2015

2008

2000

1990

MILLENNIUM DEVELOPMENT GOALS: PROGRESS TOWARDS THE RIGHT TO HEALTH IN LATIN AMERICA AND THE CARIBBEAN

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UNITED NATIONS

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PREFACE TO THE ENGLISH-LANGUAGE EDITION

Enormous differences in health within and between countries intertwine closely with degrees of social disadvantage, and when people's health is at the mercy of their individual situations, health-care inequalities can entail dramatic individual risks and costs. Promoting health equity can also be defended on the grounds that it simultaneously fosters economic development, since investments in health and its determinants contribute to economic growth, productivity and prosperity. On the other hand, economic growth by itself without appropriate policies to ensure reasonable fairness in the way its benefits are distributed, and lacking social protection systems, contributes little to health equity.

According to a well-established normative definition (Whitehead, 1991), health inequities can be understood as differences that are unnecessary and avoidable and, furthermore, unjust. This is why the Millennium Development Goals and their indicators are so important. They establish a "civilizing minimum" of well-being for all citizens, set out a road map and a deadline for efforts to open up greater opportunities to those denied them and, as an ethical imperative, provide a catalyst to rally the forces of solidarity in society behind public policies capable of attaining them.

In 2005, all United Nations bodies working in Latin America and the Caribbean came together under the auspices of the Economic Commission for Latin America and the Caribbean (ECLAC) to create a systematic, integrated and shared vision of the Millennium Development Goals (United Nations, 2005). Now, again under ECLAC coordination, and with the support of other United Nations bodies, the Pan American Health Organization (PAHO), the World Food Programme (WFP), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA) and the United Nations Children's fund (UNICEF) have conducted a review of progress towards the health-related Goals in Latin America and the Caribbean, the obstacles to their attainment and the suitable policies needed, and analysed prospects for the future.

As determinants of health conditions in the population, poverty, undernutrition and hunger are crucial obstacles to the effective enjoyment of health as a citizens' right; hence the vital importance of reviewing progress and obstacles in these areas. The report highlights some very positive trends, such as the reduction in indigence in the region up to 2007, although, with very few exceptions, this unfortunately cannot be put down to rising earnings. It is due to rising employment, boosted by the demographic dividend (falling numbers of dependent family members) and rising non-wage income, particularly from public and private transfers such as poverty reduction programmes and remittances. Labour income, however, has increased only in a few countries and has not contributed significantly to poverty reduction. As unusually abrupt food price rises in certain circumstances can trigger a rapid increase in extreme poverty, hunger and undernutrition, the book analyses the interactions between agricultural and energy markets as well as those between agricultural and non-agricultural commodity markets and financial markets, that explain food price hikes around the world.

Around 2005, just over 10% of the region's inhabitants lived in housing and family conditions that left them unable to meet a basic set of needs in the form of shelter and protection from the elements. The situation differs greatly from one country to another and between urban and rural areas; in some countries over 35% of the population have unmet basic needs, while in others, fewer than 5% of inhabitants suffer from these privations. Housing conditions and access to basic services (drinking water, sanitation, and electric power) are far more of a problem in rural areas, and the public investment required to improve them is substantially higher because of the wide geographical dispersion of households or their remoteness from public or private service networks.

Regional average figures on progress towards the health-related Goals in the 1990-2007 period —with two thirds of the time allotted for achieving the Goals having passed— conceal large disparities between countries. The situation of underperforming countries varies greatly, and some of them do not even seem to be getting any closer to meeting the goals. The Latin American and Caribbean countries have taken major steps in the effort to combat generalized undernutrition and meet the target of eradicating hunger, although in some of them, the proportion of people who are underweight for their age remains very high, and there needs to be a forthright commitment to the goal of eradicating hunger. Child mortality has declined substantially and life expectancy at birth has increased; in 2007, child mortality was the lowest in the developing world and was dropping faster then in any other region. But maternal mortality is a cause for concern and shows that further efforts are needed; although the figures drifted downwards in the region between 1997 and 2005, the ratio and absolute number of maternal deaths have barely shifted. Where prenatal care and assisted childbirth are concerned, there are situations and countries where major improvements are needed, although a given proportion of assisted births does not guarantee lower maternal mortality, as this also depends on the effectiveness and quality of health care as well as other socio-economic and environmental factors. In relation to the efforts to combat disease provided for in the Goals, this report discusses the progress achieved in reducing the incidence of malaria and tuberculosis in the region, and examines the measures that have made this possible.

A number of empirical findings clearly reveal a complex web of interrelationships between the numerous causes determining the well-being and health of the population. Econometric measurements described in this survey (for a set of countries where demographic and health surveys are available) demonstrate empirically the need to tackle the socio-economic inequalities underlying the uneven distribution of health determinants in our region. Descriptive and econometric measurements of data derived from household income and expenditure surveys are used to analyse the varying levels of direct health spending (out-of-pocket expenditure) by households and its unequal distribution and to examine unequal levels of suppressed demand for such spending , even when households lack medical coverage or health insurance.

As a rule, public spending on non-contributory health care in the region since the 1990s has behaved in a highly procyclical way, since lower fiscal priority has been given to it than to other social sectors such as education, social welfare and, most particularly, social security. This report, while recognizing the difficulties involved in an exercise of that kind, uses a model that estimates the disability-adjusted life years (DALY) lost in the countries to project the additional interventions necessary to attain some of the targets of the Goals in 10 countries and their costs, and extrapolate these results to the whole region.

