

Distr.  
RESTRICTED

LC/R.1873  
29 December 1998

ORIGINAL: ENGLISH

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ECLAC

Economic Commission for Latin America and the Caribbean

# **SOCIAL DIMENSIONS OF ECONOMIC DEVELOPMENT AND PRODUCTIVITY:**

## **INEQUALITY AND SOCIAL PERFORMANCE**

This publication was prepared by Beverley Carlson (email: bcarlson@eclac.cl), Social Affairs Officer, Division of Production, Productivity and Development of ECLAC. It contains an overview paper and edited versions of five papers that were presented by their authors at the meeting on "Statistics for Economic and Social Development: Poverty, Equity and Social Performance", organized and chaired by Beverley Carlson at the Joint Conference of the International Association for Official Statistics and the International Association of Survey Statisticians and hosted by the National Institute of Statistics, Geography and Informatics, 1-4 September, 1998, Aguascalientes, Mexico. This publication has been reproduced without formal editing and the views expressed herein are those of the authors and do not necessarily reflect the views of the Organization.

98-12-929



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## ABSTRACT

The thesis of this work is that 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 with more precision and these efforts are helping to better define social progress. In education, there is a large disparity in educational achievement among and within countries which is borne out by the international analysis coming out annually in *Education at a Glance: OECD Indicators*. Culture also plays an important role in the development equation and it is argued, based on the experience of the cultural indicators compiled by UNESCO for the first *World Culture Report*, 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 the Latin American and Caribbean region 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 relationship between economic growth on the one hand and income inequality and poverty on the other is borne out by ECLAC analysis from Latin American household surveys in a number of countries in the region. It is shown that while economic growth reduces absolute poverty it does not reduce income inequality. In order 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**

**Beverley A. Carlson, ECLAC**

## **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. The Mexican statistical agency, the 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 some 70 countries attended the international conference held in Aguascalientes, Mexico and hosted by Dr. Carlos Jarque, the President of INEGI.

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 organize a meeting that focused on some important issues for our region, within an international context. This is why I chose "Statistics for Economic and Social Development: Poverty, Equity and Social Performance" as the theme of the meeting. Latin America is unique in the world as the region with the highest degree of inequality of its citizens. At the same time, the decade of the 1990s has been a time of strong economic growth and major social reforms by countries in the region, coupled with important demographic shifts.

A second motivation was to feature among the papers 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. The paper by Juan Carlos Feres and Fernando Medina, "Growth, Poverty and Income Distribution in Latin America in the 1990s: An Uncertain Relationship" draws from ECLAC analysis of its database of household surveys for countries in the region and the analysis of 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 and examined in an international comparative context. "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 of Economic Co-operation 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 UNESCO. Timothy Marchant's paper on "Monitoring the Many Dimensions of Poverty", representing research at the World Bank in 150 countries, raises the practical issue of the need for appropriate, do-able and cost-effective tools for rapid, frequent and up-to-date measurement of poverty and its monitoring, suggesting that a national poverty monitoring system has to draw on a range of different sources and tools.

## **B. THE DEVELOPMENT CHALLENGE**

The real development challenge of today and in the new millennium is the transition that countries must make in their social structures and human capital to achieve sustainable development. For a long time it has been acknowledged that economic development cannot happen without social change. However, once this has been said, attention has remained for the most part on the macro-economic levers of development and the solutions have been top down decisions and actions such as modifications in exchange rates, adjustment of interest rates, monetary policy, inflation management, openness in markets and the like. It was thought that economic growth could trickle down to those at the bottom end of the scale and thus bring about social change. However, all along we have known 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.

The great bulk of the research to date on the social side has focused to a large extent on what to do about poverty and with an optic of 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 allow people to develop themselves and have 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 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, in particular, two key factors today 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. But what sets Latin America apart is that 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. How this came about was analyzed by Ramos in his paper on “Poverty and inequality in Latin America” showing 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 equally concentrated and cheap labour supply (Ramos, 1996).

Consequently, today, 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 route to changing their structural inequities and reducing poverty could come only with basic and long lasting reforms in education, health and social security, and now major reform programmes are underway. It is and will continue to be important to measure the social performance of these sectors which are fundamental factors in human capital formation and its performance.

In order to help place the process of social development, social performance and social change on an equal footing with that of economic development, economic performance and economic change, investments and policy priorities are needed to make it possible to measure social performance on a par with measuring economic performance. This is important because it is necessary to measure the social situation in order to understand it and to observe 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)). With the subsequent economic slowdown this growing prosperity is threatened and it is currently estimated that the average increase in 1998 will be only around 2.3% (ECLAC, 1998a). The US bank, J. P. Morgan, forecasts no regional growth in 1999. Other forecasts are more optimistic but there is general agreement that there will be little or no overall regional economic growth in the short term. In Latin America, this means rising poverty rates and falling per capita income levels.

The current financial scare in the region should give governments a greater incentive to address some of the weaknesses in Latin American 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.

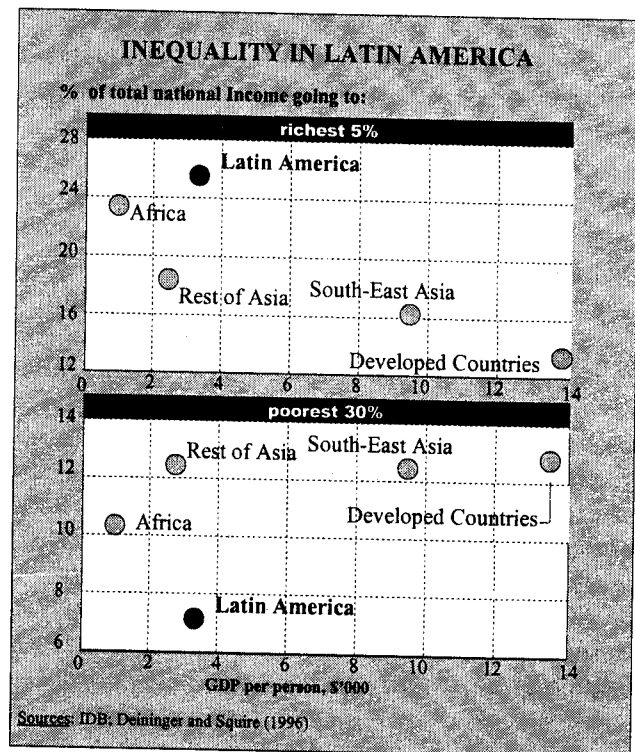
The income distribution of Latin America and the Caribbean is the most unequal in the world. The 1998 Inter-American Development Bank Report, “Economic and Social Progress in Latin America: Facing up to Inequality”, deals with the problem at length and highlights a 1996

World Bank study on the subject (Deininger, 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 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 overall rate of 7 to 1 in industrial countries (UNESCO, 1998). Comparing the richest 10% to the poorest 10% places the Latin American region in an equally isolated position. The ratio of the income share of the richest 10% of households to the poorest 10% of households in Latin America is 46 to 1, twice the 24 to 1 ratio of sub-Saharan Africa and three times the overall ratio of 15 to 1 in industrial countries.

The Deininger and Squire charts show dramatically how skewed is the income distribution in Latin America. Whether regions are poorer than Latin America (Africa, Rest of Asia) or whether they are richer than Latin America (Southeast Asia, Developed Countries) 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.

There is now a broad agreement in the region that much greater efforts have to be made in education and other social areas. The regional consensus is that the way to a more equitable society is more, and more efficient, spending on education and health, particularly for the poor, in order to improve the performance of these two major social sectors, including both their public and private components.

Figure 1



#### 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. Some of them focus exclusively on the Latin American and Caribbean region – the demographic and the income distribution papers. Some take a global perspective – the culture and the poverty indicators papers. 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 the 4<sup>th</sup> and 8<sup>th</sup> grade students in standardized mathematics tests. It concludes that there are very considerable differences in achievement both among countries and within countries especially in the 8<sup>th</sup> grade but that there is no clear relationship 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, with post secondary education and training giving a high return. In this connection there are also some very striking differences between Latin American countries and the OECD countries (Carlson, 1998). The proportion of students in Latin America who survive to graduate from upper secondary education is less than half the proportion surviving in the OECD countries. They also spend fewer years being trained at the upper secondary level. This much rarer resource in our region needs to be expanded and to be used more productively in order to equip Latin American industry with the supply of skilled workers that it will require.

Rising skill requirements of labour markets, an increase in unemployment during recent years and higher economic expectations of individuals and societies have given rise to a growing global concern with the need to put more emphasis on technical and vocational programmes in upper secondary education as opposed to general programmes. Increasingly, upper secondary education is seen as much a route to obtaining skilled and well paid employment as to getting a place in a university. Rising skill demands are making an upper secondary qualification the minimum level credential for successful labour market entry.

Table 1

**ENROLMENT IN TECHNICAL AND VOCATIONAL PROGRAMMES AT THE UPPER  
SECONDARY LEVEL<sup>a</sup> (1996)**

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

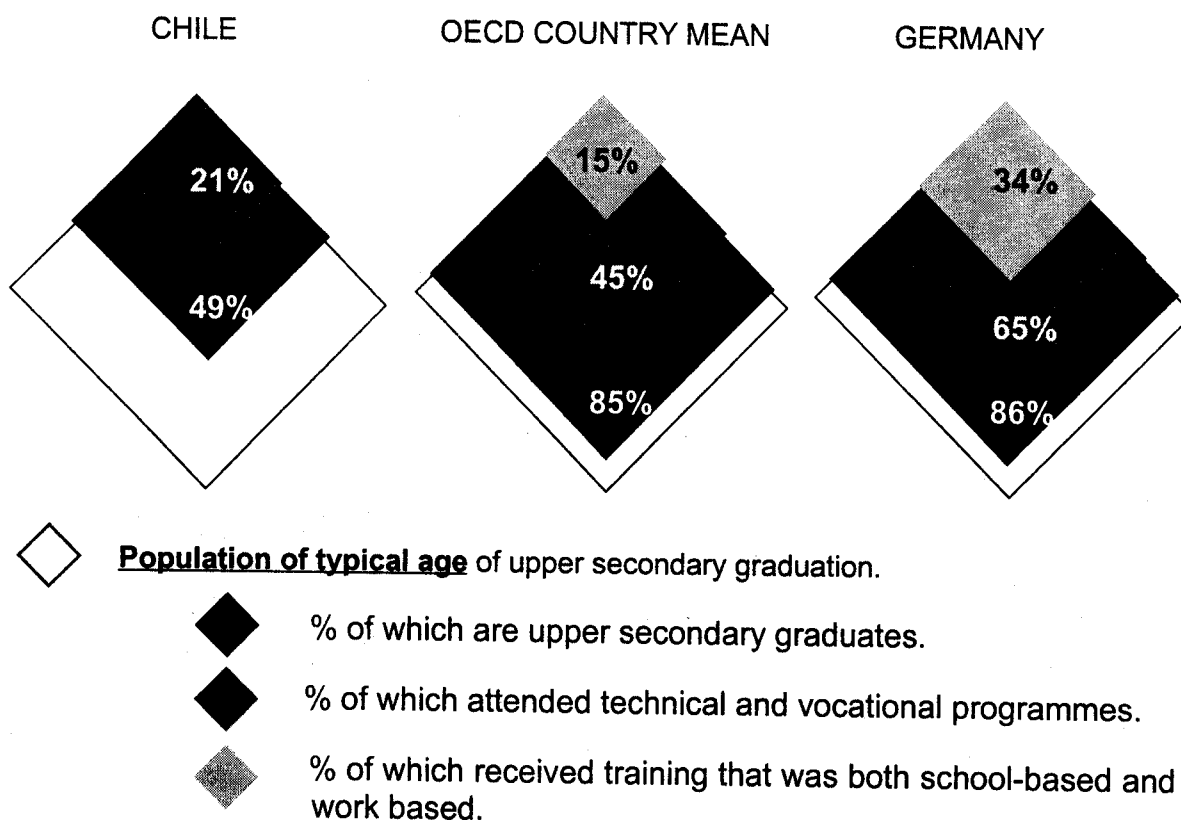
Source: ECLAC on the basis of data published in Education at a Glance: OECD Indicators 1998.

