expansion of family planning and health education programmes is necessary to improve the health of mothers and their children and promote greater equity in access to reproductive health care. Clearly, these problems will not be solved until all women —rather than only those enjoying a privileged position in society— have access to the resources they need to regulate their reproductivity in accordance with their own expectations.

E. Conclusion

In the context of a relatively advanced stage of economic, social and cultural development, demographic changes in Latin America have facilitated improvements in health conditions from the standpoint both of demand —as a result of changes in the absolute and relative size of the groups generating the demand for health services— and of supply —by paving the way for a shift in resources towards more specialized areas, emerging problems or traditionally underprivileged groups. Nevertheless, the most positive changes brought about by efforts to combat infant mortality and provide improved reproductive health care to women of childbearing age have not been evenly distributed among the various social groups. Social inequities are perpetuated through the mechanism of health-related risk factors that primarily affect socially and economically disadvantaged groups.

IV. Cultural statistics and poverty

Leo Goldstone

World Statistics Ltd.

A. Indicators for the World Culture Report

Following the recommendation of the World Commission on Culture and Development in its report entitled "Our Cultural Diversity", the United Nations Educational, Scientific and Cultural Organization (UNESCO) published the *World Culture Report 1998* in June of that year. This first Report was the subject of an extended discussion at the Intergovernmental Conference on Cultural Policies for Development in Stockholm which took place a few weeks earlier. The Conference formally adopted a Resolution recommending that a World Culture Report be issued every two years.

The World Culture Report Steering Committee, of which I am a member, asked me to prepare the indicators for the 1998 Report, and I will endeavour to do the same for the *World Culture Report 2000*. Culture or culture-related indicators were presented for 150 countries with a population of one million or more, as well as for ten regional groupings. Nearly 200 data items were included and distributed among 30 tables. The current paper reviews this experience of collecting, compiling, analysing and presenting these indicators and discusses some of the implications and concerns that became apparent as the work was carried out.

The indicators for the first Report had to be drawn from material that was readily available. This clearly limited the depth and scope of the analysis, as many important cultural concerns are not adequately reflected through existing statistics and consequently were not included in the Report.

The culture indicators do not pretend to measure world culture, which is tremendously complex and multifaceted. Rather, the Report presents those aspects of world culture that were readily measurable. One of the aims of the project, however, was to start a process of broadening those measurable and reported aspects of world culture so that subsequent Reports would be able to present a more complete picture.

Many cultural concerns were omitted simply because too few countries could provide comparable reliable data. Other cultural elements were omitted because no satisfactory means of expressing them in tabular form has yet been developed. Some cultural issues which could be adequately expressed in indicator terms would have required special global inquiries for which there was not sufficient time for the purposes of the first Report.

The more important cultural omissions make a formidable list. They include cultural freedom; cultural discrimination; rights of and support to minority cultures; freedom of linguistic expression; freedom to travel; leading religions, religious attendance and freedom of worship; cultural tolerance; ethnicity; official languages, spoken languages and dialects; cultural education; cultural participation; the most-visited sites and popular festivals; cultural prizes; art galleries; music performances; professional arts and crafts; cultural industries and cultural labour force; artists, writers and musicians; the condition of the artist; intellectual property and copyright; taxes and tax allowances on cultural goods and services; cultural export controls; cost of paperback books and similar basic instruments of cultural diffusion compared to average income; public and private expenditure on culture and cultural heritage; parks, gardens and nature reserves; heritage institutions; professional and non-professional sports and games; cable TV and videos; magazines and comic books; leisure time use; and traditions and practices regarding food and drink.

The indicator tables of the 1998 Report were organized in seven thematic groups: cultural activities; cultural practices and heritage; cultural trade and communication; cultural trends; ratification of conventions; translations; and cultural context. This last category covers the broad contextual, social and economic conditions which impinge on or materially affect cultural development and diversity.

B. Multiculturalism

In addressing the question of which quantitative aspects of culture to emphasize and how to present them without showing a bias towards any single cultural pattern, one issue immediately arose. The production, consumption and exchange of cultural goods that can be priced in the market is the area that is richest in indicators. Furthermore, the richer a country, the more cultural goods it usually produces and consumes. Not only do rich countries have more data, but they "score" higher in the area of producing and consuming cultural goods through market mechanisms.

We thus sought to balance the inevitable bias towards the rich countries arising from their cultural production and consumption. While market indicators reflect an important and measurable part of world culture, the challenge was to broaden the scope of the indicators to include the multicultural features that exist in all countries, that can be provided by all countries, and that can be presented in the indicator tables.

Many of these multicultural features fall within the thematic group on cultural practices and heritage, including official and major spoken languages, leading religions, national public holidays,

heritage sites, and the most-visited sites and popular festivals. At the last minute, we chose to exclude the tables on languages and religions. Because these topics are culturally sensitive, we felt that countries should have the opportunity to review the tables, but there was not sufficient time to do this adequately.

Whenever possible, the multicultural nature of the world was emphasized. This included movements among peoples to study abroad; to tour abroad; to telephone abroad; etc. In all these movements, the names of the destination countries were listed when available so that the pattern of cultural flows could immediately be discerned. The thematic group on translations was multicultural by definition, particularly concerning translations by original language. This section lists and quantifies 90 of the over 220 languages currently being translated.

C. Coverage and reliability

Many of the available indicators had an inadequate coverage and were somewhat outdated. The indicators in the Report are based on data obtained from nearly 20 international and professional sources. Indicators developed from such a large number of sources will obviously have a wide range of data availability, particularly in the case of a first global report of this nature. As many as one-third of the nearly 200 data items in the indicator tables were not readily available in some comparable form for at least half the countries. It was sometimes necessary to go back to the 1980s to arrive at a respectable number of countries for some indicators.

Among the indicators that are missing for so many countries are some very important ones: number of copies of books produced; registered public library users; number of books in public libraries; cultural radio and television programmes; recorded music; performing arts; cultural trade; archives; museum personnel; the trend data on book titles, cinema attendance; foreign visitors; translations and books in foreign languages; and the major countries of origin of foreign students. This illustrates the crippling lack of basic indicators of culture among countries. As might be expected, this lack is greatest in the poorest countries. The result is a strong cultural bias towards the rich countries which produce and consume cultural goods.

In addition to availability, coverage and source, the issue of reliability raises important concerns. Cultural indicators like the number of radios and televisions per inhabitant are reliable and fairly comprehensive, as are many of the indicators found in the tables on cultural context. These indicators, however, reflect the wealth of a country as much as, if not more than, its culture. Other cultural indicators, like the indicators on cultural trade, are also reliable, but they unfortunately have limited coverage and also very much reflect the wealth of a country. On the other hand, cultural indicators like cultural radio and television programmes provide only limited coverage and are not necessarily comparable among countries. In the case of cultural indicators like spoken languages, ensuring the quality of the definition is difficult, although the coverage is complete and the indicator is independent of wealth.

D. The wealth bias of cultural statistics

The available cultural statistics clearly under-represent or even completely exclude many of the cultural activities of poor nations and of poor people in rich nations. Unlike the statistics of other social areas like education, population and health (but not disease), cultural statistics are not inclusive. On the contrary, they are patently exclusive, focusing primarily on the production and consumption of cultural goods, that can be priced in the market. If countries do not produce marketable cultural goods, they are discounted. If people do not consume marketable cultural goods, they are equally discounted. Because "culture" as it is statistically defined is limited

primarily to market activities and not life activities, people and countries that do not participate in the market are not considered "cultured" from the point of view of the statistics that are currently available. In fact, cultural statistics is as much a process of discounting as one of counting.

This was borne out when we came to discuss the feasibility of constructing a composite Cultural Development Index by which countries could be ranked. There was a strong wish to develop such an index but a very powerful argument against trying to design such an index was that the relative importance of indicators on cultural consumption and production would inevitably create a "rich country cultural development index". The richer the country, the more cultured it would appear, with a few inevitable exceptions. A second, more important argument against a single cultural development index was that culture is multifaceted and that cultural diversity should be nurtured. A monolithic single cultural development index would represent the antithesis of that view.