Lastly, the report analyses the match between system financing and the aim of attaining higher levels of solidarity in social protection systems, avoiding risk selection and moving towards guaranteed equitable coverage. It also offers some reflections on the legal, institutional and organizational framework and the optimum deployment of human health-care resources required to integrate primary care into health systems in a new way, in order to guarantee coverage and universal access to services that are comprehensive, integrated and appropriate and to address other determinants of health and equity. This complex agenda must tackle not only financing constraints, but also policy and institutional weaknesses.

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and the Caribbean (ECLAC)

CHAPTER I

HEALTH IN THE ROAD MAP OF THE MILLENNIUM DEVELOPMENT GOALS

> *"Health is a state of complete physical, mental and social
> well-being and not merely the absence of disease or infirmity"*
> Preamble, Constitution of the World Health Organization[1]

In terms of citizenship-building, Latin America and the Caribbean entered the new millennium with a great deal of ground still to make up. For all the hard work done, civil and social rights are far from being a practical reality for a substantial portion of the population (ECLAC, 2000). This is why it was so significant when, in September 2000, the international community followed up on the agreements produced by the United Nations global conferences on social issues over the previous decade[2] by conducting a comprehensive review of the development agenda, and 189 United Nations member States, 147 of them represented by heads of State or government, made a new global development commitment, reflected in the Millennium Declaration.

The Millennium Declaration has become the road map used by the United Nations in its support for member States at the national, regional and global levels, and its implementation included the establishment of stable, consistent follow-up and accountability mechanisms. Quantitative goals and timescales were established and, to facilitate periodic reviews of progress, 1990 was settled on as the reference year for the decade-long series of United Nations global conferences on social issues.[3] These follow-up mechanisms have been periodically reviewed and supplemented with additional goals or indicators not originally included, such as those relating to labour markets (United Nations Development Group, 2006). The intention is that periodic measurement should be used to quantify attainments and identify their causes, and to gauge the further efforts required for full compliance with the commitments accepted.

The agreements that resulted from the United Nations global conferences on social issues in the 1990s laid the groundwork for a development agenda based on values that are providing a new underpinning for international relations in the twenty-first century: freedom, equality, solidarity, tolerance, respect for nature and common but differentiated responsibility. This agenda includes a commitment to move gradually towards universal coverage of minimum standards of well-being, something that particularly concerns developing countries; developed countries, however, have an obligation to support these efforts and create the conditions needed to correct international asymmetries in favour of developing countries. It takes an all-round approach to development, seeking to universalize not only civil and political rights but economic, social and cultural rights as well, without discrimination or exclusion. To implement this ethical and political framework, the Declaration deals with numerous topics of collective interest which are synthesized into a variety of goals capable of being measured with a set of established indicators.

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[1]   The Constitution of the World Health Organization (WHO) was approved by the International Health Conference held in New York from 19 to 22 June 1946 and signed by representatives of 61 States. It came into force on 7 April 1948.
[2]   The World Summit for Children (1990), the United Nations Conference on Environment and Development (1992), the International Conference on Population and Development (1994), the Fourth World Conference on Women (1995), the World Summit for Social Development (1995) and the United Nations Conference on Human Settlements (Habitat II) (1996), among others.
[3]   See United Nations (2001). In addition, United Nations Development Group (2006) contains a full and technically detailed description of the indicators.

In 2005, all United Nations bodies with a presence in Latin America and the Caribbean came together under the coordination of ECLAC to create a systematic, integrated and shared vision of the Millennium Development Goals (United Nations, 2005). At this time, too, some of these specialized bodies, namely the Pan American Health Organization (PAHO), the World Food Programme (WFP), the United Nations Development Programme (UNDP), the United Nations Population Fund (UNFPA) and the United Nations Children's Fund (UNICEF), once again under ECLAC coordination and with the support of other United Nations bodies, jointly set out to review progress towards the health-related Millennium Development Goals and the obstacles to their attainment, ascertain their causes and try to determine what further efforts were needed to comply fully with the commitments accepted.

Health is a social right whose legal basis is expressed in a variety of obligations incumbent upon States under the conventions, protocols and declarations establishing health as a right to which they have subscribed.[4] Over time, there has been increasing recognition of its close connection with other aspects of well-being, since enjoyment of health is linked to enjoyment of the right to food, sanitation, water and housing, i.e., the right to a decent standard of living. The enjoyment of health provides an irrefutable illustration of the indivisibility and interconnectedness of an array of social rights, summed up in the language of health policies and economics by the concept of "determinants of health". This is why the present report also considers other Millennium goals and targets where they are determinants of health, analysing those concerned with indigence, malnutrition and hunger and with access to basic social infrastructure, as crucial determinants of the population's state of health (see table I.1). The fact that health disparities are also determined by these factors means that policies to address them need to be comprehensive rather than confined to the dynamic of isolated social sectors, and must be able to act on inequality in the socio-economic distribution of health and its determinants.

According to a now well-established normative definition (Whitehead, 1991), health inequities can be understood as differences that are unnecessary and avoidable and, furthermore, unjust. There is often a wrenching gap here between legal equality and social inequality, between the formal recognition of rights and the inability of public policies to uphold them effectively. One task ahead, therefore, is to work towards the full universalization of civil, political, economic, social and cultural rights, and this means conjoining the rule of law with respect for freedoms, political representation and greater access to opportunities for well-being, the productive use of capabilities, and social protection. Civil and political rights are established as a result of political will and action, but social rights have other conditions attached: they are part of a process, in as much as they require more and better human, physical, institutional and financial resources if they are to pass from prescription to fact. Where financing is concerned, for example, deciding on the level of benefits that ought to be provided in the field of social rights is not the same as establishing guarantees of freedom, privacy or free and informed choice in the field of civil and political rights (ECLAC, 2007a).