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

As figure 2 shows, in the OECD, one third of the vocational and apprenticeship upper secondary students receive training that is both school-based and work-based.

Figure 2

### TECHNICAL TRAINING IN UPPER SECONDARY EDUCATION (1996): THREE PROFILES



Source: ECLAC, on the basis of data published in Education at a Glance: OECD Indicators 1998.

In Latin America, the dual system apprenticeship programmes appear hardly to exist and upper secondary vocational and technical training is almost wholly school-based. This would be one way to expand technical education in Latin America and a way which would be less prone to perpetuate 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 is considerably reduced when we look at tertiary education. Some 19% of the population aged 20-29 in OECD countries are enrolled in education in one form or another. The figure for Argentina and Uruguay is 17% and for Brazil 16% – 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 is very much a reflection of the inequitable distribution of income and wealth.

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

These conclusions can be taken a step further. In the ten countries that make up the Luxembourg Income Study (Buhmann) the definition of poverty was a relative definition not an absolute level. Living in poverty was defined as having a level of income 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 are discussed in the culture paper by Goldstone, but not specifically in relation to Latin America. It is argued that cultural statistics, as they are currently practiced, exclude the minority of poor people in rich countries and the majority of poor people in poor countries. This results in the creation of a self-perpetuating value-laden exclusive definition of culture – the culture of the comparatively rich as expressed through the market place. But, as with the inequitable distribution of educational opportunities, 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.

In the World Culture Report which served as the basis for the culture paper, there is a very revealing analysis on the culture of cities which discusses the effect of poverty on 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, highly fragmented in terms of ethnicity, building defensive communities that struggle against each other to gain a larger share of services and to preserve their social networks.

Using Sao Paulo as an example, in the period 1890-1940, cleaning up the center of the city implied pushing working classes to the periphery (Caldeira, 1998). The next period, 1940-1980, brought about a clear center-periphery differentiation with the rich in the well-served center and the poor in the outskirts with some attempts to improve periphery conditions. The economic recession in the 1980s brought an increase in violent crime and fear, bringing about 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 Sao 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, 1998)."

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

4. The demographic paper by Schkolnik discusses the demographic 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 and particularly 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 old 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 are still in the process of transition where the young population is still significant but the old population is growing rapidly. The "coexisting demands" arising from this dual situation create a much greater pressure on the health system, a health system already burdened by the poor health care coverage typical of rural areas.

Health conditions have improved but the paper shows that 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 existing and 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 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 are also very much a reflection of the inequitable distribution of income and wealth.

5. The poverty indicators paper by Marchant argues that the increased focus of attention on the goals of reducing global poverty has introduced a range of new information needs that presents 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.

It 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. It presents the country experience of a pilot of this new type of survey. The CWIQ Survey is not designed to measure whether poverty levels are decreasing or increasing as it does not collect income or expenditure data. It is intended as a tool for measuring whether public services and economic and social development programmes are reaching the poor and are benefiting the poor. Indicators of access, usage and satisfaction are simpler, although more approximate, attributes to measure than indicators of income, expenditure and consumption.

It was found that there was little variation within the pilot country (Ghana) in the access to and usage of basic education but that there was an enormous disparity in the levels of satisfaction. In the urban areas the level of satisfaction was 60%, double the 30% satisfaction level in the rural areas. The rural poor had a satisfaction level of only 20%. (The classification of households was done by designing a weighted consumption index from an already existing Living Standards Survey).

Satisfaction is a surrogate for quality and the results of the 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 instrument could be a feasible, if rather approximate, way of monitoring this.

## **E. THE MEASUREMENT CHALLENGE**

But, more broadly, what is our measurement challenge in quantifying the social dimensions of economic development and productivity? In much the same way that economic growth and development 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 the question "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 by which economic discourse is conducted. 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 utilize this information to shape economic policy.

Nationally and, therefore, regionally, 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 in measuring social development in countries are also reflected within the ECLAC region as a whole. Social analysis has meant different things to different people and different countries, and has tended to become on the one hand too general and on the other very fragmented, often reflecting the interests of special advocates and activists. Social analysis has often lacked an empirical base and without an empirical base it is hard to assess the real social situation and social performance or evaluate and differentiate among issues, among countries, and within countries.

In recent years ECLAC has undertaken its quantitative social analysis mainly through its work in poverty analysis, employment and income distribution, based on household survey data. While poverty analysis is of great importance, it is not a substitute for overall social analysis. A major focus on poverty to represent the social statement threatens to marginalize the social dialogue. A focus on "poverty groups" and "poverty lines" is 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 and the region. Social measurement and social indicators are severely deficient. They are out of date, not well understood or used and under-financed partly because social change has for so long been associated with the negative optic of poverty, under-privilege, ethnic minorities, etc.

Taking the discussion of social development beyond poverty moves it to a 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 or had 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 includes the status of all people with a concern for equity is more likely to receive serious attention from those empowered to make change, and it also provides a comprehensive view which is necessary to achieve an overall understanding of social issues. The point is that, in our own self interest and not out of the kindness of our hearts, we need not only to monitor the economic pulse of the region and the nations in the region, we must simultaneously monitor the social pulse and the relationship between the two.

Not only are the two related but also failure in one 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 curtail the ability of countries to improve their 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 the Southern Cone countries like Argentina, Uruguay and Chile, as well as Venezuela, some of which were among the richest countries in the world fifty or more years ago, slipped down the global economic league table? This has happened at the same time as 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 GNP per capita (PPP) at least twice as high as the leading countries of the Latin America. Could part of the answer be the failure of the countries of the region over the last fifty years to deal adequately with their social problems and above all to deal with the social divide and the social inequity in all its aspects that pertains in these countries?



Non-monetary differential 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, access to clean water and adequate sanitation, etc. Nevertheless, in Latin America the disparity between the richest and poorest households is still greater than in any other region of the world. In all walks of social life 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**

Programmes of economic and market reform are underway in most Latin American countries with the major emphasis on economic growth and employment. However, the social context of this reform taking up issues of equity and social performance cannot be overlooked, particularly in the light of the social problems that are discussed in this publication. We need to be able to measure the social dimensions of economic reform better.

This would involve describing the existing social and demographic context in which economic reforms were introduced and how the social context evolved during the period of reform. It would describe 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. The social context of reform provides critical information needed to understand the distinct challenges countries are having in implementing reforms. It would provide the basic social and demographic indicators needed to link macroeconomic and social policies and reforms with economic and social outcomes at the micro level in the population and within households.

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 and is especially important in countries that still have a sizeable rural population. A sex 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 the region has undergone a fundamental population transition. Fertility rates, population growth rates and projections allow us easily to 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 which is the source of most future skilled human capital. Educational attainment indicators describe the stock of human capital and allow us to see what has been produced by past educational systems. Enrolment indicators describe 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 describe the functioning of the educational system and deal with efficiency, wastage, and quality. Educational expenditure indicators show the broad cost of education including the growing area of private education.

Health indicators would provide an overview of the functioning, outcomes and cost of the health system from the perspective that a country aiming at economic growth requires a healthy population to sustain it. 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.

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## **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 requires excellence throughout education systems. Countries therefore aim not only at reaching high levels of educational performance, but also to minimise 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 OECD countries, underachievement has become:

- Punitive for the individual - as the subsequent analysis on the earnings and employment perspectives of low achievers shows.
- A problem for the society - in terms of reduced economic competitiveness and social cohesion.
- 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 relationships 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 of students at the 4th and 8th-grade levels, sheds some light on the extent to which education systems and societies moderate and reinforce early educational disparities.

The third section of this paper takes the analysis further by examining what percentage of the overall variation between students lies between classes and schools, the units in which education is delivered, and what percentage of achievement variation 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, from curricular differences and the way in which instruction is organised and delivered.

The analysis in this paper rests on 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 international educational comparisons have become an essential tool for assessing the performance of education systems and the adequacy of students' preparation for an increasingly global economy. Beyond providing international benchmarks, 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 attention that OECD countries pay to internationally comparative policy analysis and evaluation in education has resulted in a major effort of OECD countries to strengthen, through OECD's educational indicators project (INES), 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 the current state of education internationally 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 planning and managing resources and educational services. The empirical evidence that underlies this paper is built 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 to maintain their competitiveness. Greater labour market opportunities, higher earnings, and improved social status are just a few of the reasons why students seek to attend higher levels of education. Cross-country comparisons of the differences in labour market status (employed, unemployed, outside of 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 both the supply of and the 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**

Labour force participation rates of men are generally higher for those with higher levels of 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 male university graduates and those whose highest level of attainment upper secondary ranges from below 2 per cent in Hungary, Ireland, New Zealand, Spain, and Switzerland to over 6 per cent in Austria, the Czech Republic, and Germany.

The gap in participation rates is generally much wider between upper secondary graduates and those who have not completed an upper secondary qualification. In 14 out of 26 OECD countries, the difference in the rates of participation between upper secondary graduates and those without an upper secondary qualification exceeds 10 percentage points. Only half of Hungarian men with less than upper secondary attainment are participating in the labour force. In contrast, labour force participation rates of women show marked differences, not only as one moves from less than upper secondary to upper secondary (20 percentage points or more in 18 out of 26 OECD countries and to a slightly lesser extent in 7 out of the 9 non-Member countries for which data are available) but also from upper secondary to university (10 percentage points or more in 20 countries), with the exceptions of Denmark, Finland, France, Korea, Sweden, and Switzerland, where participation rates of women with upper secondary approach those of women with university attainment (between a 7 and 8 percentage point difference).