The decisive final argument against having a single cultural development index was made when the international group of culture specialists advising the Paris-based United Nations agency concerned with culture, was informed that any index based on cultural consumption and production indicators would show the United States as the most cultured country in the world!

The problem does not reflect a choice between "high" culture and "popular" culture. There is nothing intrinsically high-culture about a television, a radio, a cinema, a newspaper or a compact disc. With most cultural indicators of this type, the statistical unit is the material means of communication, not the cultural content of what is communicated. In theory the various communication instruments are neutral with regard to high culture and popular culture. Even when they are clearly not neutral, statistical data is usually presented independent of their biases. Interestingly, some high culture activities like theatre, opera, ballet and classical music concerts are often poorly quantified for international purposes, perhaps because they are very much minority activities even in rich countries.

The cultural market bias works in a number of ways. Within countries, cultural activities that involve the market are more readily quantified because money is exchanged. Poorer people who cannot afford to participate in the market, however, will naturally pursue their cultural activities through non-market cultural practices like festivals, rituals, musical events, storytelling, etc. Very few of these activities are readily quantified.

Among countries, the poorer countries have the weakest data collection systems and are more likely to treat the collection of cultural statistics as a low priority. This is very reasonable, considering the importance of other areas of statistics and the countries' very limited resources. It is precisely in these poorer countries, however, that the majority of people engage primarily in non-market cultural activities. This means that cultural statistics, as they are currently practised, exclude a minority of people in rich countries and the majority of people in poor countries.

E.   The market-place definition of culture

Another, more insidious aspect of the close association of culture and consumption is the extent to which living in poverty deprives people and, in some cases, whole countries of many cultural activities and opportunities as commonly defined. Market-place culture is by far the leading cultural brand, with a dominant share of the statistically defined culture market. It is also identified mainly with the rich countries.

If we look at the leading countries for each indicator, we find that Japan produces the televisions, Canada, Germany and France buy the televisions and Singapore trades the televisions. The United States produces the films, and New Zealand and Ireland buy the film tickets. Hong

Kong and Norway buy newspapers, while Italy and Spain publish books. The United Kingdom, Australia and Korea buy radios; Austria and Belgium buy recorded music; Sweden and Denmark visit museums.

All these leading country examples are taken from the tables of the *World Culture Report 1998*. There are exceptions of course, like India in film production and cinema going, but market culture is essentially what rich countries practice. And the culture that is practised in rich countries is also practised by the rich people in the not-so-rich countries and the rich people in the poor countries. This results in the creation of a self-perpetuating, value-laden, exclusive definition of culture, which is the culture of the comparatively rich as expressed through the market place.

This is the culture that goes with increased wealth. This is the culture that provides the badge of success throughout our increasingly homogenized world. People want a little piece of that "culture of the rich" to have in their own lives because it gives them at least the feeling of being rich. Inevitably, this market culture is increasingly seen as a modern, sophisticated, high-status culture, whereas the non-market traditional culture is seen as an old-fashioned, simplistic culture.

Being poor not only means not being able to participate very much in the market culture and being deprived of the many stimuli that this culture provides. It also means being considered and perhaps considering oneself as culturally inferior, as if it were an inherited characteristic. But the real reason that poor people are classified as culturally excluded or culturally inferior is that they are poor. Their poverty acts as a barrier to their development as human beings. However, let a few poor people win the lottery and go on a buying spree in the cultural market place and we will immediately include them in our statistics. By definition, they will no longer be culturally excluded, no longer be culturally of no account. This is an untenable and unconscionable situation, and it is imperative that cultural statistics be redesigned so as to count the poor as well as the rich.

F.   Next steps

The *World Culture Report 1998* aims to put culture and cultural diversity on the map. This initiative includes as an essential element the improvement and enlargement of cultural statistics, because of the limitations discussed above.

Future Reports will present quantitative information on many of the cultural activities that are missing in this first Report. In this connection, a short questionnaire will be sent to each country on three of these missing areas: official and spoken languages; leading religions; and most-visited sites and popular festivals. In the case of languages and religions, we intend to provide pre-filled questionnaires and ask governments to amend them as appropriate. In addition, a special effort will be made to obtain data on a number of aspects of professional and non-professional sports. Sport is very much a multicultural activity, and for many of the most popular sports, it is not so closely linked to wealth, especially in the case of non-professional sport.

It is also the intention that in future Reports, many missing countries will be able progressively to provide more cultural information. The coverage of the indicators will thereby become more representative and less biased towards the rich countries. In this respect, countries might use the 1986 UNESCO Framework for Culture Statistics as an operational starting point. It would be useful to revise this Framework, however, so as to take into account the rapid cultural changes that have taken place in the world over the last ten years and to try to reduce the bias towards rich countries and rich people that cultural statistics currently reflect.

V. The challenge of finding robust poverty indicators for rapid monitoring of changes

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A. Introduction

The reduction of poverty and the improvement of living conditions has, in recent years, become the overarching goal of most national governments and of the multilateral and bilateral agencies that have been supporting global economic and social development efforts. Debates on how these goals are to be achieved dominate the development planning process everywhere. It is generally agreed, however, that effective monitoring systems are essential for measuring the extent to which we are realizing these goals. This new area of work has introduced major new demands on national statistical systems which for the most part are already overextended and under-resourced. Despite a significant flow of new resources over the past decade towards the creation of new poverty monitoring capacity, the outputs of such systems are still extremely ambiguous with regard to whether and how poverty levels are changing. To understand why these systems have failed to provide more relevant information, this paper examines the indicators that are used to monitor poverty levels, but from the perspective of the data collector or statistician rather than the poverty analyst.

B. Framework for a poverty monitoring system

The *Human Development Report 1997*, whose theme was human development to eradicate poverty, develops a composite human poverty index (HPI) for comparing levels of poverty. This index concentrates on measuring deprivation in three essential areas: survival (i.e., the percentage of people expected to die before age 40), knowledge (i.e., the percentage of adults who are illiterate) and living standard (i.e., the percentage of people with access to health services and safe water and the percentage of malnourished children under five). Significantly absent in the HPI is any indicator of income or consumption. The primary reason for this absence is the difficulty of establishing an internationally comparable poverty line. By comparison, the Development Assistance Committee of the Organization for Economic Cooperation and Development (OECD), in which almost all the main development agencies are represented, proposed a set of indicators for monitoring the achievement of a series of development goals established at recent United Nations Conferences (OECD, 1996). Heading the list of goals is the reduction by at least one-half of the proportion of people living in extreme poverty by 2015. The indicators selected to monitor this goal are almost all related to income (e.g., poverty headcount ratio, poverty gap ratio, inequality of income) and include only one social indicator (i.e., prevalence of underweight children).

The purpose of giving these two examples is not to polarize the discussion between those who advocate the income-related measures and those who don't. This would misrepresent the position of most people working on poverty analysis, who would be uncomfortable to find themselves at either end of the scale. Rather, it is intended to illustrate that "poverty has many faces. It is much more than low income. It also reflects poor health and education, deprivation in knowledge and communication, inability to exercise human and political rights and the absence of dignity, confidence and self-respect" (UNDP, 1997). Poverty monitoring is therefore a highly data-hungry exercise.

The establishment of a poverty monitoring system can be quite an extensive process. In the early days, analysts generally believed that a good household survey would meet most information needs. But as they gained experience, they came to recognize that this was clearly insufficient. Today, a national poverty monitoring system is most likely to include a number of elements, each one contributing its own unique perspective to a better understanding of welfare and poverty. Common elements include the following:

- **A national integrated multi-topic household survey** to measure shifts in overall poverty levels and to provide the means for more rigorous analysis and studies of the causes and correlates of poverty;

- **A programme of consumer and producer price collection** to monitor spatial and temporal price changes;

- **A programme of participative poverty assessments (PPA)** to capture insights into communities' own perceptions of their circumstances and needs, as well as to follow up on the warning signals generated by the Core Welfare Indicators Questionnaire (CWIQ) and to focus on specific issues that the poor consider important, and

- **A household panel study** using both structured and open survey techniques to monitor the dynamics of poverty and intra-household issues.