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[4] In particular, these include the WHO Constitution of 1946, the 1978 Declaration of Alma-Ata, article 25 of the Universal Declaration of Human Rights, article 11 of the American Declaration of the Rights and Duties of Man and article 12 of the International Covenant on Economic, Social and Cultural Rights.

Table I.1
LATIN AMERICA AND THE CARIBBEAN: MILLENNIUM DEVELOPMENT GOALS AND TARGETS ANALYSED IN THIS REPORT

Eradicate extreme poverty		
Goal	Target	Indicators
Eradicate extreme poverty and hunger	Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	Percentage of population below one dollar a day at purchasing power parity (PPP) [a]
Eradicate hunger		
Goal	Target	Indicators
Eradicate extreme poverty and hunger	Halve, between 1990 and 2015, the proportion of people who suffer from hunger	Prevalence of underweight children under 5 years of age Proportion of population below minimum level of dietary energy consumption (FAO)
The right to health		
Goal	Target	Indicators
Reduce under-five mortality	Reduce the under-five mortality rate by two thirds between 1990 and 2015	Under-five mortality rate Infant mortality rate Proportion of 1-year-old children immunized against measles
Improve maternal health	Reduce the maternal mortality ratio by three quarters between 1990 and 2015	Maternal mortality ratio Proportion of births attended by skilled health personnel
Combat malaria and other diseases	Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	Deaths associated with malaria Proportion of population in malaria risk areas using effective malaria prevention and treatment measures Prevalence and death rates associated with tuberculosis Proportion of tuberculosis cases detected and cured using the directly observed treatment, short course (DOTS) method
Ensure environmental sustainability [b]	Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	Sustainable access to improved water sources in both urban and rural areas

[a] Target measured by national indigence lines based on consumption of a staple basket of food.
[b] Neither the goal nor the target is followed up, but unsatisfied basic needs related to the indicator are measured in a number of countries.

On this long and sometimes arduous road, the Millennium Development Goals and their indicators establish a "civilizing minimum" of well-being for all citizens and set out a route and a timetable for the effort to open up greater opportunities to those denied them. They are targets that can be used to measure progress towards the complex goal of attaining certain basic standards of well-being and that, as an ethical imperative, provide a catalyst so that the forces of solidarity in society can be rallied behind public policies capable of attaining them. They thus form part of the arsenal of peace, whose purpose it is to include all citizens in the dynamic of economic and social development in such a way that they can attain to well-being, and to use deliberate public policy measures to check and reverse inequalities. There are no uniform solutions, as each country will always have to take account of the resources currently and potentially available for distribution and of a variety of economic and political constraints.

As determinants of the populations health conditions, poverty, malnutrition and hunger are obstacles to the effective enjoyment of health as a citizen right. This is why it has been essential to review progress and obstacles in this area, something that is done in chapter II. Chapter III then summarizes the state of advance with the health-related goals and targets, using the appropriate indicators to provide a comparative description of the progress made towards them. Progress in reducing under-five mortality, maternal mortality and the incidence of malaria and tuberculosis is accordingly reviewed. Chapter IV goes on to deal with the causes of chronic infant malnutrition and its socio-economic distribution in seven of the region's countries and demonstrates the need to act upon their socio-economic determinants and to improve basic social infrastructure. Chapter V looks at the structure and scale of household spending on health and catastrophic expenditures and at its effects as a factor in households' impoverishment, by way of a proxy indicator for the provision of health services, and of the insurance systems, highlighting the worryingly large number of poor households in the region that lack coverage and do not seem to be in a position to afford out-of-pocket health spending, aspects this chapter sets out to quantify. To determine the resources that have been available to the health sector and the relative priority attached to it, chapter VI analyses progress with social health spending in the region and the relevant constraints. It then seeks to ascertain what financial resources would be needed to carry out a range of preventive and curative health interventions. Chapter VII, lastly, analyses the challenges posed by the Millennium Development Goals for today's health systems and the trajectory of the reforms made in recent decades, with particular emphasis on primary health care and insurance systems, and offers some guiding principles and policies in this area, taking into account aspects such as the need for more and better human, physical, institutional and financial resources.

The main conclusions of the book have already been touched upon in the introduction. It should be noted that this periodic progress review, was conducted with great thoroughness. The measurements supporting the different analyses were arrived at by drawing exhaustively on the most up-to-date sources, processing new data and exploring methods of measurement that might cast new light on the subject-matter. Great efforts were also made to keep the analytical approach fresh and alert in the face of the challenges that can arise from one day to the next, as happened even during the preparation of the report, for example, with the extraordinary surge in food prices in the region and around the world.

CHAPTER II

THE ERADICATION OF EXTREME POVERTY AND HUNGER AS THE BACKGROUND TO THE HEALTH SITUATION

As determinants of health, poverty, malnutrition and hunger are an obstacle to the effective enjoyment of health as a citizen right. This is why it has been essential to carry out a review, sketchy as it may be in some respects, of the progress made and the obstacles encountered in the effort to achieve these dimensions of the Millennium Development Goals.

1. PROGRESS TOWARDS THE FIRST MILLENNIUM TARGET

As in the first interinstitutional report (United Nations, 2005), the analysis of indigence that follows uses the indigence lines set by the countries themselves, which are based on households' consumption of a staple basket of food and can also be used for comparisons between countries. Accordingly, they are not comparable with measurements for the first target of the Millennium Development Goals when these are carried out using the equivalent of a dollar a day per person in purchasing power parity (PPP) terms.