Participation rates of women with less than upper secondary attainment are particularly low, averaging 49 per cent over all OECD countries and 35 per cent or below in Hungary, Ireland, Italy, and Turkey. Rates for women with university attainment approach or exceed 80 per cent everywhere except in Korea, and Turkey, but 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 less than upper secondary level, to 20 at upper secondary 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 that wants one. To the extent that educational attainment is recognised as an indicator of skill, it can act as a signal to employers of the potential knowledge, capacities and work place performance of candidates for employment. 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 marginalisation 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 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 than 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 between 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 (Canada, the United Kingdom and the United States), although not in others (Australia and New Zealand). On the other hand, in countries

where agriculture is still an important sector in employment terms (Greece, Korea, Portugal and Turkey), unemployment rates tend to be low. Finally, where overall labour market conditions are particularly favourable (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 a typical person manifests itself not just at a single point in time, but over the entire life cycle. In particular, it affects the total number of years over a lifetime which are spent in employment, in unemployment and outside the labour force. 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.

Expected years in employment tend to rise with the level of educational attainment in most countries. Over the age span 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 of even greater magnitude 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, level of educational attainment had a weaker impact on expected years in employment among males in the non-member countries for which data were 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 for those of 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, Switzerland (three countries with above average employment rates for women) to 15 or more years in Ireland, Italy, Luxembourg, and Spain (4 countries 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 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 to enhanced skills and/or to 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 seen by comparing the ratio of the mean annual earnings of those who attended and graduated from tertiary education with the mean annual earnings of upper secondary graduates. The earnings disadvantage from 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.

There is a strong positive relationship between educational attainment and earnings. University-level graduates earn significantly more than upper secondary graduates in all countries. Earnings differentials between university tertiary 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-level education ranges from less than 40 per cent for men aged 25-64 in Denmark and the Netherlands to 80 per cent or more in Finland, France, Hungary, Portugal and the United States.

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

Earnings of men and women with less than upper secondary attainment tend to be between 60 and 90 per cent of those of 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 one-half of those of men in New Zealand, Switzerland and the United Kingdom to over 77 per cent of those of men in Finland and Hungary. In a number of countries, but especially in 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 relationship 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**

In the preceding section, the paper has shown 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 students at the 4th and 8th-grade levels. In doing so, the data shed light on the extent to which education systems and societies moderate or reinforce early educational disparities. As OECD countries differ in the approaches used to divide students for instruction and structuring the curriculum, it is instructive to ask whether such differences contribute to differences in the dispersion of student outcomes within countries.

The achievement scores shown in tables 1 and 2 are based on tests administered as part of the Third International Mathematics and Science Study (IEA/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 4<sup>th</sup> grade level**

Table 1 shows that there is a large variation in achievement of the top-performing 4th-grade students across countries. Less than 5 per cent of 4th-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 - the difference between scores at the 75th and 25th percentiles - varies between countries in both mathematics and science, although the variation is wider in science. The differences between the 25th and 75th percentiles of 4th grade student performance in mathematics in half of the countries is about twice the average progress in achievement that students at that level accomplish over a school year - a significant challenge for schools and teachers. In mathematics, the interquartile range is narrowest in Iceland, at 92 scale points, and widest in Scotland, at 117 points - nearly twice the typical progress in achievement that students accomplish between the 3rd and 4th grade.

Table 1

**DISTRIBUTION OF MATHEMATICS ACHIEVEMENT SCORES, 4<sup>TH</sup> GRADE (1995)**

	Mean	5 <sup>th</sup> percentile	25 <sup>th</sup> percentile <sup>a</sup>	75 <sup>th</sup> percentile <sup>a</sup>	95 <sup>th</sup> percentile <sup>a</sup>	Standard deviation	Standard error of standard deviation
Australia*	408	261	350	468	553	88	(8.1)
Austria*	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*	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*	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)
UK: England**	376	234	317	430	530	87	(8.1)
UK: Scotland	383	241	325	442	525	85	(8.1)
United States	407	265	352	463	540	82	(8.0)
<b>Country mean</b>	<b>399</b>	<b>266</b>	<b>347</b>	<b>453</b>	<b>529</b>	<b>79</b>	

*Source: International Association for the Evaluation of Educational Achievement (IEA).*

\* Countries did not meet TIMSS sampling

\*\* Countries met TIMSS sampling requirements only partially

<sup>a</sup> 5 (or 25 or 75 or 95) per cent of students score below this point.

## **2. Variation in student performance at the 8th grade level**

Table 2 shows that less than 5 per cent of students in Portugal reach the average performance standards of 8th graders in mathematics of countries such as Korea, Japan, the Flemish Community of Belgium and the Czech Republic.

The difference between the 25th and 75th percentiles of student performance in Australia, Austria, the Czech Republic, Ireland, Japan and Korea is more than four times the average progress in mathematics achievement made by students in OECD countries (33 points) between seventh and eighth grades. Two countries (Portugal and Spain) have interquartile ranges of 100 score points or below (that is, about three grade-year equivalents). To the extent that achievement gaps at age 13 can be regarded as predictive of achievement disparities at later stages, deficiencies observed at this stage can have significant implications both for education systems and for the future highly skilled information society.

It is notable that countries with similar levels of average performance show a considerable variation in disparities of student achievement. For example, Australia and the United States show the same average level of mathematics performance, but the 25th percentile in the United States is 20 score points below the 25th percentile in Australia, indicating that the weaker performers in the United States have markedly lower scores than their counterparts in Australia. At the other end of the scale, the stronger performers in the United States score more highly than the stronger performers in Australia. Comparing the range of achievement within a country with its average performance thus shows that a wide range of achievement is not a necessary condition for a system to attain a high level of overall performance.

Table 2

### DISTRIBUTION OF MATHEMATICS ACHIEVEMENT SCORES, 8<sup>TH</sup> GRADE (1995)

	Mean	Percentile <sup>a</sup>				Standard Deviation	Standard error of the standard deviation	Difference between 4 <sup>th</sup> and 8 <sup>th</sup> grade standard
		5 <sup>th</sup>	25 <sup>th</sup>	75 <sup>th</sup>	95 <sup>th</sup>			
Australia *	530	372	460	600	690	98	(1.5)	10
Austria *	539	394	474	608	693	92	(1.9)	16
Belgium (Flemish Community) **	565	416	502	631	710	92		
Belgium (French Community) *	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 *	502	369	443	561	641	84		
France	538	415	484	591	666	76		
Germany *	509	368	448	572	661	90		
Greece *	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 *	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 **	545	401	485	607	685	88		
UK: England **	506	361	443	570	665	93	(1.5)	6
UK: Scotland *	499	364	436	559	649	87	(2.4)	2
United States **	500	356	435	563	653	91	(1.4)	9
<b>Country mean</b>	<b>524</b>	<b>384</b>	<b>463</b>	<b>586</b>	<b>672</b>	<b>88</b>		<b>10</b>

*Source: International Association for the Evaluation of Educational Achievement (IEA).*

\* Countries did not meet TIMSS sampling requirements.

\*\* Countries met TIMSS sampling requirements only partially.

<sup>a</sup> 5 (or 25 or 75 or 95) per cent of students score below this point.

### **3. Growth in disparities between the 4th and 8th grade levels**

How do education systems and societies moderate or reinforce variation in student achievement? Can policy intervention be successful or are these inequalities in student performance inevitably features of society? One way of answering this is by comparing the within-country variation in achievement at the 4th grade, when school has not had much of a chance to have an effect, and again a few years later on, to see if school and society had an impact on inequalities during this time.

To display the dispersion among students in each country, the last column in Table 2 shows the differences between the 4th grade standard deviations and those of the 8th 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 student level standard deviation rises over the four grades tested. From the 4th grade, where it is 79 points, the standard deviation increases to the 8th grade by 10 points. This indicates that, on average, the spread or dispersion among students in mathematics achievement is larger as students enter secondary school than it is in the early elementary school years. However, there are considerable differences in the growth of these disparities across countries. While some countries exhibiting relatively large variation in mathematics achievement in the 4th grade also exhibit relatively large variation in the 8th grade, some countries with low variation in the 4th grade have - relative to other countries - high variation in the 8th grade.

Korea, which has one of the smallest standard deviations at the 4th grade level, shows the largest disparity at the 8th grade level, a growth in the standard deviation by 38 points. Similarly, Japan and the Netherlands show a growth by over 20 points, two times the average growth in OECD countries. The Netherlands moves from the position with the least variation at the 4th grade to the 7th position at the 8th grade level and Japan moves from the 4th position to the second last at the 8th 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 4th and 8th grade level 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 catch up with the best.
- Second, this difference varies greatly by country, from over 4 to 2.5 years of a students typical progress over a grade year.
- Third, there is no clear relationship between the distribution of achievement and overall performance levels. France manages to get most students above the OECD mean of 8th 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 of this paper takes the above analysis one step further by examining what percentage of the overall variation between students lies between the groups that were tested - 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, from curricular differences and the way in which instruction is organized and delivered. Some countries pursue policies of non-selective school systems with the aim to provide all students with the same learning opportunities. Such countries may leave every school to cater for the full range of students' ability levels. Other countries deal with the range of students' ability levels explicitly by forming homogeneous student groups through selection either within or between classes and schools, with the aim to serve students best according to their specific needs. How do the policies and historical patterns that shape each country's school system play out and relate to the overall variation in student achievement - and to the overall levels of performance in countries?

The Index shown in Table 3 can vary from 0 to 100. If the variation common to students in the same class and school in a particular country is close to zero, then there are virtually no differences across schools and no differences between classes within schools with respect to mathematics achievement. A value of 50 means that 50 per cent of the variation is between groups - classes and schools - and 50 per cent is between students within classes and their schools tested.

The data in Table 3 show that in most countries differences in achievement are mainly associated with students rather than with the schools. This is partly a reflection of the fact that in the countries under review, school environments vary much less than home environments of students. Countries with relatively large differences between classes and schools (i.e. more than 30 per cent of the overall variation in student performance) are Austria, Belgium Flemish, Germany, Ireland, 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 percent) occurs between students in terms of home environment, attitudes towards maths and expected further education.

The variation between schools and classes as shown in Table 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 to serve 8th graders best according to their specific needs. The comparatively large proportion of achievement variation between schools and classes in these countries may be mainly a result of these policies.

Table 3

**DECOMPOSITION OF VARIANCE COMPONENTS IN MATHEMATICS  
ACHIEVEMENT OF 8TH-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 *	74	26	11	48	21
Austria *	67	33	7	54	23
Belgium (Flemish Community) **	64	36	4	39	17
Belgium (French Community) *	74	26	11	41	19
Canada	83	17	12	20	14
Czech Republic	78	22	16	42	22
Denmark *	94	6	8	41	10
France	75	25	9	13	10
Germany *	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 *	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 **	61	39	8	18	12
UK: England **	73	27	10	48	20
UK: Scotland *	73	27	7	47	17
United States **	69	31	11	35	19

*Source: International Association for the Evaluation of Education Achievement (IEA).*

\* Countries did not meet TIMSS sampling requirements.