The monitoring and analysis of poverty also requires that a country be capable of producing timely annual national accounts, so as to be able to monitor changes in per capita gross domestic product (GDP) levels, and current public expenditure statistics disaggregated by province and/or district.

The traditional, and still most frequently used, tool for monitoring poverty is the integrated multi-topic household survey. This is usually a household budget survey, which provides estimates of household consumption for placing the household above or below the poverty line,[3] coupled with modules that provide details on the socio-economic characteristics of the household. Many of the surveys are quite complex, involving long questionnaires and several return visits to the household at different times in the survey year. This is not always the case, however: many African countries have employed shorter questionnaires with a single visit to the household. The arguments for using such multi-topic surveys (both the longer and shorter versions) are compelling. They provide the analyst with integrated data sets that make it possible to compare poverty levels for different household groups within a country and to explore in great detail the determinants and correlates of poverty. The World Bank and other development agencies have been stalwart supporters of such forms of survey around the world. Such surveys have provided the basis of information for many of the national poverty profiles that have shaped country assistance strategies. They have enhanced our understanding of poverty and guided the development of pro-poor policies and programmes. They have also stimulated the gradual increase in the pool of competent researchers from developing countries who are able to undertake such analysis and who are familiar with the procedures for calculating and using the P-alpha indices that underpin so much poverty analysis.

But while such surveys have been invaluable in providing baseline data and generating information on welfare conditions at particular points in time, some weaknesses in the approach have become apparent as the surveys are repeated over time and as comparisons are attempted between surveys. These are most evident with respect to comparisons between levels of household consumption and the identification of trends in changing levels of poverty. As second or even third surveys have being conducted, they have in a number of cases produced poverty estimates that are at odds with the estimates generated through the first survey, making interpretation extremely difficult and even casting doubt on the reliability of one or more of the data sets. This is not to say that comparisons cannot be made in such cases, but rather that they require the inputs of highly skilled analysts to make complex adjustments to the data before comparing the results. Such processes do little to enhance the final credibility of the analysis.

Analytical issues apart, however, household consumption is possibly the most problematic household variable that a survey statistician is ever called upon to measure. The quality of household consumption estimates is highly dependent on the survey instrument and enumeration methodology used. Good household budget surveys are expensive and very time consuming and experimental work to develop short cuts in methodology has yielded disappointing results. Most surveys must incorporate 200 or more questions to provide a reliable estimate of household consumption. Added to that are the problems of recall and reference period. Many surveys rely on only one or two visits to the household, spaced not very far apart, to generate an estimate of consumption for the past twelve months! Seasonal and random monthly variation are thus not adequately reflected. The measurement and valuation of home-consumed production presents its own host of estimation difficulties.

These problems in data measurement are compounded by the fact that household consumption is subject to a great deal of variation because of such factors as climatic and environmental conditions and changes in relative prices. These can cause significant variation from year to year. Typically, we do not know the size of the coefficient of variation in most countries, but we should recognize that sampling and non-sampling errors cause household expenditure and consumption to be extremely "noisy" variables. That being the case, the accurate measurement of change in such a variable and the identification of a trend with even the most modest limits of range and confidence require a relatively large number of time points —in the range of 8-10.

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[3]   Some surveys measure income rather than expenditure and consumption, but the latter are generally considered to provide more complete and more reliable estimates for poverty analysis.

A further limitation of the approach is that such surveys are both expensive and time-consuming. National statistical offices are reluctant to devote scarce resources to the implementation of repeated rounds of such surveys when they also have to service other pressing demands for information. Because most household budget surveys are based on multiple visits staggered over twelve months, fieldwork will correspondingly last for a year, and subsequent processing may take another six months. Thus, the results may not be available until 18-24 months after data collection started.

So the challenge presents itself. Monitoring the effects of policies and programmes to alleviate poverty requires accurate statistical information to track the extent to which the poorest and most vulnerable members of the population are or are not benefiting. The classic approach of using a single multi-topic integrated survey is clearly insufficient for servicing these information needs, particularly when it comes to providing rapid feedback to indicate whether development strategies are on track.

C. Core welfare indicators questionnaire

In 1996, the World Bank initiated a study to design a survey that would be very easy to implement and that would rapidly feed results into the decision-making process. The Core Welfare Indicators Questionnaire (CWIQ) was developed with the support of the United Nations Development Programme (UNDP), the United Nations Children's Fund (UNICEF) and the International Labour Organization (ILO). CWIQ was designed to be very quick and easy to implement, and it was intended to complement rather than replace other surveys. For example, it could be implemented as an annual short core questionnaire within a core and rotating module survey program. CWIQ would thus become a new but important component of a country's overall monitoring package. The Ghana Statistical Service carried out the first full national CWIQ on a sample of 15,000 households during the last three months of 1997. The first results were released within one month of the end of fieldwork.

CWIQ differs from other poverty surveys in that it does not measure whether poverty levels are increasing or decreasing. In fact, it does not even collect income or expenditure data. It is only intended to serve as a tool for measuring whether public services and development programmes are reaching and benefiting the poor. These are much easier, less "noisy" indicators to measure. As a result, the survey avoids many of the measurement issues highlighted above. CWIQ focuses on the three simple leading indicators of access, usage and satisfaction for the different services provided. For instance, in the education sector, access indicators include distance to primary and secondary schooling; usage indicators include primary and secondary school enrolment rates; and satisfaction indicators are based on opinion questions to indicate household ratings of the quality of services during the current year compared with the previous year.

Figure V.1 presents CWIQ data with respect to primary education services in Ghana. The figure shows that **access** (defined as being within 30 minutes of a primary school) is rarely a problem: 90% of the population live within 30 minutes of a school. Even in the remote and poorest areas, over 85% of the population has easy access. **Usage** (defined as the net primary enrolment rate) is lower, at approximately 70%. Again, household groups show no major difference in enrolments. However, a completely different message stands out regarding the **quality of service** (defined in terms of the percentage of users satisfied). For the country as a whole, the percentage of satisfied users is only 40%, but this hides large differences between the urban population (60%) and the rural population (30%). The rural poor are particularly disadvantaged, with less than 20% satisfied.

Figure V.1
USING CWIQ TO MONITOR PRIMARY EDUCATION IN GHANA:
ACCESS, USAGE AND QUALITY

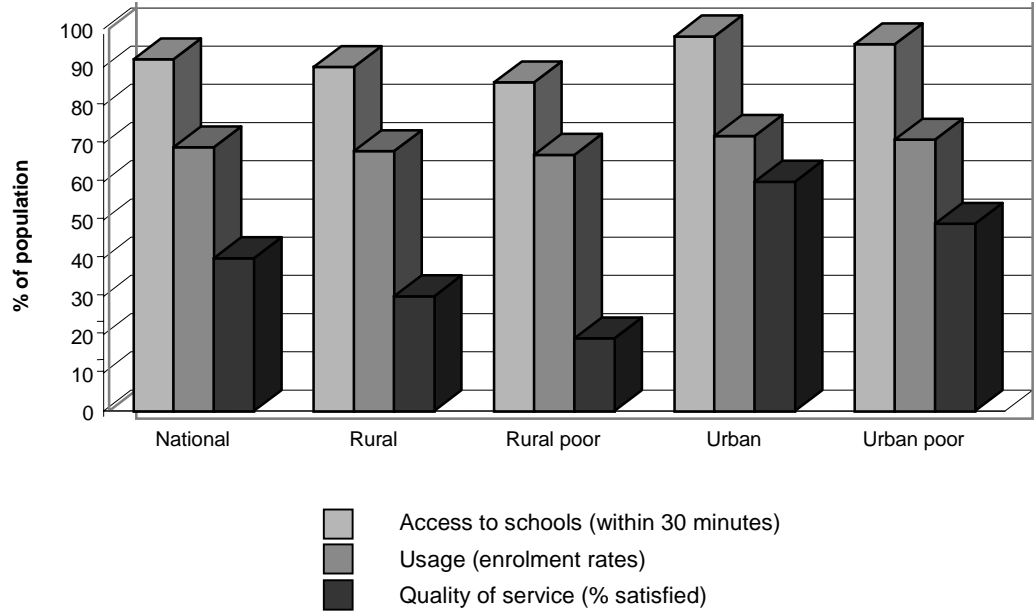- Access to schools (within 30 minutes)
- Usage (enrolment rates)
- Quality of service (% satisfied)