According to the projections for poverty as measured by incomes, 12.7% of Latin Americans were indigent in 2007. This was a drop of 9.8 percentage points on the 22.5% who were in this situation in 1990. With 68% of the allowed period having elapsed, this represents a linear advance of 87% towards attainment of the first Millennium Development Goal (see figure II.1).

If this trend continues, indigence can be reduced by enough in the region to meet the 2015 target. As in almost all other areas, however, trends are country-specific. They are positive in a substantial number of countries, some of which account for a large share of the region's population, and it is noteworthy that Brazil, Chile, Ecuador and Mexico will have reached the target by 2007. The Bolivarian Republic of Venezuela, Colombia, El Salvador, Panama and Peru, meanwhile, will have progressed by as much as or more than expected (68%). Argentina, Bolivia, Honduras, Nicaragua, Paraguay and Uruguay, on the other hand, have made progress but are less than halfway to the goal. Costa Rica has somewhat less ground to make up (see figure II.1).

Unfortunately, as will be analysed later in this chapter, soaring food prices around the world are making it harder to reduce indigence in Latin America and the Caribbean. Indeed, they are hanging like a sword of Damocles over the region since, in certain circumstances, they could lead to a rapid expansion in extreme poverty. In other words, surging food prices worldwide could mark a reversal of the declining trend in indigence levels in the region, since they act as an income shock with disproportionate effects on the poor and vulnerable. Because indigence is measured precisely by the inability of a household to consume a staple basket of food, it increases when prices rise by more than household incomes.

Given their impact on poverty and indigence, economic performance and the distribution of the benefits of development must be improved. As a result of poor sectors' educational shortfalls and lack of assets, together with the greater obstacles that interfere with their development of skills and capabilities, people in these sectors are generally employed in precarious, low-productivity occupations. Clearly, this limits their lifetime earning capacity. Thus, other than in Chile, Brazil and urban areas of Ecuador, it is striking that the rise in earnings per person employed has not benefited the poorest families over the period analysed. The poorer sections of society have usually benefited instead from higher non-working incomes

deriving from remittances, State cash transfers and other sources. However, remittances are an exogenous factor that interacts with poverty (ECLAC, 2007b) and that, given the current state of the world economy, are falling and may continue to do so for some years to come.

Figure II.1
LATIN AMERICA (17 COUNTRIES): PROGRESS IN REDUCING THE NUMBER OF INDIGENT PEOPLE, 1990 AND 2007 [a]
(Percentages)
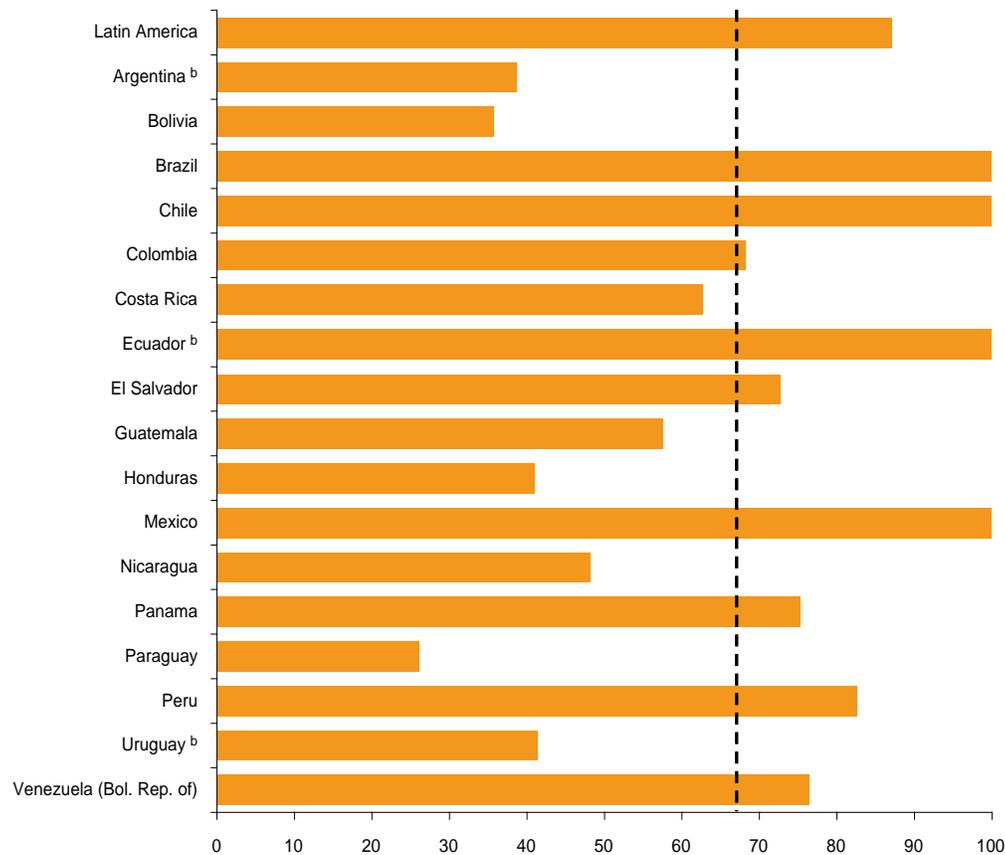
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of special tabulations of household surveys from the countries concerned.