\*\* Countries met TIMSS sampling requirements only partially.

However, also 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, show considerable variation between the classes and their schools tested. 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 segregation of the student intake by socio-economic factors (e.g. some schools may perform poorly because their students largely come from a poor neighbourhood) or from 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 3 shows that such policies have been successfully implemented in these countries, with around 10 per cent or less of the variation left between either schools or classes within schools.

How do the policies and historical patterns that shape each country's school system play a role in and relate to 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 in place? Table 3 shows no clear relationship between the size of the relative variance components and the overall variation in student achievement. There is also no uniform relationship between the size of differences among schools and classes and overall levels of achievement in countries.

In Japan and Korea, the countries with both the highest overall levels of performance of 8th graders in mathematics as well as the highest variation in achievement, only a very small percentage of this variation (less than 6 per cent) results from differences among schools or from differences between 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 from differentiation among classes within schools. In part, the low variation in France may, however, be attributable to a comparatively high incidence of grade repetition.

The Netherlands and Switzerland are countries with 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 per cent or more lies between 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. While in Germany, a differentiated school system is in place, the relatively high variation between 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 face lower risks of unemployment. Similarly, education and earnings are positively linked, whatever the type of socio-economic system or the level of economic development, with upper secondary education acting as a break-point for many OECD countries beyond which additional education attracts a particularly high premium.

The second section of this paper provided 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. Three conclusions emerged from this: First, that 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 4 to 2.5 years of a students typical progress over a grade year. Third, there is no clear relationship between the distribution of achievement and overall performance levels. France manages to get most students above the OECD mean of 8th grade mathematics achievement within a relatively narrow range of performance, whereas Japan gets high scores over a wide range of performance.

It is notable that countries with similar levels of average performance show a considerable variation in disparities of student achievement. For example, Australia and the United States show the same average level of mathematics performance, but the 25th percentile in the United States is 20 score points below the 25th percentile in Australia, indicating that the weaker performers in the United States have markedly lower scores than their counterparts in Australia. At the other end of the scale, the stronger performers in the United States score more highly than the stronger performers in Australia. This indicates that a wide range of achievement is not a necessary condition for a system to attain a high level of overall performance.

Across OECD, variation in student performance rises from the 4th to the 8th grade level. But again, there are considerable differences in the growth of these disparities across countries. While some countries exhibiting relatively large variation in mathematics achievement in the 4th grade also exhibit relatively large variation in the 8th grade, some countries with low variation in the 4th grade have - relative to other countries - high variation in the 8th grade. Such differences among countries show that the growth in disparities is not an inevitable outcome of education systems.

In OECD countries, school environments vary usually much less than home environments of students but some countries show relatively large differences in achievement between classes and schools. The relationship 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 8th graders in mathematics performance. France reaches high average performance with low variation which, in turn, is to a significant part explained by differences between classes and schools. The Netherlands and Switzerland perform well with only moderate variation of which much is explained by between-school/class differences resulting 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 FACING THE HEALTH SECTOR**

**Susana Schkolnik, ECLAC/CELADE**

#### **A. INTRODUCTION**

During 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 advances in medicine, improvements in nutrition and other achievements. This has not only lengthened people's lives and improved their health, but has 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 has fallen sharply, projections are that the Latin American population will still 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 persons 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. In particular, this document tries to show some of the impacts of demographic changes on the health sector, mainly associated to the epidemiological transition and reproductive health.

## B. DEMOGRAPHIC TRANSITION AND FERTILITY TRANSITION

All Latin America countries are already undergoing –albeit to varying degrees of intensity– a process of demographic transition. This process, which may be observed empirically, is characterized by a shift from a situation of slow population growth marked by high birth and mortality rates to another which, while also featuring slow growth, is characterized by 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 between countries.

The pre-transitional situation, which existed at the beginning of this century, was characterized by an expectation of life at birth on the order of 30 years and a total fertility rate of 6-7 children per woman. This was a situation of equilibrium, with high mortality and fertility and low growth rates. 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 remain single.

During the first half of this century a decline in mortality was observed, together with an increase in fertility in the 1950s, with the resulting 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. In the following two decades advances were made and life expectancy at birth rose to 60 years in the 1970s. The increase in fertility was probably due to earlier declines in mortality rates, which meant that women's exposure to the risk of conception was of longer duration, 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 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", when 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 between countries in terms of when mortality and fertility start 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 within countries between different social sectors– 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 CELADE has used as a basis for the classification of countries according to their stage of demographic transition (ECLAC/CELADE, 1993). These are: **incipient transition**: countries with high birth and mortality rates, with moderate natural rates of population growth (Bolivia and Haiti); **moderate transition**: countries with high birth and moderate mortality rates, which result in high natural growth rates (El Salvador, Guatemala, Honduras, Nicaragua, Paraguay); **full transition**: countries with moderate birth rates and moderate or low mortality rates, resulting in moderate natural growth (Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, Mexico, Panama, Peru and Venezuela); and **advanced transition**: countries with low

birth and moderate or low mortality rates, resulting in low natural growth rates (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 from 6 to 8 children per woman. However, in 1990-1995, only in Bolivia, Haiti, Honduras, Guatemala, Nicaragua and Paraguay the average was 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 one, 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, however, 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, along with the resulting ageing of the population and differentiation of the countries' demographic profiles. 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. It is interesting to note how 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 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, as well as, perhaps, of migration and the way in which these patterns interact. If international migration had little or no effect on a population, then changes in its 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 person's expectation of life.

In the countries of Latin America, a clear relationship 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, and a total fertility rate of 5 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 ageing of the population at the peak of the pyramid, the greatest difference is still found between countries in an advanced transition and the rest since whereas the proportion of people over 60 is

approximately 6%-7% in the latter, in the former it is already above 10% and, in the case of Uruguay, 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 (OPS, 1990). The hallmark of the epidemiological transition has been a shift in prevalence away from infectious and parasitic diseases and towards tumors and degenerative diseases (especially of the circulatory system) and towards external causes (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 (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 as a consequence of the development of medical knowledge, health education and the increase of general sanitary conditions, are also influenced by the decline in fertility and the subsequent changes in the age structure of the population, all factors that contribute to shifts in the demand for health care.

Based on the information already examined, it is clear that the main source of demand in countries in the advanced stages of the transition is, and will continue to be, the adult and elderly population. These are countries where the ageing process is relatively advanced and where 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 noncommunicable 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 are now facing the challenge of maintaining and improving their levels of care while at the same time taking steps to cope with the growing demands made by 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 targeting the most vulnerable groups.

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

Despite the fact that the health-care requirements of the child population will tend to stabilize, these countries not only have to cope with the growth of the elderly population, but are

also, to a large extent, faced with the unsatisfied demands of large sectors of the low-income population, a situation which is only exacerbated by rapid urbanization and the poor health-care coverage typical of the rural areas of Latin America.

In countries where the transition is at an incipient or moderate stage, maternal and child health still appears to be one of the most serious problems, since children under 15 years of age account for the highest proportion of deaths, with infectious and parasitic diseases being among the most prominent causes. In these countries, this type of morbidity also affects the adult population, and 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. In these cases, improving the population's health will require 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, and this has been reflected in an increase in life expectancy at birth and a decline in the infant mortality rate. 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 fall among the poor. There are substantial differences among countries; with rates ranging from 75 in Bolivia and Haiti to less than 15 in Chile and Costa Rica and 10 per 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 between countries. Numerous studies<sup>1</sup> based on censuses and, more recently, demographic and health surveys,<sup>2</sup> have shown that greater attention needs to be paid to the still high levels of infant mortality observed among the most disadvantaged social groups, as these indicators reflect significant inequalities in term of access to health care.

Social differentials in the risk of death in childhood have been observed at all stages of the demographic transition, but the differences are more substantial when mortality is higher, and narrow significantly when mortality is low, owing 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 their association with socio-economic and health-care variables have been established. As regards the former, a systematic association has been found 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 (CELADE, IMIAL and IFHIPAL studies). 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

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<sup>1</sup> Research on Infant Mortality in Latin America (IMIAL) and Research into Fertility Using the Own-Children Method in Latin America (IFHIPAL), CELADE, between 1975 and 1985, approximately.

<sup>2</sup> Demographic and Health Surveys programme (DHS), undertaken by the Institute of Resource Development/Macro International Inc., in conjunction with national institutions in several Latin American countries.

and others, 1996). In addition, the Demographic and Health Surveys (DHS) programme 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. It is clear that these differences would be greater still if data were available on groups with the highest level of educational attainment. Moreover, these differences tend to narrow as mortality 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**

Fertility decline also has important implications for the health-care sector, since, as in the case of mortality, the trend has an effect on the extent and type of demands made on this sector. The consequences include: (a) a lower rate of growth in the number of births and of women of childbearing age, leading to reduced pressure in terms of demands for maternal and child health care, thus making 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, this does not necessarily mean that the number of births per year has actually decreased in absolute terms. What can be said, however, is that the number of births is rising much more slowly than before and that 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 in around 11 millions. 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 descend (Cuba). This will, in turn, relieve some of the pressure exerted by maternal and child health-care requirements on the health-care system and 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 as in some of the countries that have reached an advanced stage in the

transition. 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 further and perhaps make a greater effort in terms of both funding and training in order to meet the needs of lower-income groups. Because of the size of their populations, their striking internal social disparities and the fact that their populations are just beginning to age, Brazil and Mexico are two of the countries in this group that may confront the most formidable challenges in the field of health care.

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 such countries as Guatemala and Nicaragua) and the greatest demands will 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. They also have higher levels of malnutrition and sharp internal differentials in fertility and in infant and maternal mortality rates. Another characteristic of these countries is that high-risk groups exposed to unhealthy environmental conditions constitute a large percentage of their national populations. Consequently, 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 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. This is because 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 very young (below the age of 20) or over the age of 34. Women of these ages are, in particular, more likely to suffer from high blood pressure and anemia and to have a greater percentage of premature births and low birth-weight babies, as well as being at higher risk of obstetric complications than 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 (CELADE/IDB, 1996). In addition, the level of risk is higher when the mother is in poor psychological and/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.

It is important to note, however, that fertility decline has been less marked among women below 20 years of age than among those who are near the end of their reproductive period, and 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 due to

the effect of the sharper decrease in births among women over 34 years of age. What is more, 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 had jumped from 14.2 million in 1970 to 24.3 million by 1995 and 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, and 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 fact, in the cases of El Salvador and Guatemala, they account for an even higher percentage than women over 34 years of age do. 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%. However, 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 some (Brazil, Colombia, Costa Rica, Mexico and Venezuela), the relative share of total fertility accounted for by adolescents has expanded whereas in others it has held fairly constant (Dominican Republic, Panama, Peru). 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, approximately, 1960 and 1990.