Figure V.2
USING CWIQ TO MONITOR PRIMARY EDUCATION IN GHANA:
COMMON COMPLAINTS

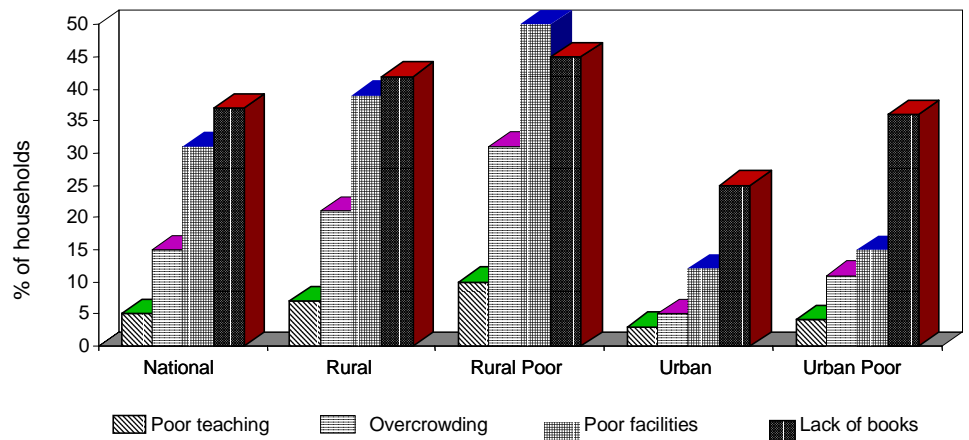Poor teaching   Overcrowding   Poor facilities   Lack of books

Figure V.2 takes the analysis one step further by displaying the main reasons for user dissatisfaction. Lack of books is seen as a problem everywhere, but poor facilities and overcrowding are the major problems in rural areas, particularly among the rural poor.

A similar analysis can also be undertaken for other services such as secondary schooling, health services or access to water. The value of such indicators to make comparisons between groups and, eventually, over time is clear.

If, as stated earlier, CWIQ does not measure income or expenditure, how does it classify households into poor and non-poor? The original intention was to use a very abbreviated expenditure module to provide the necessary information for ranking households from wealthiest to poorest and then grouping them into quintiles. A methodological test in Kenya, however, revealed disappointing results when it compared three abbreviated methods of expenditure estimations with a full expenditure survey. Table V.1 compares the ranking of households using the best abbreviated method and the full survey. While one would expect the abbreviated methods to generate different absolute levels, the rankings were also badly affected. Only 56% of households that should have been in the lowest quintile were correctly classified as such using the shorter method. For the next quintile, only 33% were correctly classified.

Table V.1

COMPARISON OF HOUSEHOLD RANKINGS IN KENYA USING A FULL EXPENDITURE SURVEY, AND AN ABBREVIATED LIGHT METHOD

Full survey Ranking (%)	Abbreviated method Ranking (%)				
	1	2	3	4	5
1	56	31	8	4	1
2	29	33	25	10	3
3	10	21	40	22	5
4	4	11	24	42	20
5	1	3	3	22	70

Note: The first category (1) represents the poorest 20% of households and the fifth category (5) the wealthiest 20%.

A second experiment in Ghana yielded much more promising results by identifying robust consumption correlates. Regression analysis was performed on the Ghana Living Standards Survey III to derive ten easy-to-measure correlates. These were expenditure on soap; expenditure on meat; asset score; number of spouses; proportion of school-aged children in school; consumption of bread; land ownership; ownership of poultry; members per room; and export crop producers. These ten correlates were then used to create a weighted index. The households were ranked according to this index and grouped into urban and rural poverty quintiles. When the ranking was compared

with the ranking of the same households by per capita expenditure, a much closer fit was established (see table V.2).

Table V.2

COMPARISON OF HOUSEHOLD RANKINGS IN GHANA USING FULL EXPENDITURE SURVEY AND CONSUMPTION CORRELATES INDEX

Consumption correlates index Ranking (%)	Per capita expenditure ranking (%) Full expenditure survey				
	1	2	3	4	5
1	97	3			
2	3	89	8		
3		8	90	2	
4			2	90	8
5				8	92

Note: The first category (1) represents the poorest 20% of households and the fifth category (5) the wealthiest 20%.

The predictors were tested for robustness over time by applying them to the first Ghana Living Standards Survey, which had been conducted eight years earlier. Here again, relatively few households were misclassified into the wrong quintile. On the basis of this experiment, it was decided to use the consumption correlates (or poverty predictor) approach for classifying households into quintiles.

The success of the Ghana survey stimulated further development of CWIQ to complete the package for release as an off-the-shelf survey that national statistical offices or other institutions can use to minimize turnaround time between data collection and the production of results. The key features of CWIQ are as follows:

- Short questionnaire;

- Easy data collection;

- Quick data entry and validation;

- Pre-programmed output tables; and

- Fixed core/flexible module.

1.   Short questionnaire

Every effort has been made to keep the questionnaire to a bare minimum. The basic questionnaire is only four double-sided sheets long, yet it contains enough information to generate all of the following indicators.

Population sub-groups	Indicators
⇒ Geographical groupings (urban, rural, remote areas) ⇒ Socio-economic groups ⇒ Gender of household head	**Indicators of well-being** ⇒ % of income earners and households reporting income increases/decreases in the last 12 months ⇒ % reporting diminishing/increasing assets (land and livestock) ⇒ % of literate adults ⇒ % of malnourished children (if the anthropometry module is applied) ⇒ Housing (mean number of persons per room) ⇒ % of adults unemployed in the last 7 days
⇒ Holding size ⇒ Household size ⇒ Ultra-poor, poor, and non-poor (ultra-poor and poor are defined as the lowest and second-lowest household consumption quintiles) ⇒ Other policy target groups (depending on sample size and selection procedures)	**Access, utilization and satisfaction indicators** ⇒ Access to clean water ⇒ Access to sanitary facilities ⇒ Access to pre-primary, primary and secondary schools ⇒ Net pre-primary, primary and secondary enrolment rates (by gender) ⇒ Primary and secondary drop-out rates (by gender) ⇒ Type of birth supervision (for children under 5 years) ⇒ Satisfaction rating of primary and secondary school services ⇒ Access to local health centre ⇒ Frequency of use of local health centre ⇒ Completeness of vaccination record for children under 5 years ⇒ Satisfaction rating of local health service

2. Easy data collection

The survey is designed to be administered during a single visit to the household. Only one respondent is required to complete the interview. (The anthropometrics module also requires the presence of all children under the age of five years. The average interview time for the Ghana survey was 20 minutes (excluding the anthropometry measurements). Enumerators completed an average of five interviews per day. Because the Ghana Statistical Service uses mobile teams of temporary field staff (13 teams of four enumerators and one supervisor each) rather than a fixed force of enumerators permanently located in the field, fieldwork took three months. This could be reduced by having a larger field force.