[a] Progress is calculated as a percentage by dividing the percentage point reduction (or increase) in indigence observed over the period by half the 1990 indigence rate. The dashed line shows the percentage improvement that ought to have been achieved by 2007 (68%). Indigence levels in 1990 for Bolivia, Colombia, El Salvador, Guatemala, Nicaragua, Panama and Peru were established using interpolations of measurements close to that year. The 2007 levels are projections based on the latest measurement available in each country.

[b] Urban areas.

While remaining higher than in other income groups, the fertility rate of poor families has also diminished. This "demographic bonus" has allowed women to increase their participation in the labour market, and thus has been crucial to poverty reduction. Nonetheless, to deal with the dichotomies between care work in the domestic sphere and employment, and given that women are disproportionately likely to work under poor employment conditions, there need to be policies to increase female employment and

safeguard its quality, especially for mothers of smaller children. A vital element here will be the availability of a fuller range of public-sector care services and the introduction of cultural changes so that the burden of care is redistributed within families. This would also allow fertility to be maintained at a rate beneficial to people and to society at large (ECLAC, 2007b).

As well as tracking income poverty, however, there is a need to analyse other aspects of people's living conditions. People may suffer from higher rates of disease or death not only because of their genetic make-up or their access to health services, but also because of many social and economic circumstances. Thus, it is also relevant for this report to analyse extreme poverty as measured by unsatisfied basic needs (UBN), in order to give a picture of certain conditions that are important to health. According to this measurement, people who cannot meet three or more types of basic needs are classified as being in a situation of extreme poverty as measured by UBN. This is not to be confused with indigence, which is measured by income as already described.[1]

As table II.1 shows, in around 2005 just over 10% of the region's inhabitants lived in housing and family conditions that left them unable to enjoy basic shelter and protection from the elements. The situation differs greatly from one country to another and between the residents of urban and rural areas. For example, whereas in Bolivia, Guatemala, Nicaragua and Peru over 35% of the population have unsatisfied basic needs, in Argentina, Brazil, Chile, Costa Rica and Uruguay less than 5% of inhabitants suffer from these privations. Again, housing conditions and access to basic services (drinking water, sanitation, electricity) are far more of a problem in rural areas, and the public investment required to improve them is substantially higher because of the great geographical dispersion of households or their remoteness from public or private service networks. Thus, while 4.5% of people in the region suffer from extreme poverty according to the UBN method, the figure in the countryside is close to 30%. The gap is much larger still in poorer countries where a higher percentage of the population is rural: 20% against 76% in Bolivia, 17% against 61% in Guatemala, 28% against 78% in Nicaragua and 14% against 77% in Peru.

Table II.1 also sets out some specific indicators in the UBN index that are most directly related to health risks, in particular the percentage of people living in dwellings with earth floors, without drinking water access in the home or without waste elimination mechanisms that include sanitary evacuation systems. Across the region, about 15% of people live in homes with earth floors, 14% have no access to drinking water in the home and 24% do not have an appropriate waste elimination system. All such living conditions are conducive to morbidity and mortality from infectious diseases that are difficult to control even when people have access to health services. As in other areas, national and territorial contrasts are very pronounced and show how serious these deprivations can be in some cases, as well as how much progress has been made in countries such as Argentina and Costa Rica, among others.

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[1]   Traditionally households have been the UBN measurement unit. To make the UBN measurement comparable with the per capita income poverty measurements, however, they have also been calculated on a per capita basis.

Table II.1

LATIN AMERICA (16 COUNTRIES): PEOPLE IN A SITUATION OF EXTREME POVERTY ACCORDING TO THE UNSATISFIED BASIC NEEDS (UBN) METHOD[a] AND WITH DEPRIVATIONS IN HEALTH-RELATED UBN INDICATORS, AROUND 2005

(Percentages)

Country [b]	Year	Extreme poverty			Health-related basic needs[c]		
		National total	Geographical area		National total[d]		
			Urban	Rural	Floor in home	Drinking water access	Waste elimination system
Argentina	2006	…	2.0	…	1.5	1.2	13.9
Bolivia	2004	40.9	19.8	76.1	36.5	33.1	46.8
Brazil	2006	4.4	2.3	14.9	…	14.8	26.1
Chile	2006	1.5	0.5	8.4	7.8	3.7	6.7
Costa Rica	2006	1.6	0.7	3.0	1.9	3.6	4.6
Ecuador	2002	…	7.2	…	5.6	10.6	17.0
El Salvador	2004	22.8	10.4	41.3	22.9	24.4	11.6
Guatemala	2004	41.2	17.3	61.3	39.6	13.2	54.9
Honduras	2006	25.8	8.7	40.0	25.8	15.5	26.2
Mexico	2006	8.3	3.2	17.3	7.8	9.0	17.5
Nicaragua	2001	49.0	28.3	77.9	44.9	41.0	49.5
Paraguay	2005	21.3	7.4	40.4	16.4	31.2	35.2
Peru	2003	35.9	13.9	77.2	42.6	27.3	39.2
Dominican Republic	2006	9.9	5.9	17.3	2.5	28.2	37.0
Uruguay	2005	…	0.9	…	…	1.9	6.6
Venezuela (Bol. Rep. of)	2006	7.7	…	…	7.0	9.4	8.7
Latin America	**c. 2005**	**10.3**	**4.5**	**29.4**	**14.6**	**13.8**	**23.7**

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of special tabulations of household surveys from the countries concerned.