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

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 (no formal schooling or completion of primary school only) and that 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 and to contribute to the inter-generational transmission of poverty, although they are not its determining factor.

### **3. Fertility-related social inequalities**

These differences in the various countries' fertility levels according to the stage reached in the demographic transition are, as is also true of differences in the level of infant mortality, 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 (CELADE/ECLAC, 1995). 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 such countries as Brazil, Colombia and Peru to less than one in Chile and Cuba (INE/CELADE, 1989; State Statistical Committee, 1987). Thus, there is evidence that 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.

Although it has been demonstrated that high fertility is associated with poor, less educated and rural women, these women are also the ones who 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.

It does not appear, however, that high fertility levels can be attributed to socially-determined differences in the desired number of children, since, according to DHS data, the number of children desired by less educated women is fairly low (generally 2-3 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 4 in Bolivia and Peru and around 2 in Paraguay, Brazil, Colombia, Ecuador and the Dominican Republic) even in cases where 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 due to lack of statistical data to quantify its contribution to fertility decline. There is indirect evidence, however, of its importance in the decline of fertility in the region.

In the countries that are the farthest along in the transition, contraceptive use is high and the more modern methods of contraception predominate, whereas in countries at an incipient stage, the proportion of contraceptive users is much lower. 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. It is significant that the countries where fertility levels among uneducated women are around 5 children per woman (El Salvador, Brazil, Colombia and the Dominican Republic), modern contraceptive use is generally reported by between 45% and 55% of women, while in those where the fertility levels of uneducated women are still over 6 or 7 children per woman (Bolivia, Paraguay, Ecuador and Peru), contraceptive use ranges from 3% to 25%.

All this appears to indicate that a great deal of scope remains for the expansion of family planning and health education programmes to promote a discerning, informed use of measures that can improve the health of mothers and their children and that can 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, such as is found in Latin America, demographic changes 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 sorts of changes brought about by the steps taken 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, as existing social inequities are perpetuated through the mechanism of health-related risk factors that primarily affect socially and economically disadvantaged groups.

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## **IV. CULTURAL STATISTICS AND POVERTY**

**Leo Goldstone, World Statistics Ltd.**

### **A. INDICATORS FOR THE WORLD CULTURE REPORT**

In June 1998, UNESCO published its first World Culture Report. This 1998 Report was also the subject of an extended discussion at the World Conference on Cultural Policy in Stockholm which took place a few weeks earlier. The Conference formally adopted a Resolution recommending a World Culture Report should be issued every two years.

I had been asked by the World Culture Report Steering Committee, of which I am a member, to prepare the indicators for the 1998 Report and will endeavour to do the same for the year 2000 World Culture Report. 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 paper reviews this experience of collecting, compiling, analyzing 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 World Culture 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 reflected adequately through existing statistics and consequently were not included in the Report.

The culture indicators in the Report did not pretend to measure world culture -- the culture of the world is far more complex and multi-faceted—but presented those aspects of world culture that were readily measurable. However, one of the aims of the Report was to start a process of broadening those measurable and reported aspects of world culture in the coming years so that subsequent Reports would be able to present a more complete picture.

Many cultural concerns were omitted simply because there were too few countries with comparable reliable data. Some cultural elements were omitted because no satisfactory means of expressing them in tabular form had yet been developed. Other cultural issues which could be adequately expressed in indicator terms would have required special purpose 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 the most 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 food and drink traditions and practices.

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, lastly, the much broader contextual, social and economic conditions which impinge on or materially affect cultural development and diversity, which was called Cultural context.

## **B. MULTICULTURALISM**

In addressing the question of what quantitative aspects of culture to emphasize and how to present them without showing a bias towards any single cultural pattern, one issue immediately arose. It became clear that the production, consumption and exchange of cultural goods that can be priced in the market was the area that was richest in indicators. Furthermore, the richer a country was the more cultural goods it usually produced and consumed. Not only did rich countries have more data, but they "scored" higher in the area of producing and consuming cultural goods through market mechanisms.

Our aim was to bring in the multi-cultural aspects of all countries as a balance to the inevitable bias towards the rich countries because of their cultural production and consumption market indicators. Those indicators had to stay as they reflected an important and measurable part of world culture. The challenge was to broaden the scope of the indicators so as to bring in the multi-cultural features that exist in all countries and can be provided by all countries, and presented in the indicator tables.

Many of the "multi-cultural" features that we were seeking were to found in 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, the tables on languages and religions had to be dropped because there was not sufficient time to send them to the countries for comment. With such culturally sensitive areas like languages and religions it was felt necessary that countries should have the opportunity to review the tables and there was not sufficient time to do this adequately.

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

### **C. COVERAGE AND RELIABILITY**

However, many of the indicators that were available had an inadequate coverage and were lacking in timeliness. 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 eighties just to arrive at a respectable number of countries for some indicators. There is a great need to ask some questions more frequently.

Among the indicators presented in the Report 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; the indicators on recorded music; performing arts; cultural trade; archives; museum personnel; the trend data on book titles, cinema attendance and 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 and, as might be expected, this lack is greatest in the poorest countries. The result is a strong cultural bias towards the rich, cultural – goods – producing – and – consuming countries.

In addition to availability, coverage and source there is the issue of reliability. 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.

Cultural indicators like radio and televisions per inhabitant are reliable and fairly comprehensive as are many of the indicators found in the tables of the last section on the cultural context. These indicators, however, will 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 unfortunately they have limited coverage and also very much reflect the wealth of a country. On the other hand, with cultural indicators like cultural radio and television programs we are dealing only with broad approximations not necessarily comparable among countries and with limited coverage. In the case of cultural indicators like spoken languages, there is difficulty in ensuring the quality of the definition, although the coverage is complete and the indicator is independent of wealth.

### **D. THE WEALTH BIAS OF CULTURAL STATISTICS**

Is it clear from this that the available cultural statistics under-represent or completely exclude many of the cultural activities of poor nations and of poor people in rich nations. 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 a single cultural development index was that it would inevitably end up as a “rich country cultural development index” and, the richer the country, the more cultured it would appear, with a few inevitable exceptions.

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

is multi-faceted and that cultural diversity should be nurtured. A monolithic single cultural development index would represent the antithesis of that view.

Cultural statistics under-reports or excludes poor countries and poor people because, unlike the statistics of other social areas like education, population and health (but not disease), they 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 very much are not seen to be "cultured" from the point of view of the statistics that are currently available. In fact, cultural statistics can be said at present to be as much a process of discounting as one of counting.

It is not 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 CD. 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 between "high" and "popular" culture. Even when they are clearly not neutral statistical information is usually presented independent of their biases. Interestingly enough, 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. The corollary is that the poorer people who cannot afford to participate in the market as much as the rich will naturally pursue their cultural activities through non-market cultural practices like festivals, rituals, musical events, story-telling, etc. Very little of these activities will be 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 their own 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**

There is another more insidious aspect which is the extent to which living in poverty deprives people and, in some cases, whole countries from 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 will see that Japan produces the televisions, Canada, Germany and France buy the televisions and Singapore trades the televisions. Or USA produces the films and New Zealand and Ireland buy the film tickets. Or Hong Kong and Norway buy newspapers. Or Italy and Spain publish books. Or Finland, Switzerland and the Netherlands publish book titles. Or the United Kingdom, Australia and



Korea buy radios. Or Austria and Belgium buy recorded music. Or Sweden and Denmark visit museums.

All these leading country examples are taken from the tables of the 1998 World Culture Report. 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 practiced in rich countries is automatically practiced by the rich people in the not-so-rich countries and, particularly, the rich people in the poor countries. This results in the creation of 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 and which 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 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 classed as culturally excluded or culturally inferior is that they are poor and it is their poverty that 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 and, 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 aim is to put culture and cultural diversity on the map with this first World Culture Report following an earlier report of the World Commission on Culture and Development entitled "Our Creative Diversity" which recommended the publication of a World Culture Report. This initiative includes as an essential element the improvement and enlargement of cultural statistics because of the limitations discussed above.

It is intended that many of the missing cultural activities will be presented in some quantitative form in future Reports. 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 the intention is 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, is not so closely linked to wealth and certainly not in the case of non-professional sport.

It is also our intention that in future reports many missing countries will be able progressively to provide more cultural information about themselves so that the coverage of the indicators becomes more representative and less biased towards the rich countries. In this respect, the 1986 UNESCO Framework for Culture Statistics might be used by countries as an operational starting point. However, it would be useful to revise this Framework 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 rich country and rich people bias that cultural statistics currently reflect.

## **V. THE CHALLENGE OF FINDING ROBUST POVERTY INDICATORS FOR RAPID MONITORING OF CHANGES OVER TIME**

**Timothy Marchant, The World Bank**

### **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. The debates on how these goals are to be achieved dominate the development planning process everywhere. One issue on which there is general agreement though is that an essential part of the process has to be the establishment of effective monitoring systems that will make it possible to measure the extent to which we are moving ahead towards the realization of these goals. One of the effects of this new area of work has been to introduce major new demands on national statistical systems which are for the most part already overextended and under-resourced. Of particular concern is the fact that, despite a significant flow of new resources over the past decade towards the creation of new poverty monitoring capacity, the outputs of such systems and the messages they bring are still, to many, extremely ambiguous and not nearly as informative as one would wish in indicating whether and how poverty levels are changing. Should we be surprised by this? Well, perhaps it would first be useful to consider what indicators are used to monitor poverty levels - but to do so from the perspective of the data collector/statistician than from that of the poverty analyst.

### **B. FRAMEWORK FOR A POVERTY MONITORING SYSTEM**

The 1997 Human Development Report, whose theme was Human Development to Eradicate Poverty, develops a composite Human Poverty Index HPI for comparing level of poverty. This concentrates on measuring deprivation in three essential areas - survival (% of people expected to die before age 40), knowledge (% of adults who are illiterate) and living standard (% of people with access to health services and safe water, and the % of malnourished children under five). Significantly absent in the HPI is any indicator of income or consumption. The primary reason for this absence is due to the difficulty of establishing an internationally comparable poverty line. By comparison, the Development Assistance Committee of the OECD, in which almost all the main development agencies are represented, reproduced in its publication

"Shaping the 21st Century: The Contribution of Development Co-operation"<sup>1</sup>, a series of development goals established at recent UN Conferences. It then proposed a set of indicators for monitoring the achievement of these goals. Heading the list of goals is the reduction of the proportion of people living in extreme poverty by at least one half by 2015. The indicators selected to monitor this goal are almost all moneymetric (poverty head count ratio, poverty gap ratio, inequality of income), and include only one 'social indicator' (prevalence of underweight children).

The purpose of giving these two examples is not to polarize the discussion between those who advocate the money metric measures and those that don't, (this would be a misrepresentation of the position of most persons 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)<sup>2</sup>. This means that poverty monitoring is a highly data-hungry exercise.