3. Quick data entry and validation

The questionnaire is a scannable questionnaire using Optical Mark Recognition (OMR) technology. This significantly reduces the time spent entering the data. Once scanned, the data are entered directly into an access database in which more extensive validation checks are carried out. The package also includes all the prewritten data entry and validation programmes, thereby reducing the demands on data programming time. Having cleared the data validation procedures, the data can be transferred into any of the standard statistical packages for analysis.

4. Pre-programmed output tables

The CWIQ package includes all the SPSS programme files needed to generate a basic set of output tables. The basic output covers a set of standard summary tables in which all the key indicators have been calculated and tabulated by urban and rural quintiles, region and socio-economic group. Apart from the standard summary tables, CWIQ also generates, a CD-ROM containing all the survey documentation (i.e., enumerators' manual, questionnaire, sample design specifications, etc.) as well as the clean primary data files. The CD-ROM contains all the information needed for a user to carry out further analysis of the data.

5. Fixed core/flexible module

The core questionnaire, while allowing some minor customization, is essentially fixed. This is what makes it possible to automate so many of the procedures up-front and to speed the turnaround time. Also, having a standard survey instrument that can be used in any country makes cross-country comparisons much easier. Such a fixed product provides little scope for country-level modifications or additions, however. To overcome this limitation, it is proposed that requests for additional data be addressed through the use of supplementary modules, rather than through changes in the core questionnaire. Several such modules are already under consideration, including a generic CWIQ project monitoring module and an agriculture and crop forecasting module. National statistical offices are encouraged to design modules of their own choosing to suit their own specific needs.

CWIQ should be seen in context as one of several instruments needed for poverty monitoring. It can never replace national household budget surveys, or agricultural production surveys, for instance, nor can it provide the level of insight that participative assessment approaches do. Similarly, issues such as intra-household resource allocation and seasonality changes are beyond its reach. It does have an important niche within a poverty monitoring system, however, in its ability to provide very rapid feedback from large samples of the population to show whether the poor continue to be disadvantaged, *vis-à-vis* the non-poor, in terms of the opportunities that are available to them.

VI. Growth, poverty and income distribution in Latin America in the 1990s: an uncertain relationship

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A.   Introduction

1.   The economic situation

In the early 1990s, gross domestic product (GDP) in Latin America and the Caribbean grew on average by 3.6% per year. The region also saw significant advances in terms of price stability, an increase in the labour force participation rate and reductions in unemployment. Nevertheless, these advances were not sustained consistently throughout that period nor did they occur in all countries of the region. With very few exceptions, countries recorded considerable fluctuations in these variables during those years. In fact, per capita GDP growth rose to an annual average of 2.3% in 1990-1994, falling back to 1.4% in the following years (1994-1997), for an average of 1.9% for the entire period. The countries with the strongest performances in this regard were Chile (5.4%), Argentina (4.1%), Peru and Uruguay (3.6%) and El Salvador and Panama (2.9%).

The countries' progress in controlling inflation, on the other hand, was significant. The region succeeded in slashing the inflation rate from peak levels of over 1,000% in 1990 to just over 10% in 1997. The stabilization programmes carried out in Argentina, Brazil, Nicaragua and Peru largely contributed to the region's success in this area.

Controlling inflation had positive repercussions in terms of the recovery in real wages, especially in Brazil. The situation in the different countries has been very uneven, however. In most cases, average wages have either had a downward trend or have tended to grow more slowly between 1994 and 1997 than in the preceding period. This shows that despite the slowdown in inflation and the economic upturn, productivity gains have not translated into proportionate benefits for the workforce. In many countries, sectors in which employees have been awarded wage increases coexist with others in which average income, real minimum wages or both have actually declined. The situation of wage-earners is therefore highly heterogeneous.

These wage trends have coincided with high growth rates in the labour force during these years as a result of increases in the participation rate and, especially, the entry of large numbers of women into the labour force. These new contingents of the active population are not always able to find productive jobs, however. Workers tend to resort to various forms of underemployment involving, for the most part, poorly paid, low-productivity occupations. This situation attenuates the impact of these processes on open unemployment levels. For example, the unemployment rate in Brazil and Mexico has never even approached 10% of the economically active population, not even at the most critical times. The exception in this case, as far as the current decade is concerned, is Argentina (ECLAC, 1998d).

2.   Advances and setbacks in the social situation

The economic successes observed in the region in the course of the 1990s have not translated into a significant reduction of poverty. Some countries have experienced only slight improvements in the social situation; others have just managed to keep things on an even keel. The situation varies considerably from one country to the next.

According to available estimates, the poverty rate declined from 41% of households in 1990 to 39% in 1994. This means that over 200 million Latin Americans were still living in poverty in 1994 (ECLAC, 1997a). This reduction, which coincided with an upswing in the economy in many countries of Latin America during the first five years of the 1990s, was undoubtedly a positive development, but the improvement was insufficient to offset the increase in poverty that occurred in the 1980s, when the rate rose from 35% to 41%. The advances were even smaller with respect to indigence or extreme poverty: in the early 1990s, the percentage of extremely poor households declined by only a single percentage point, from 18% to 17%. One out of six households in the region cannot meet the basic nutritional requirements of its members, even when its entire income is used to buy food.

This trend in poverty rates is mainly associated with improvements recorded in urban areas, where the incidence of poverty fell from 36% to 34% of all households. In rural areas the decline was very slight, from 56% in 1990 to 55% four years later. Indigence rates, on the other hand, behaved in a similar way in both areas, with the rate in urban areas declining by barely one percentage point between 1990 and 1994 (from 13% to 12%) while the percentage remained unchanged in rural areas (33%).

Despite the relative reductions in poverty rates, the number of poor people increased substantially between 1990 and 1994. Whereas the poor population was estimated at 197 million people at the beginning of the decade, the figure had grown to 209 million by 1994. The indigent population swelled from 91.9 million to 98.3 million, increasing 6.4 million in four years. These

sharp increases were due in large part to the deterioration of the situation in Brazil and Venezuela. Urban poverty in Brazil rose from 37% to 39% between 1990 and 1993, although this increase was reversed in the following biennium. In Venezuela, it jumped from 33% in 1990 to 41% in 1994. These setbacks offset the significant advances recorded during the same period in urban areas in Argentina, Bolivia, Chile, Costa Rica, Mexico, Peru and Uruguay.

Of the countries mentioned above, Chile and Uruguay have recorded the most outstanding improvements. Poverty levels in these two countries have decreased so steadily that they now compare favourably not only with 1990 levels but also with those of 1980. In the case of Chile, the contributing factors have been sustained economic growth, price stability and a higher labour force participation rate. In Uruguay, the effects of these same factors have been augmented by measures taken by the Government to meet the needs of potentially vulnerable groups, such as retirees and other pensioners, who have thus benefited from substantial income rises.

Countries such as Argentina, Bolivia, Mexico, Panama and Peru also managed to achieve a steady reduction in poverty levels at the beginning of the decade. In these cases, however, the levels recorded in the late 1980s were very high, so large numbers of people still receive insufficient incomes. Furthermore, the economic crisis that broke out in Mexico towards the end of 1994 affected the performance of the region as a whole; economic activity in a number of countries, especially Brazil and Argentina, floundered as a result of the "tequila" effect. Results for 1995 indicate that zero growth in regional output was accompanied by rising unemployment and declining investment, reversing the gains made in poverty reduction in the mid-1990s. Given the relative weight of these three countries in the region's overall population, it is highly probable that living standards in Latin America have fallen somewhat in recent years and that the number of poor people is growing as compared with the estimates for 1994.

The high degree of income concentration that has traditionally been a feature of most countries of the region has generally persisted or even intensified in the 1990s. High levels of inequality persist not only in countries that have suffered occasional slumps in economic activity, but also in those that have experienced strong GDP growth. Of the five countries with annual growth rates of over 5% for the period 1990-1994, "two —Argentina and, to a lesser degree, Costa Rica— saw an increase in income concentration, two others —Chile and Panama— registered a degree of inequality that remained at practically the same high level as at the beginning of the decade, and only one —Uruguay— continued to make marked improvements in income distribution" (ECLAC, 1997a).