[a]   People are considered to be in extreme poverty when they have three or more unsatisfied basic needs.
The indicators included are:
- Quality of housing: material of walls, roof and floor.
- Access to drinking water in the dwelling or within the site or building containing it.
- Access to sanitation: waste elimination systems with a toilet or lavatory connected to some system of evacuation.
- Access to electricity from a public or private grid or generators.
- No overcrowding: less than three people per room.
- Access to education: children aged between 7 and 12 attending school.
- Household consumption capacity: ratio of 3 or less between the total number of household members and the total employed, and household head with 6 years of education or more (urban areas) or 4 years of education or more (rural areas).

[b]   In Argentina, the indicators for walling materials and electricity access were not available; in Brazil, flooring material is not included; the estimates for Costa Rica, the Dominican Republic and Guatemala did not include access to electricity; Ecuador does not include walling or roofing materials; El Salvador and the Bolivarian Republic of Venezuela do not include roofing material; and the estimate for Uruguay did not include the quality of the dwelling or access to electricity.

[c]   Percentage of people living in dwellings with earth floor, in dwellings or on sites with no access to drinking water, in dwellings without waste elimination systems (cesspools, rivers, springs or the like).

[d]   Urban areas of Argentina, Ecuador and Uruguay.

Table II.1 also sets out some specific indicators in the UBN index that are most directly related to health risks, in particular the percentage of people living in dwellings with earth floors, without drinking water access in the home or without waste elimination mechanisms that include sanitary evacuation systems. Across the region, about 15% of people live in homes with earth floors, 14% have no access to drinking water in the home and 24% do not have an appropriate waste elimination system. All such living conditions are conducive to morbidity and mortality from infectious diseases that are difficult to control even when people have access to health services. As in other areas, national and territorial contrasts are very pronounced and show how serious these deprivations can be in some cases, as well as how much progress has been made in countries such as Argentina and Costa Rica, among others.

2. TRENDS IN HUNGER AND MALNUTRITION IN THE REGION

(a) The traditional food supply and undernutrition

By global standards, the region's food supply is fairly large. However, the countries' ability to meet potential demand for food differs substantially by development level, agricultural productivity and the income levels of the population. Food and nutritional insecurity and malnutrition clearly reflect the socio-economic inequalities that characterize the region. Thus, while the region's output of food for human consumption exceeds the population's requirements by some 30%, 53 million people do not have enough to eat, 7% of under-fives are underweight for their age and 16% are undersized for their age. As well as limiting the effective enjoyment of citizen rights, hunger and undernutrition have permanent effects on physical and psychomotor development and are among the principal mechanisms for the intergenerational transmission of poverty and inequality.

Differences between and within countries are critical when it comes to analysing food insecurity in the region. According to information from the United Nations Food and Agriculture Organization (FAO), agricultural productivity in the region at the beginning of the current decade was US$ 3,307 per capita, but in Haiti and Honduras it was not even half that. Between 1990 and 2002, meanwhile, the dietary energy supply (DES) in Argentina, Brazil and Mexico was over 3,000 kilocalories a day per person, while in Guatemala, Haiti and some areas of Nicaragua it was less than 2,200 kcal, which is just enough to meet the minimum requirement, but at the cost of acute vulnerability. Lastly, the undernourished population, i.e., those with not enough to eat, was to be found mainly in Brazil (15.6 million), Colombia (5.7 million), Mexico (5.2 million), the Bolivarian Republic of Venezuela (4.3 million) and Haiti (3.8 million).[2]

However, five countries have already achieved the goal of halving the proportion of people suffering from hunger by 2015 and eight have made progress equivalent to or greater than what is required in the time that has elapsed. In four, however, the situation has worsened significantly and in 14 progress has been inadequate or non-existent, suggesting that in some cases it will not be possible to meet this target, let alone other, more demanding international commitments in this area (see figure II.2).

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[2]   See FAO (2004) for further information.

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Figure II.2
**LATIN AMERICA AND THE CARIBBEAN (32 COUNTRIES): PROGRESS TOWARDS
THE UNDERNUTRITION GOAL, 2001-2003**
(Percentages)

Country	Progress (%)
Cuba	156%
Peru	143%
Guyana	114%
Uruguay [a]	114%
Chile	100%
Saint Vincent and the Grenadines	91%
Saint Lucia	75%
Ecuador	75%
Costa Rica	67%
Brazil	67%
Jamaica	57%
Belize	57%
Haiti	55%
Suriname	46%
Grenada	44%
Bahamas	44%
Bolivia	36%
Colombia	35%
Paraguay	33%
Trinidad and Tobago	31%
Saint Kitts and Nevis	31%
Netherlands Antilles	29%
Nicaragua	20%
El Salvador	17%
Honduras	9%
Dominican Republic	0%
Mexico	0%
Argentina [a]	-23%
Panama	-38%
Guatemala	-88%
Venezuela (Bolivarian Rep. of)	-127%
Dominica	-200%
The Caribbean	61%
Latin America	50%
Latin America and the Caribbean	50%

Target for 2015. Progress required by 2002 (48%). Progress, in percentages.

Source: Food and Agriculture Organization of the United Nations (FAO), *The State of Food Insecurity in the World, 2004. Monitoring progress towards the World Food Summit and Millennium Development Goals*, Rome, 2004.

[a] Urban areas.

From the information available it can be concluded that, as with other aspects of the region's social development, socio-economic inequalities in the population, together with risks derived from natural disasters, income shocks associated with surging food prices and social or armed conflict or both (see box II.1), are crucial determinants of vulnerability to food insecurity.