The establishment of a poverty monitoring system can be quite an extended process. In the early days, there was a general belief that a good household survey would meet most information needs. But as experience was gained it was recognized that this was clearly insufficient. Nowadays, a national poverty monitoring system is most likely to include a number of elements, each one contributing its own unique perspective to the better understanding of welfare and poverty. For instance:

**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 program of consumer and producer price collection** to monitor spatial and temporal price changes.

**A program of Participative Poverty Assessments (PPA)** to capture insights into communities' own perceptions of their circumstances and needs, also to follow up on the warning signals generated by the CWIQ or PS and to focus on specific issues that are considered to be important by the poor.

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

In addition to the above, the monitoring and analysis of poverty also requires that a country is capable of producing: (1) **timely annual national accounts** so as to be able to monitor changes in per capita GDP levels, and (2) **current public expenditure statistics** disaggregated by province and/or district.

The traditional, and still most frequently used, tool that lies at the heart of most poverty monitoring programs is the integrated multi-topic household survey. In most cases this comes

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<sup>1</sup> OECD, 1996 *Development Cooperation: Development Assistance Committee Report 1996*, Paris.

<sup>2</sup> UNDP (United Nations Development Programme) 1997, *Human Development Report 1997*. New York: Oxford University Press.

down to a form of household budget survey (to provide the estimates of household consumption<sup>3</sup> for placing the household above or below the poverty line), coupled with modules that provide details on the socio-economic characteristics of the household. Many of the surveys are quite lengthy and complex involving long questionnaires and several return visits to the household at different times in the survey year, but this is not always the case. In many African countries, lighter versions have been used involving shorter questionnaires and single visits to the household. The arguments for using such multi-topic surveys (both the heavy and the light versions) are compelling in that 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 details 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 been the main source of information used to prepare many of the national poverty profiles that have shaped Country Assistance Strategies, and they have fed innumerable research studies that have enhanced our understanding of poverty and guided the development of pro-poor policies and programs. One of the most evident benefits of having such data sets has been the gradual increase in the size of the pool of competent researchers from developing countries that are now able to undertake such analysis and that 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 started to become apparent as the surveys are repeated over time and as comparisons are attempted between surveys. These are most evident with respect to the comparisons between levels of household consumption and to efforts to identify trends with regard to changing levels of poverty. The problem comes from the fact that as second, even third, surveys have come along they have in a number of cases produced poverty estimates that are sufficiently at odds with the estimates generated through the first survey to make interpretation extremely difficult and even to cast doubt upon the reliability of one or more of the data sets. This is not to say that in such cases comparisons cannot and are not being made, but rather to say that they have required the inputs of highly skilled analysts to make quite complex adjustments to the data be able to comparable results. Such processes do little to enhance the final credibility of the analysis.

However, we need to point out that, analytical issues apart, there is a major data issue which makes the apparition of such comparability issues relatively unsurprising. The main difficulty is that the measurement of 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 that is used and on the enumeration methodology that is adopted. Good household budget surveys are expensive and very time consuming and experimental methodology work to develop short cut methods has yielded disappointing results. Most survey questionnaires require 200 or more questions to be answered 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 12 months! Seasonal and random monthly variation are thus not adequately reflected, and

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<sup>3</sup> 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.

the measurement and valuation of home consumed production presents its own host of estimation difficulties.

These data measurement problems are compounded by the fact that household consumption is a variable that is subject to a great deal of variation because of such factors as climatic and environmental conditional 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 make household expenditure and consumption into extremely 'noisy' variables. That being the case, the accurate and reliable measurement of change in such a variable and the identification of a trend with even the most modest limits of range and confidence requires a relatively large number of time points - in the range of 8-10.

A further limitation of the approach is that such surveys are both expensive to do and time-consuming to complete. It is also difficult to persuade national statistical offices to devote scarce resources to the implementation of repeated rounds of such surveys when they also have to service other pressing information demands. While, as already noted, some of the surveys have been based on a single visit to the household, most household budget surveys are based on multiple visits staggered over twelve months. This means that fieldwork will last for a year. Subsequent processing may take another six months which means that the results may not be available until 18-24 months after data collection started.

So the challenge presents itself. There is a priority demand for statistical information to monitor the effects of poverty alleviation policies and programs and to track the extent to which the poorest and most vulnerable members of the population are or are not benefiting, yet the classic approach of using a single multi-topic integrated survey to service these information needs is clearly insufficient particularly when it comes to providing rapid feedback to indicate whether development strategies are on track or not.

### C. CORE WELFARE INDICATORS QUESTIONNAIRE

In 1996, a study was initiated by the World Bank to design a survey that would be very easy to implement and that would feed results very rapidly into the decision-making process. A questionnaire, the Core Welfare Indicators Questionnaire (CWIQ) was developed with the support of UNDP, UNICEF and the ILO. The CWIQ was intended to be very quick and very easy to implement and to complement rather than replace other surveys. It could be implemented as an annual short "core" questionnaire in what could be a core and rotating module survey program. As such, the CWIQ would become a new but important component of a country's overall monitoring package. The first full national CWIQ was carried out by the Ghana Statistical Service 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

The most important feature to distinguish the CWIQ from other 'poverty' surveys was that it is not designed to serve as a tool to measure whether poverty levels were 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 programs are reaching the poor and benefiting them or not. These are much easier indicators to measure and much less 'noisy'. As a result many of the measurement issues highlighted above, are avoided. The CWIQ is designed to focus on the three simple leading indicators of **access**, **usage** and **satisfaction** with 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 1

## USING CWIQ TO MONITOR PRIMARY EDUCATION IN GHANA

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

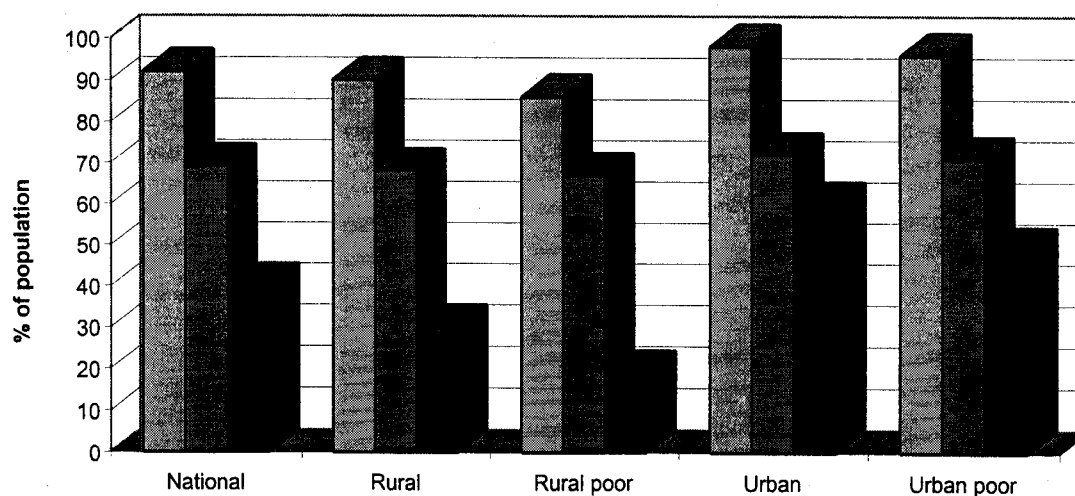


Figure 1 presents data from the Ghana CWIQ with respect to primary education services. The left hand bar in each group measures access. The next one measures usage, and the third one measures satisfaction. The figure shows that **access** (defined as being within 30 minutes of a primary school) is rarely a problem.

Ninety percent of the population are within 30 minutes of a school. Even in the remote and poorest areas, over 85% of the population have easy access. **Usage** (defined as the net primary enrolment rate) is lower - approximately 70%, but again there is no major difference in enrolments across each household group. But when it comes to the **quality of service** (defined terms of the percentage of users satisfied) then there is a completely different message. 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 figure shows that the rural poor are particularly disadvantaged - less than 20% satisfied.

Figure 2

## USING CWIQ TO MONITOR PRIMARY EDUCATION IN GHANA

### *What do they complain about?*

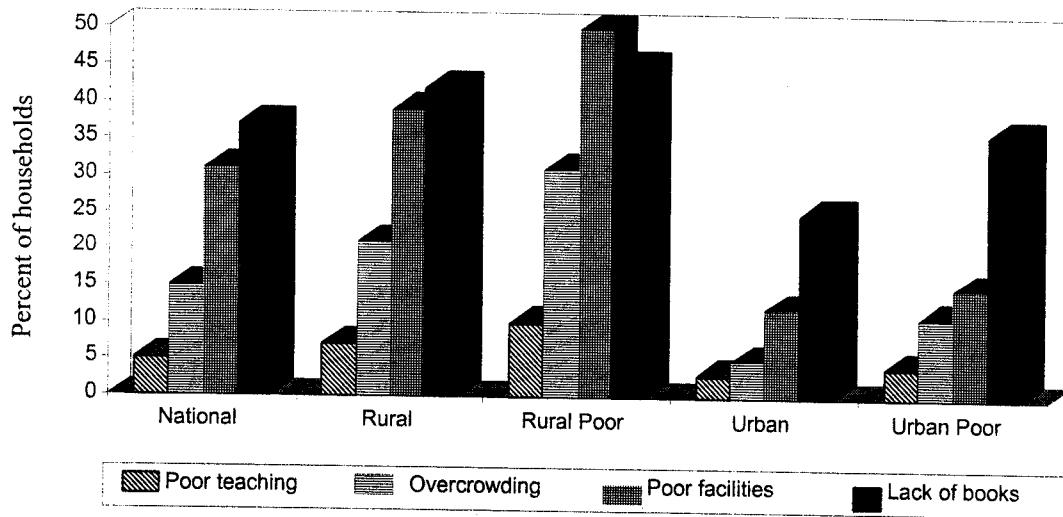


Figure 2 takes the analysis one step further by displaying the main reasons for user dissatisfaction. Lack of books is seen as a problem everywhere, but poor facilities and overcrowding are the major problems in the rural areas, particularly among the rural poor.

The same analysis as is shown in this example can also be repeated for other services such as secondary schooling, health services, access to water etc. The value of such indicators to make comparisons between groups and, eventually, over time is clear.



If, as stated earlier, the 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 light expenditure module to provide the necessary information to rank households from wealthiest to poorest and then to group them into quintiles, but a methodological test in Kenya in which results derived from three 'light' methods of expenditure estimation were compared with the results obtained from a full expenditure survey, revealed disappointing results. Table 1 compares the ranking of households using the best 'light' method and the full survey. While one would expect absolute levels to be different when using light methods, it was disappointing to note that the rankings were also badly affected. Only 56% of household that should have been in the lowest quintile were correctly classified as such using the light method. For the next quintile, only 33% were correctly classified.