Growth, the rise in employment, falling unemployment and the control of inflation have had a positive effect on regional household income. At the beginning of the decade, this was reflected in improvements in the population's ability to satisfy its basic needs. In subsequent years, however, the Mexican crisis demonstrated that the macroeconomic advances recorded in some economies of the region were highly vulnerable to imbalances in the financial system and the capital market. Indeed, crisis and the effects of subsequent adjustments have an immediate impact on the standard of living of the region's households and can quite easily reverse any gains in poverty alleviation made during periods of growth.

Although regional GDP growth was 3.5% in 1996 and 5.3% in 1997, this favourable trend has not been strong enough to have any truly significant impact on social problems in general or the incidence of poverty in particular. This situation is closely related to the development style adopted after the crisis of the 1980s. Trade liberalization, market deregulation and the redefinition of the role of the State, together with the adoption of an export-oriented development model based on commodities, have not boosted the economy as expected or improved the living conditions of the more deprived sectors of the population. The moderate economic expansion has not been accompanied by any reduction in the high levels of income concentration; on the contrary, patterns

of distribution have proven highly resistant to change. This points up the need for a more thorough examination of the relation between GDP growth and the hoped-for changes in income distribution and in the capacity of households to meet their basic needs.

3.   Some aspects of poverty

The design and implementation of programmes to alleviate poverty should be based on a sound understanding of the root causes of poverty and of the demographic and socio-economic features of the population concerned. To this end, three of the main determinants of the living standards of poor households in the region's urban areas are low levels of education, low levels of labour income and unemployment.

In seven out of every ten Latin American households, the income of the main financial supplier is insufficient to meet the basic needs of the family unit. In another two, at least one member of the household of working age is unemployed. In the remaining one out of ten households, the economic dependency ratio is very high, which means that, given the large proportion of minors in the household, the option of increasing the household budget through gainful employment of other members is limited. Thus, 70% of poor households stand to benefit from policies geared to improving productivity and wage levels. Such policies need to include, among other measures, the implementation of training programmes, an active wage policy and the promotion and development of microenterprises. The creation of steady, well-paid jobs, on the other hand, would benefit 16% of households (ECLAC, 1997a).

In 40% of poor households in urban areas, the number of minors is very high in relation to the number of adults of working age. Public policies designed to increase educational coverage should be strengthened, since this could help lower fertility levels and improve the wage levels of the employed.

B.   Econometric evidence

1.   Conceptual framework

Kuznets (1955 and 1963) hypothesized a curve generally known as the inverse-U, suggesting a clear-cut relation between economic growth and social inequality. According to this theory, the early stages of the development of nations are associated with high levels of income concentration, but as economic growth continues, the distribution of the economic surplus becomes more even.

This theory is based on the existence of a segmented labour market in a dual economy (Lewis, 1954, Harris and Todaro, 1970), in which a modern sector located in major urban areas with high productivity levels and savings capacity exists alongside a traditional rural segment devoted to agricultural activities, with low efficiency levels, low wages and a very low savings rate.

High levels of income concentration are thus expected in the early stages of national development. The production system changes as the labour force moves from the primary sector of the economy, with a more homogeneous wage structure, to a modern, more highly segmented sector, with more exacting requirements and higher levels of remuneration for specialized labour. Since the percentage of skilled labour is small, those having better qualifications obtain higher wage levels, which leads to increased social inequality. This model assumes that in the long run, the percentage of the active population remaining in the traditional rural sector will diminish as the urban economy grows. The benefits of economic change will thus spread out, becoming more evenly distributed among the population, and the trend of the relationship will reach a turning point (creating the inverse-U curve) after which inequality will decrease.

The overall level of concentration is established on the basis of a combination of regional inequality indices, which differ widely among themselves. Greater inequality is expected in urban areas. Among the rural population, although average incomes are usually lower, imbalances in income distribution tend to be smaller (Kuznets, 1955). All other things being equal, as the proportion of the population in urban areas grows, income concentration will tend to increase, as will the difference between average household incomes in the two types of geographical areas. This is basically due to the fact that productivity will increase more rapidly in urban areas, thereby affecting the income concentration index at the national level.

2.   Econometric analysis

(a)   Growth and inequality

Relatively few empirical studies in Latin America analyse the relation between economic growth and inequality. The Weisskoff study (1970), which considers only Mexico and Argentina (in addition to Puerto Rico), confirms that periods of growth have been accompanied by high levels of inequality.[4] Fishlow's study of Brazil (1972) also presents evidence that increases in income concentration have been associated with periods of economic growth.[5]

Very little information is available in the region for relating inequality to long-term economic growth. In analysing income distribution, data from household surveys are generally used. Despite considerable progress in this field in Latin America, nation-wide data covering extensive periods are not yet available for all the countries of the region. The information used in this study basically corresponds to the urban areas of a group of 13 countries for the years 1990 and 1994 as shown in table VI.1.

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[4]   A careful reading of Weisskoff's conclusions shows that his results are mixed, since the data suggest that in the long term, increases in inequality accompanied growth in production, whereas inequality was reduced in the short term.

[5]   For a recent analysis of this topic for Latin America, see Psacharopoulos and others (1997). This study was conducted for the 1980s on the basis of household survey data. It concludes that the empirical data analysed provide little information regarding the existence of the Kuznets curve or its shape.

Table VI.1

LATIN AMERICA: ECONOMIC GROWTH, INCOME DISTRIBUTION AND POVERTY IN URBAN AREAS, 1990-1994

Country	Per capita GDP (in 1990 dollars)		Gini coefficient		H Incidence of poverty		% of income of poorest 10%		% var. of income	% var. of per capita GDP	% var. of Gini coefficient	% var. of H index
	1990	1994	1990	1994	1990	1994	1990	1994	1990-1994	1990-1994	1990-1994	1990-1994
Argentina	4,425	5,898	0.423	0.439	16.2	10.2	2.29	2.12	-7.42	33.28	3.78	-37.03
Bolivia	796	843	0.484	0.434	47.0	41.2	0.72	1.97	173.61	5.90	-10.33	-12.34
Brazil	2,715	2,800	0.535	0.512	37.4	38.7	1.08	1.27	17.59	3.13	-4.30	3.48
Chile	1,881	2,069	0.471	0.473	33.3	23.7	1.72	1.69	-1.74	9.99	0.42	-28.83
Colombia	2,320	2,836	0.450	0.505	34.6	38.2	1.53	1.14	-25.49	22.24	12.22	10.40
Costa Rica	1,236	1,357	0.345	0.363	22.2	18.1	1.60	1.90	18.75	9.78	5.21	-18.47
Guatemala	874	928	0.479	-	48.2	-	1.02	-	-	6.18	-	-
Honduras	686	696	0.487	0.459	64.5	69.6	1.46	1.30	-10.96	1.46	-5.75	7.91
Mexico	3,157	3,380	0.424	0.405	34.2	29.0	2.47	2.88	16.60	7.06	-4.48	-15.20
Panama	2,216	2,621	0.460	0.451	34.0	25.2	1.38	1.60	20.29	18.27	-1.96	-25.88
Paraguay	1,248	1,247	0.357	0.417	36.8	35.4	2.69	2.35	-12.63	-	16.81	-3.80
Uruguay	2,975	3,554	0.353	0.300	11.8	5.8	3.49	3.65	4.58	19.46	-15.01	-50.85
Venezuela	2,495	2,594	0.378	0.387	33.4	40.9	2.00	2.45	22.5	3.96	2.38	22.46

Source: ECLAC, on the basis of official figures in constant 1990 dollars and of special tabulations of household survey data for the relevant countries.

Note: Poverty and income distribution figures are for urban areas as a whole, except in the cases of Argentina (Greater Buenos Aires), Bolivia (17 urban areas), Colombia (8 major cities) and Paraguay (Asunción).