Box II.1
THE VULNERABILITY OF THE DISPLACED POPULATION IN COLOMBIA

The official register of the Government of Colombia counts 2,169,874 forcibly displaced persons. This figure is equivalent to 5% of the Colombian population and is the world's second highest, after Sudan (Red de Acción Social, 3 September 2007). Those affected are divided almost equally between women and men (48% and 52%, respectively), 63% of whom are at the most productive age (which has had a major impact on unemployment rates in the municipalities receiving them), while 32% are under 14 and 5.4% are over 60. The large number of dependents, combined with poor employment conditions at the places where they settle, makes it hard to generate income. Some groups are more vulnerable after being displaced, furthermore: ethnic minorities, which represent 8.2% of the displaced, are a clear example.

At the places of reception, unemployment rises and earning capacity declines (people earn 46% less than in their home areas). Although they are exempted from pension payments and school fees, school attendance among children over 12 declines, as these have to work to earn money for their households. The same is not true of under-elevens, thanks to the higher education coverage of urban areas.

Where health services are concerned, the greater availability of these in urban areas and the obligations created by Law 387 of 1997 have meant that coverage is higher than in the home municipalities of the displaced (74% against 53%), and indeed than among the non-displaced poor urban population (54.3%).[a] This seems to be the result of the public policies designed for this purpose: enrolment in the Consolidated Registry of Displaced Population (RUPD) is the sole prerequisite for automatic entitlement to coverage in the Subsidized Health System, with priority over other vulnerable groups.

While about 71% of displaced households are registered in the RUPD, only 56% of those registered receive benefits such as assisted housing and income subsidies (Ibáñez and Velásquez, 2006). Then there are displaced people who are not registered; it is estimated that more than 86% of these (equivalent to almost 600,000 households or 2,644,264 people) do not receive assistance of this type.

Although they are covered by the Families in Action Programme,[b] a World Food Programme (WFP) study has shown that displaced people do not meet their nutritional requirements: their food intake is 350 kcal less than the required minimum, mainly because of the average family size and the impossibility of obtaining land on which to grow food for home consumption, as was traditionally done in their rural areas of origin.

Vulnerability increases substantially when households are headed by women because the male head of the family has died or disappeared: while 28% of male-headed households have a home of their own in the recipient municipality, the figure is just 13% in the case of female-headed households. Vulnerability is also increased by the larger number of dependents in such households.

State assistance for displaced families is divided into two phases. "Humanitarian and emergency" assistance deals with their food, accommodation, health-care and transport needs during the first three months of displacement; the "socio-economic stabilization" phase is supposed to help them recover their financial independence by means of income generation, occupational training and microcredit programmes, among others. However, most assistance has been in the first stage and "stabilization programmes" have been ineffective owing to budget shortfalls, a lack of political will and ignorance of the particular needs and conditions of the displaced population. Strikingly, too, the regulations of the Pension Solidarity Fund of the Colombian Social Security Institute make no provision for the displaced.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of A.M. Ibáñez and A. Velásquez (consultants), "El impacto del desplazamiento forzoso en Colombia: condiciones socioeconómicas de la población desplazada, vinculación a los mercados laborales y políticas públicas", Santiago, Chile, ECLAC, 2008, unpublished.

[a]   Law 387 of 1997 governs assistance for the displaced population. Where health care is concerned, it stipulates that the displaced population will have access to the subsidized system as soon as they register in the RUPD.

[b]   National government initiative whereby children under 7 receive a nutrition subsidy and those aged between 7 and 18 from families at level 1 of the National Information System on Social Programme Beneficiaries (SISBEN) receive an education subsidy.

(b) Malnutrition trends

Where child malnutrition is concerned, there are large divides within and between the region's countries: in some areas and regions, the situation is even more critical than in countries of sub-Saharan Africa, while in others it is more akin to that of developed countries. The most vulnerable groups include those living in poverty, indigenous people[3] and families where the mother has a low educational level. Residence in rural areas is an important factor, in conjunction with others, although large groups of malnourished people live on the outskirts of large cities.

Although the prevalence of undernutrition has been declining steadily in recent decades, around 2002 there were still 8.8 million undernourished children in the region, and, in proportional terms, it was still twice as high as the proportion of underweight children (15.6% versus 7.3%). Almost half of all Guatemalan children, about 25% of Honduran, Ecuadorian, Bolivian and Peruvian children, and about a fifth of Haitian, Nicaraguan, Salvadoran and Panamanian children are in this situation. Significant progress has been made since the beginning of the 1990s: by 2002, the prevalence of undernutrition had fallen from 19.1% to 15.6%. Where underweight children are concerned, however, the situation in Panama and Argentina has worsened considerably. Twelve countries can show improvements that are slightly better than the average, while only the Dominican Republic, Jamaica, Chile and Uruguay improved by more than 40% over the period. Guatemala is a special case since, while there has been an improvement, it is still the worst placed with a rate almost 18 times as high as would be expected in a normal population (2.5%). Mexico and Brazil are in the middle of the distribution, together accounting for 43% of all cases. If Guatemala, Peru, Colombia and Argentina are added, this proportion rises to 74% (United Nations, 2005).[4]

As regards the prevalence of underweight children, or global malnutrition, which is the follow-up indicator for the hunger-related Millennium Goals, the region did show improvements between the 1988-1991 and 2000-2002 periods. However, 4.1 million children suffer from it, and prevalence is high in many countries, particularly Guatemala, Saint Vincent and the Grenadines, Haiti, Honduras, Guyana, Suriname, Ecuador and El Salvador, with rates of between 10% and 23%. The largest numbers of cases are to be found in Brazil, Mexico, Guatemala, Colombia, Haiti and Peru, which account for 73% of the total (see figure II.3).