Table 1

**COMPARISON OF HOUSEHOLD RANKINGS  
IN KENYA USING FULL EXPENDITURE  
SURVEY, AND 'LIGHT METHOD'**

	Ranking (%) 'Light' method					
Full survey	1	2	3	4	5	All
1	56	31	8	4	1	20%
2	29	33	25	10	3	20%
3	10	21	40	22	5	20%
4	4	11	24	42	20	20%
5	1	3	3	22	70	20%
All	20	20	20	20	20	100

A second experiment in Ghana yielded much more promising results. This was based on the idea of identifying robust 'consumption correlates'. There the Ghana Living Standards Survey III, was used to derive through regression analysis 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 were 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 as shown in Table 2.

Table 2

**COMPARISON OF HOUSEHOLD RANKINGS  
IN GHANA USING FULL EXPENDITURE  
SURVEY, AND 'CONSUMPTION'**

	Ranking (%) Per capita expenditure					
Predicted function	1	2	3	4	5	All
1	97	3				20%
2	3	89	8			20%
3		8	90	2		20%
4			2	90	8	20%
5				8	92	20%
All	20	20	20	20	20	100

The predictors were also tested for their robustness over time by applying them to the 1st Ghana Living Standards Survey, which had been conducted some 8 years earlier. Here again, they stood up well and relatively little misclassification of households into the wrong quintile was detected. On the basis of this experiment, it was decided to use the consumption correlates (or poverty predictor) approach for classifying households into quintiles.

Following on from the success of the Ghana survey, further development work has gone into the CWIQ to complete the package so that it can be released as an off-the-shelf survey that national statistical offices, or other private or public institutions, can use as a monitoring tool to minimize turnaround time between data collection and the production of results. The key features of the CWIQ are:

- Short questionnaire
- Easy data collection
- Quick data entry and validation
- Pre-programmed output tables
- 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 be able to generate all of the following indicators.

Population sub-groups	Indicators
⇒ Geographical groupings (urban, rural, remote areas) ⇒ Socioeconomic groups ⇒ Gender of household head ⇒ Holding size group ⇒ Household size group ⇒ Ultra poor, poor, and non-poor (ultra-poor and poor defined as the lowest and second lowest household consumption quintiles). ⇒ Other policy target groups (depending on sample size and selection procedures)	<b>Indicators of well-being</b> ⇒ % of income earners and households reporting income increases/decreases in last 12 months ⇒ % reporting diminishing/increasing assets (land and livestock) ⇒ % of literate adults ⇒ % of children malnourished (if the anthropometry module is applied) ⇒ Housing (mean no of persons per room) ⇒ % of adults unemployed in the last 7 days
	<b>Access, utilization and satisfaction indicators</b> ⇒ 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 < 5 years ⇒ Satisfaction rating with primary and secondary school services ⇒ Access to local health center ⇒ Frequency of use of local health center ⇒ Completeness of vaccination record for children under 5 years ⇒ Satisfaction rating with 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, except where the anthropometrics module is to be administered. This section requires the presence of all children under the age of 5 years. The average interview time for the Ghana survey was 20 minutes (excluding the anthropometry measurements). Enumerators were completing an average of 5 interviews per day. Because the Ghana Statistical Service uses mobile teams of temporary field staff (13 teams of 4 enumerators and 1 supervisor each) rather than a fixed force of enumerators permanently located in the field, fieldwork took 3 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 very significantly reduces time spent entering the data. The data once scanned are taken straight into an Access database in which more extensive validation checks are carried out. The package also includes all the prewritten data entry and validation programs thereby reducing the demands on data programming time. Having cleared the data validation procedures, the data can be taken into any of the standard statistical packages for analysis.

## **4. Pre-programmed output tables**

The CWIQ package also includes all the SPSS program 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 socioeconomic group. The other output, apart from the standard summary tables, that will come out of a CWIQ survey, is a CD-ROM containing all the survey documentation, (enumerators manual, questionnaire, sample design specifications etc.) as well as the clean primary data files. The CD-ROM contains all the information needed by 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 turn around time. It also has the advantage that it can be used as a standard survey instrument in any country, thereby making cross-country comparisons much easier. But the problem with such a fixed product is that it provides little scope for country-level modifications or additions. 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. But the basic idea is that national statistical offices should design modules of their own choosing to suit their own specific needs.

It is important that the CWIQ should be seen in context as only one of several instruments needed for poverty monitoring. It can for instance never replace national household budget surveys or agricultural production surveys, nor can it provide the level of insight that participative assessment approaches can provide. Issues of intra-household resource allocation, seasonality changes, etc. are beyond its reach to address, but it does have an important niche within a poverty monitoring system 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 they have available to them.

## **VI. GROWTH, POVERTY AND INCOME DISTRIBUTION IN LATIN AMERICA IN THE 1990s: AN UNCERTAIN RELATIONSHIP**

**Juan Carlos Feres and Fernando Medina , ECLAC**

### **A. INTRODUCTION**

#### **1. The economic situation**

During the first few years of the 1990s, average GDP growth in Latin America and the Caribbean was on the order of 3.6% per year. Significant advances were also seen 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, which instead, with very few exceptions, 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. One of the decisive contributory factors in this regard was the success of the stabilization programmes carried out in Argentina, Brazil, Nicaragua and Peru. This, in turn, had positive repercussions, especially in Brazil, in terms of the recovery in real wages.

However, the situation in the different countries in this respect has been very uneven, since 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. Moreover, 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, and the situation of wage-earners is therefore highly heterogeneous.

These wage trends have coincided with high growth rates in employment 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. Nevertheless, it is known that in Latin America these new contingents of the active population are not always able to find productive jobs; consequently, there is a tendency to resort to various forms of underemployment involving, for the most part, poorly paid low-productivity occupations. This type of mechanism also attenuates the impact of these processes on open unemployment levels. Hence, for example, in countries such as Brazil and Mexico, the unemployment rate 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, 1998).

## **2. Advances and setbacks in the social situation**

However, the economic successes observed in the region in the course of the 1990s have translated into only slight improvements in the social situation, in some cases, or have just managed to keep things on an even keel, in others; in addition, 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, although this means that over 200 million Latin Americans were still living in poverty in 1994 (ECLAC, 1997a). This change, 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 had occurred in the 1980s, when the rate had risen from 35% to 41%. The advances were even smaller with respect to indigence or extreme poverty, since the early 1990s, the percentage of extremely poor households declined by only a single percentage point, from 18% to 17%. This means that 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 the improvement recorded in urban areas, where the incidence of poverty moved from 36% to 34% of all households, since in rural areas the decline was very slight (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. Meanwhile, the indigent population swelled from 91.9 million to 98.3 million, for an increase of 6.4 million in the space of those four years. These sharp increases were due in large part to the deterioration in the situation in Brazil between 1990 and 1993, when urban poverty rose from 37% to 39% (although this increase was reversed in the following biennium), and to the considerable spread of urban poverty in Venezuela, where 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, while 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, but in their cases, the levels recorded in the late 1980s were very high, so there are still large numbers of people with 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, and 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. Hence, all indications are that the gains made in terms of poverty reduction in the mid-1990s have been reversed, given the relative weight of these three countries in the region's overall population. In this context, 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 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).

A look at recent economic trends in the region confirms that growth, the rise in employment and falling unemployment, and the control of inflation have had a positive effect on household income; at the beginning of the decade, this was reflected in improvements in the population's ability to satisfy its basic needs. However, in subsequent years, 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, this is so much the case that crisis and the effects of the 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.

In addition, the favourable trend observed in the 1990s with respect to the average growth of the regional economy (GDP growth was 3.5% in 1996 and 5.3% in 1997) has not been strong enough to have any truly significant impact in terms of the backlog of social problems in general and the incidence of poverty in particular, and this situation, in turn, 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, has not had the expected effect in terms of boosting the economy and improving the living conditions of the more deprived sectors of the population. In turn, 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 to undertake a more thorough examination of some features of the relationship 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. In this respect, 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 7 out of every 10 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 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 would stand to benefit from policies geared to improving productivity and wage levels. Such policies would 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 would, on the other hand, benefit 16% of households (ECLAC, 1997a).

Lastly, it should be pointed out that 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. Consequently, 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 an apparently very clear-cut relationship 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 trend of inequality indicators changes and a period begins during which the distribution of the economic surplus becomes more even.

The reasoning behind this theory is based on the existence of a segmented labour market in a dual economy (Lewis, 1954, and 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.

Thus, in the early stages of national development, high levels of income concentration are expected, since the production system changes as the labour force moves from the primary sector of the economy, with a more homogenous 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. Under this model, it is assumed 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, since 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**

There are relatively few empirical studies in Latin America which analyse the relationship between economic growth and inequality. The Weisskoff study (1970) considers only Mexico and Argentina (in addition to Puerto Rico), and some of its conclusions confirm that periods of growth have been accompanied by high levels of inequality.<sup>1</sup> A study of Brazil conducted by Fishlow (1972) also presents evidence that increases in income concentration have been associated with periods of economic growth.<sup>2</sup>

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<sup>1</sup> A careful reading of Weisskoff's conclusions shows that he describes his results as "mixed", since the data suggest that in the long term, there were increases in inequality together with growth in production, whereas inequality was reduced in the short term.

<sup>2</sup> 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 and concludes that the empirical data analyzed provide little information regarding the existence of the Kuznets curve or its shape.

Table 1

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

Country	Per capita GDP (in 1990 dollars)		Gini coefficient		Incidence of poverty		% of income of poorest 10%		% var. of income 1990-1994	% var. of per capita GDP 1990-1994	% var. of Gini coefficient 1990-1994	% var. of H index 1990-1994
	1990	1994	1990	1994	1990	1994	1990	1994				
Argentina	4425	5898	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	2715	2800	0.535	0.512	37.4	38.7	1.08	1.27	17.59	3.13	-4.30	3.48
Chile	1881	2069	0.471	0.473	33.3	23.7	1.72	1.69	-1.74	9.99	0.42	-28.83
Colombia	2320	2836	0.450	0.505	34.6	38.2	1.53	1.14	-25.49	22.24	12.22	10.40
Costa Rica	1236	1357	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	3157	3380	0.424	0.405	34.2	29.0	2.47	2.88	16.60	7.06	-4.48	-15.20
Panama	2216	2621	0.460	0.451	34.0	25.2	1.38	1.60	20.29	18.27	-1.96	-25.88
Paraguay	1248	1247	0.357	0.417	36.8	35.4	2.69	2.35	-12.63	-	16.81	-3.80
Uruguay	2975	3554	0.353	0.300	11.8	5.8	3.49	3.65	4.58	19.46	-15.01	-50.85
Venezuela	2495	2594	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 (Asuncion).

There is also very little information in the region on time series 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 of time are not yet available for all the countries of the region, and the information used in this study therefore basically corresponds to the urban areas of a group of 13 countries for the years 1990 and 1994 as shown in Table 1.