The data analysed do not provide a basis for evaluating long-term trends or relations, since the figures correspond to the beginning and end of a four-year period in the early 1990s during which most of these countries experienced economic growth following a deep, nearly decade-long recession. Even so, the information shows changes in income distribution for a period in which the Latin American economy grew steadily at an average annual rate of 4.1%, or 2.3% in terms of per capita GDP.

Some studies which have attempted to derive functional relations between changes in inequality and economic growth have employed a simple regression model using the Gini coefficient, or the percentage of total income received by a particular population group as a dependent variable.[6] In most cases the income share of the poorest 10% is used, although in some studies it is the poorest 20%, 40% or 60% (Ahluwalia, Carter and Chenery, 1978). The independent variables are usually per capita income and its square, or the logarithm of income and the square of its value.[7] The relations established among the variables cannot be interpreted directly as causative agents, but they are useful in deriving behaviour patterns for further study (Loehr, 1981).

A recent study by Anand and Kanbur (1993) develops expressions for estimating specific functional forms for the following six inequality indices: the Theil T and L indices, the squared coefficient of variation, S^2, the Atkinson index, the Gini coefficient and logarithm variance. Proposing different functional forms for relating inequality to income distribution is not a trivial exercise, since the various indices are likely to produce conflicting results as to the intensity of the relation and the trends in inequality. To generate empirical evidence for Latin America, table VI.1 uses the Gini coefficient and the share of income as dependent variables for estimating the relation between economic growth and the levels of inequality observed in 1990 and 1994 in 13 Latin American countries.

Graphing the data for these two years shows that the data for this set of countries does not corroborate the Kuznets hypothesis, and it is therefore not possible to draw firm conclusions as to the implications and causalities of the relation between economic growth and inequality.[8] Figures VI.1 and VI.2 show erratic behaviour, in which countries reporting low values for per capita GDP show some of the highest levels of income concentration. In fact, the correlation between per capita GDP and the Gini coefficient is barely -0.1520 in 1990 and -0.1331 in 1994, which indicates that the data are moving in the right direction but that the association between the variables is not statistically significant.[9] Also, the correlation between per capita GDP growth and the Gini coefficient (0.0306) for the reference period is statistically equal to zero, which means that changes in the economy were totally unrelated to the changes observed in income distribution (see figure VI.3).

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[6]   These include Cromwell (1977), Ahluwalia, Carter and Chenery (1978), Loehr (1981) and Ram (1995).

[7]   Cromwell (1977) only uses per capita income as an independent variable. Ram (1995) proposes using the model without a constant, arguing that in the absence of income, the inequality index should be equal to zero. See Ravallion (1997) for a criticism of this procedure.

[8]   A similar conclusion was reached in the study by Psacharopoulos and others (1997) using data from household surveys conducted at different times during the 1980s.

[9]   In both cases, the probability that the absolute value of the correlation coefficient will be equal to zero exceeds 60%.

Figure VI.1
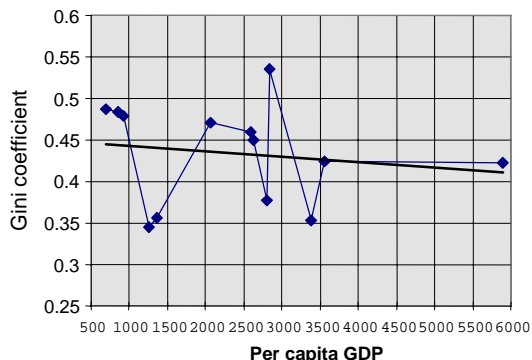**LATIN AMERICA: ECONOMIC GROWTH AND INEQUALITY IN 1990**

Figure VI.2
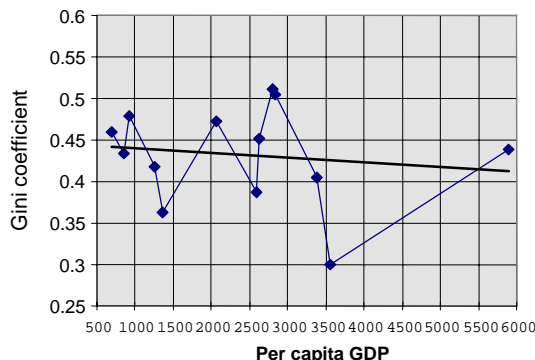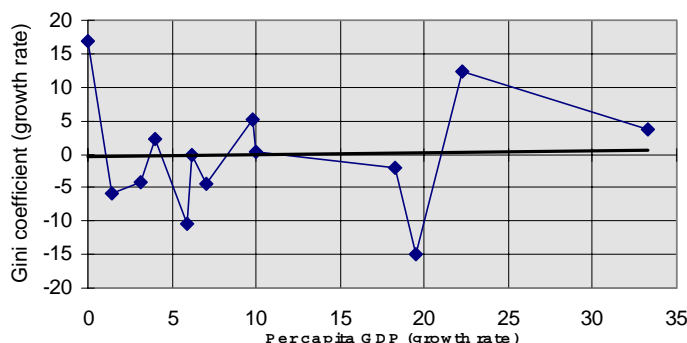**LATIN AMERICA: ECONOMIC GROWTH AND INEQUALITY IN 1994**

Figure VI.3

LATIN AMERICA: GROWTH RATES FOR PER CAPITA GDP AND GINI COEFFICIENT, 1990-1994

If the data were to fit the behaviour described by Kuznets, low values for the inequality indices would be associated with the countries located in the leading income brackets. Thus, the curve would show an upward trend. Subsequently, it would be possible to identify a turning point, at which, starting from a given level of income, the Gini coefficient would begin to fall steadily as per capita GDP increased, suggesting a trend towards greater equity over the long term.

The results of the estimated regressions confirm the lack of a meaningful relation, as had been suggested by the value calculated for the correlation between per capita GDP and the Gini coefficient. Quite aside from the low explanatory power of the fit observed in the coefficient of determination, the values of coefficient t associated with the estimators indicate that the results obtained are not statistically significant.

(b) Growth and poverty

During the 1990s, economic growth has helped reduce poverty in most of the Latin American countries studied. The relation between the two variables, as measured by the correlation coefficient, shows values of -0.7040 for 1990 and 0.6508 for 1994, which indicates that economic growth has a positive effect on the households' living standards and, as a consequence, contributes to a reduction in the values of poverty indices. Intertemporal analysis corroborates this assertion,

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since the correlation between the per capita GDP growth rate and the incidence of poverty is -0.5747 for the period 1990-1994 (see figures VI.4 and VI.5).

PERCENTAGE OF HOUSEHOLDS LIVING IN POVERTY

Per capita GDP (in 1990 dollars)
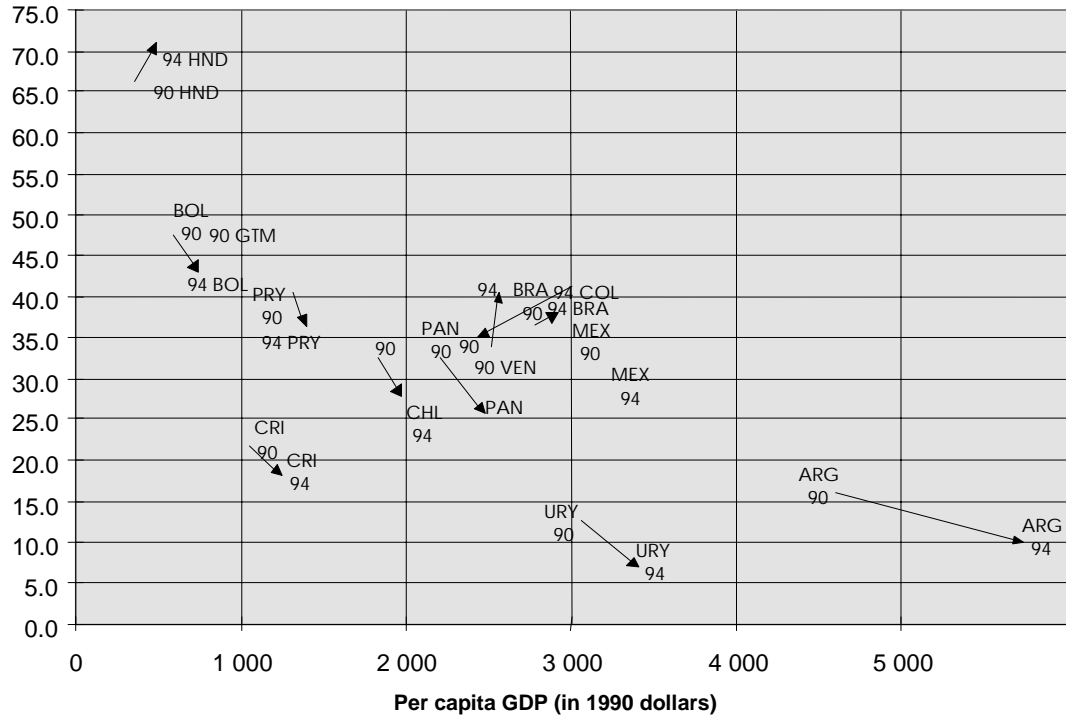
Figures VI.6 and VI.7 show the relation between the two variables for the group of countries under study. As per capita income increases, the incidence of poverty tends to decrease quite rapidly. Countries that have not managed to raise their per capita GDP must contend with high poverty indices, as may be seen in the cases of Honduras, Bolivia and Guatemala. The situation in Venezuela in 1994 is atypical, in that although this country recorded a satisfactory level of per capita GDP, four out of every ten Venezuelans reported that they were living below the poverty line. Uruguay represents the economic and social paradigm for Latin America, since it has the lowest levels of poverty in the region and one of the highest average incomes among the group of countries studied. In 1990, only 11.8% of Uruguayan households were considered to be living in poverty; by 1994 this figure had fallen still further, to 5.8%.

Figure VI.5

**LATIN AMERICA: PER CAPITA GROSS DOMESTIC PRODUCT
(GDP) GROWTH RATE AND THE INCIDENCE OF POVERTY
1990-1994**
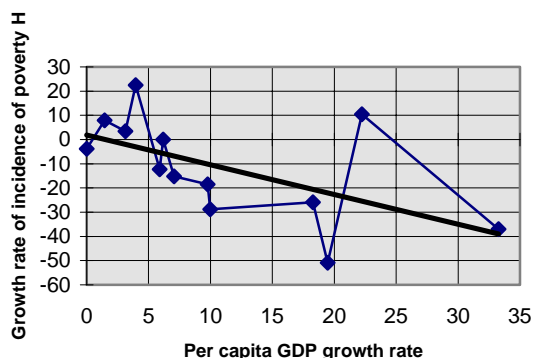
Figure VI.6

**LATIN AMERICA: ECONOMIC
GROWTH AND POVERTY, 1990**
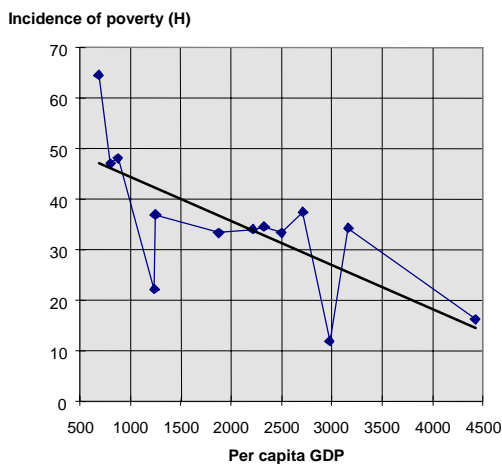
Figure VI.7

**LATIN AMERICA: ECONOMIC
GROWTH AND POVERTY, 1994**
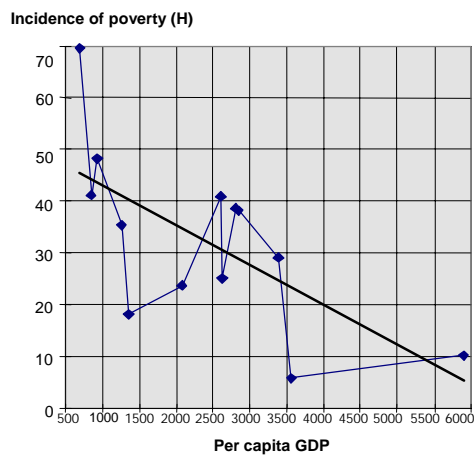
The statistical relation between poverty and economic growth was measured by examining its fit with various models (see table VI.2). The estimated coefficient of determination was quite high in all cases, which is evidence of a causative relationship between the variables analysed. As was to be expected, in all of the models (with the exception of No. 3), the parameter associated with the constant term was significant according to the values reported for statistic t.

Table VI.2

ADJUSTED MODELS OF ECONOMIC GROWTH AND POVERTY

Year	Functional form	β_1	β_2	β_3	$\overline{R}^2$
1990	$(1) H = \beta_1 + \beta_2 * X_1$	53.09	-0.0088		0.4956
		(8.54)	(-3.29)		
	$(2) H = \beta_1 + \beta_2 * X_1 + \beta_3 * X_1^2$	59.56	-0.0158	0.00	0.5177
		(5.19)	(-1.47)	(0.68)	
	$(3) H = \beta_1 + \beta_2 * LX_1 + \beta_3 * (LX_1)^2$	540.59	-119.30	6.87	0.5821
		(1.03)	(-0.84)	(0.71)	
	$(4) H == \beta_1 + \beta_2 * LX_1$	165.73	-17.46		0.5607
		(4.73)	(-3.75)		
1994	$(1) H = \beta_1 + \beta_2 * X_1$	49.78	-0.0083		0.4236
		(6.18)	(-2.84)		
	$(2) H = \beta_1 + \beta_2 * X_1 + \beta_3 * X_1^2$	62.37	-0.0195	0.00	0.5674
		(4.72)	(-1.99)	(1.18)	
	$(3) H = \beta_1 + \beta_2 * LX_1 + \beta_3 * (LX_1)^2$	662.88	-147.65	8.41	0.5674
		(1.18)	(-0.98)	(0.84)	
	$(4) H == \beta_1 + \beta_2 * LX_1$	188.77	-20.91		0.5301
		(4.17)	(-3.56)		

Note: The variable H represents the index that measures the incidence of poverty; X_1 represents per capita GDP; X_1^2, the square of per capita GDP; LX_1, the logarithm of per capita GDP; and $(LX_1)^2$, the square of the logarithm of per capita GDP.

C.   Conclusion

In the early 1990s, Latin America and the Caribbean recorded sustained growth in GDP averaging approximately 3.6% per year. Significant advances were also noted in terms of price stability, increases in the labour force participation rate and a reduction in open unemployment. These economic achievements have translated into no more than slight improvements, if not outright stagnation, in the social situation. For example, the percentage of Latin American households living in poverty diminished, but only from 41% in 1990 to 39% in 1994, and the actual number of poor people still exceeded 200 million in 1994. The high degree of income concentration characteristic of most of the countries of the region has also persisted.

This situation is largely attributable to the fact that the rate of economic growth is still inadequate in comparison with the scope of the region's social deficit, but it is also closely linked to the form of development adopted following the crisis of the 1980s. Trade liberalization, market deregulation and the redefinition of the role of the State, combined with the adoption of an export-oriented development model based primarily on commodities, have not brought about the expected results in terms of boosting the economy and improving living conditions for the most deprived sectors of the population. Important factors to be examined in this regard include recent trends in the relation between GDP growth and changes in income distribution and in the capability of households to meet the basic needs of their members. The econometric analysis contained in this paper, which is based on the empirical evidence available for the early 1990s, shows that there is a very tenuous relation between growth and income concentration, whereas the relationship between growth and the incidence of poverty is much stronger.

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