The data analysed do not provide a basis for an evaluation of long-term trends or relationships, 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. However, the information does, at least, show 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 relationships between changes in inequality and economic growth<sup>3</sup> 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. In most cases the income share of the poorest 10% is used, although in some studies it is the poorest 20%, or the lowest 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.<sup>4</sup> It should be noted that the relationships established among the variables cannot be interpreted directly as causative agents; they are, however, 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. It should be emphasized that 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 relationship and the trends in inequality. In order to generate empirical evidence for Latin America, based on the available information presented in Table 4, the Gini coefficient and the share of income have been used as dependent variables for estimating the relationship 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 Kuznets hypothesis is not corroborated for this set of countries, and it is therefore not possible to draw firm conclusions as to the implications and causalities of the relationship between economic growth and inequality.<sup>5</sup> Figures 1 and 2 show erratic behaviour, with countries reporting low values for per capita GDP showing 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 for 1994, which

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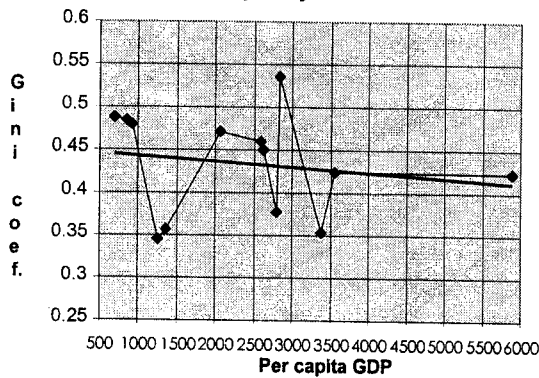
<sup>3</sup>These include Cromwell (1977), Ahluwalia, Carter and Chenery (1978), Loehr (1981) and Ram (1995).

<sup>4</sup> 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.

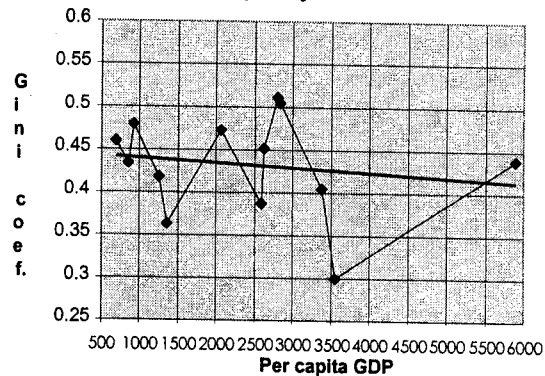
<sup>5</sup> A similar conclusion was reached in the study by Psacharopoulos and others (1997) using data from household surveys conducted at different times during the 1980s.

indicates that the data are moving in the right direction but that the association between the variables is not statistically significant.<sup>6</sup> 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 3).

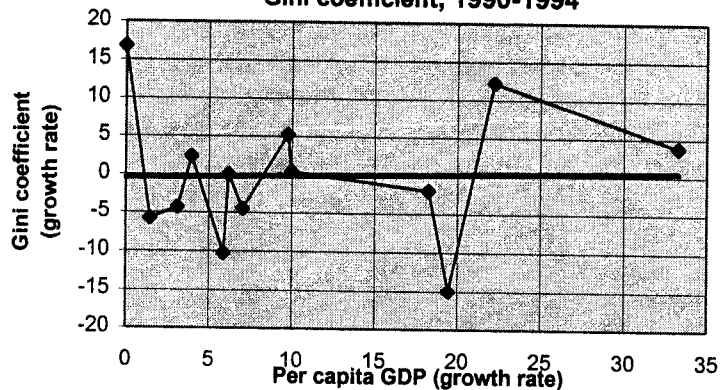
**Figure 1**  
**Latin America: Economic growth and inequality in 1990**



**Figure 2**  
**Latin America: Economic growth and inequality in 1994**



**Figure 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, it would be expected that 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

<sup>6</sup> In both cases, the probability that the absolute value of the correlation coefficient will be equal to zero exceeds 60%.

possible to identify a turning point, where, 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 relationship, 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

The experience of Latin-American countries during the 1990s shows that economic growth has helped reduce poverty in most of the countries studied. The relationship 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 the reduction of poverty indices. Intertemporal analysis corroborates this assertion, 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 4 and 5).

Figure 4

### PERCENTAGE OF HOUSEHOLDS LIVING IN POVERTY

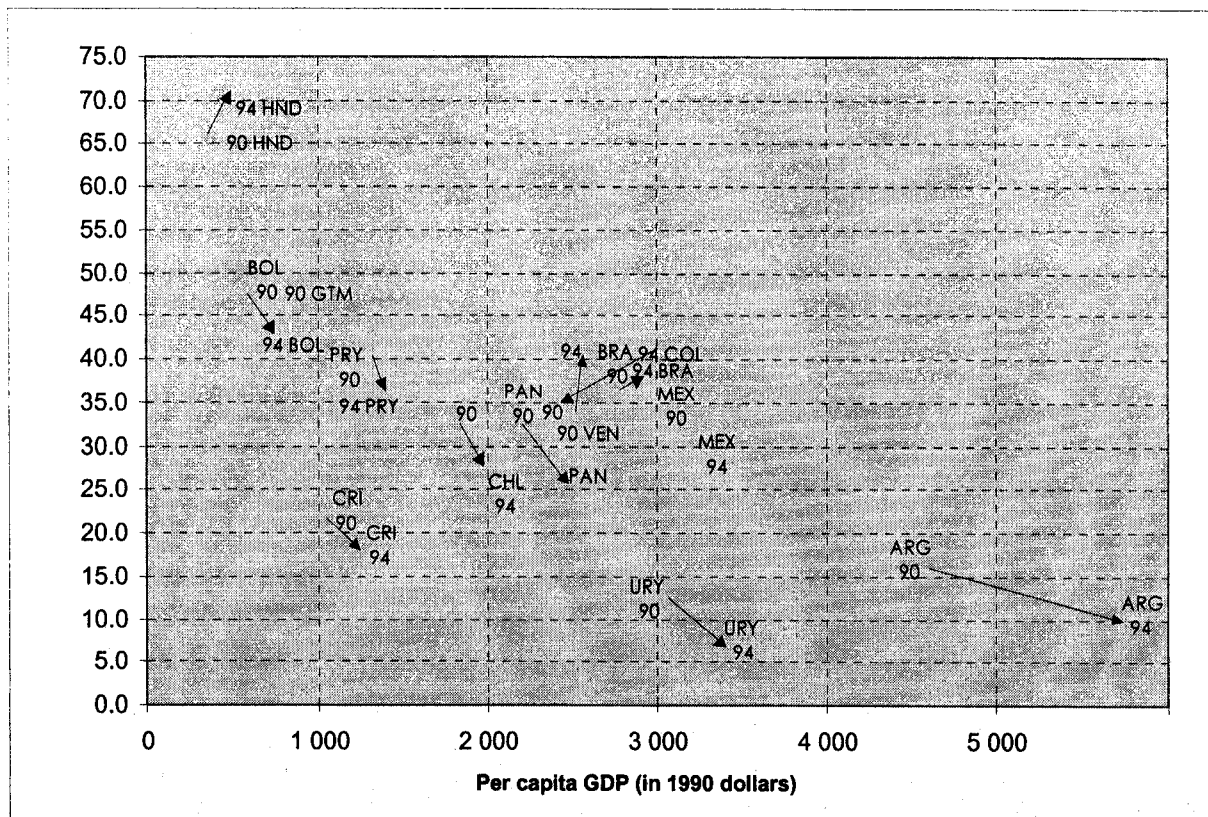


Figure 5  
Latin America: Per capita GDP growth rate and the incidence of poverty  
1990-1994

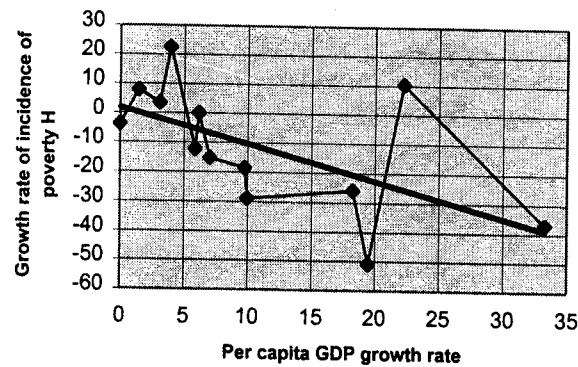


Figure 6  
Latin America: Economic growth and poverty, 1990

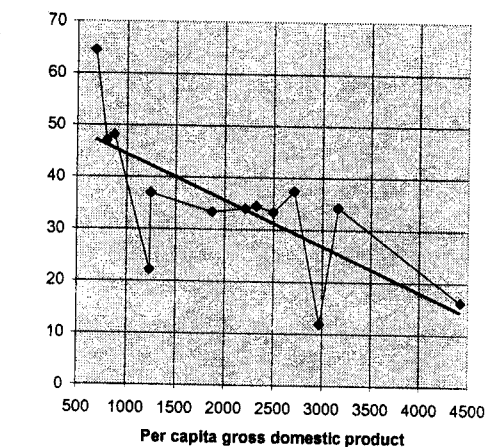
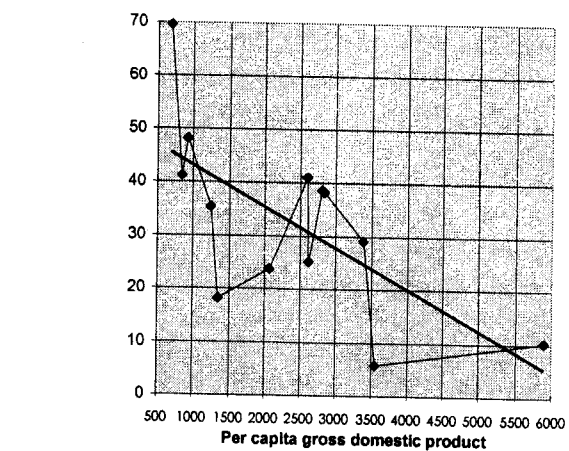


Figure 7  
Latin America: Economic growth and poverty, 1994



Figures 6 and 7 show the relationship between the two variables for the group of countries under study. These figures indicate that as per capita income increases, the incidence of poverty tends to decrease quite rapidly, while 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, 4 out of every 10 Venezuelans reported that they were living below the poverty line.

The economic and social paradigm for Latin America is represented by Uruguay, 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, and by 1994 this figure had fallen still further, to 5.8%.

The statistical relationship between poverty and economic growth was measured by examining its fit with various models; the results of this exercise are given in Table 2. In all cases, the estimated coefficient of determination was quite high, 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 2

### ADJUSTED MODELS ECONOMIC GROWTH AND POVERTY

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

**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 gross domestic product (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. However, 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 the latter year. Moreover, the high degree of income concentration characteristic of most of the countries of the region has persisted.

This situation is 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 relationship 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 first few years of the 1990s, shows that there is a very tenuous relationship between growth and income concentration, whereas the relationship between growth and the incidence of poverty is much stronger.



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