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[3] Unfortunately, demographic and health survey (DHS) data that might shed light on malnutrition by ethnic group are scarce and unreliable. The surveys of Bolivia and Peru ask whether children's mothers speak certain languages, but this does not provide a basis for measuring membership of ethnic groups, even as a proxy. However, it is worth mentioning what incomplete or unreliable data have to reveal about ethnic categories. In Bolivia (2003), chronic malnutrition rates were 30.2% among the children of mothers speaking Quechua as a first language, 24.8% among those of Aymara-speaking mothers, 19.3% among those of Guarani-speaking mothers, 32.1% among those of speakers of other aboriginal languages and 17.7% among those of mothers who did not speak aboriginal languages; in Ecuador (2004), the chronic malnutrition rate was 23.2% nationally, while the prevalence among indigenous people was 46.9%; in Panama (2003), the chronic malnutrition rate was 20.6% nationally and 56.6% among the indigenous rural population; in Guatemala (2002), the ethnic variable as measured observationally by survey field staff indicates that the prevalence of chronic malnutrition was 69.5% among indigenous children and 35.7% among Ladino children.

[4] The figures are presented in accordance with National Center for Health Statistics (NCHS) rules. It is possible that the new Child Growth Standards formulated by the World Health Organization (WHO) in its Multi Centre Growth Study might modify them slightly. See the official WHO site [online] www.who.int/childgrowth/en/.

Figure II.3

LATIN AMERICA AND THE CARIBBEAN (22 COUNTRIES): PROGRESS TOWARDS THE GOAL FOR UNDERWEIGHT AMONG CHILDREN UNDER 5 YEARS OF AGE, 1990 AND 1996-2006 [a]

(Percentages)
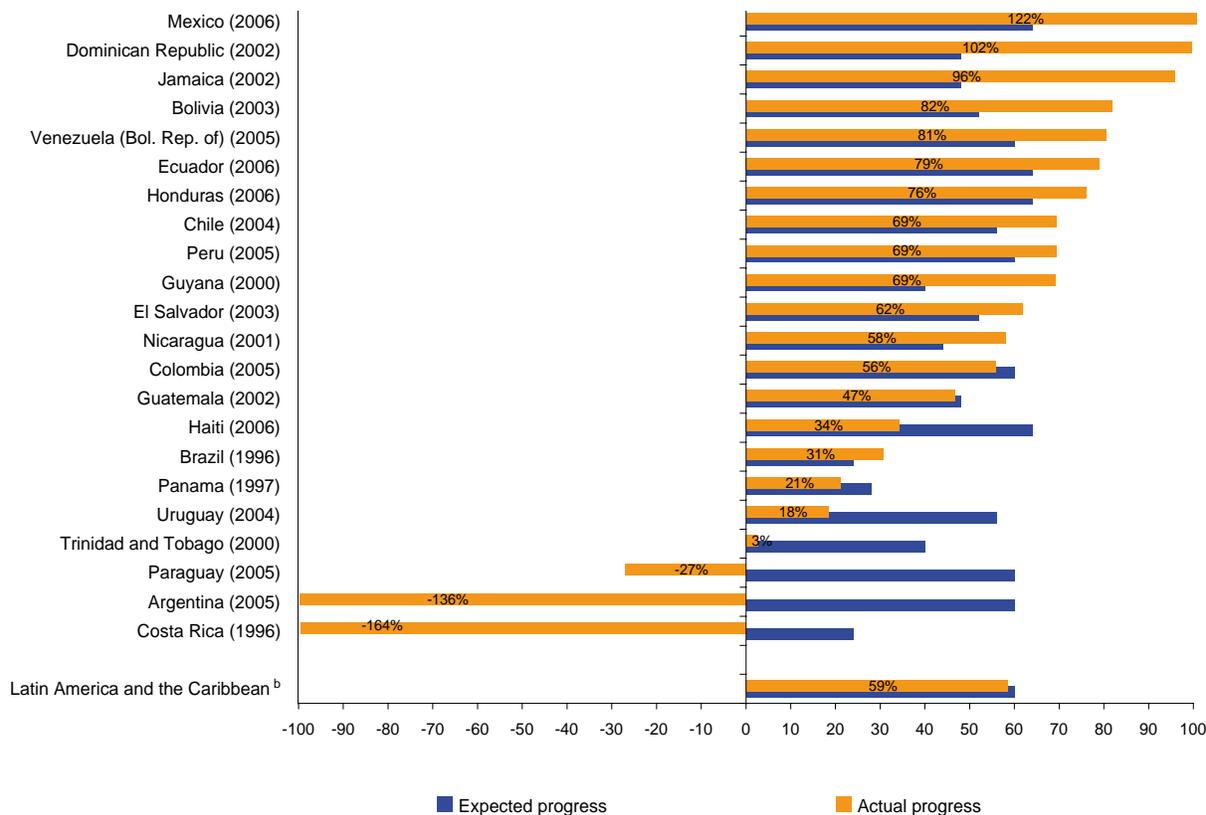
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of figures from the Social Indicators and Statistics Database (BADEINSO) [online] www.eclac.cl/badeinso/Badeinso.asp; United Nations, Millennium Indicators Database [online] http://millenniumindicators.un.org/unsd/mispa/mi_goals.aspx; Opinion Research Corporation - ORC Macro, Demographic and Health Surveys (DHS) [online] www.measuredhs.com; World Bank, World Development Indicators (WDI) [online database] www.worldbank. org/data/onlinedatabases/onlinedatabases.html; and United Nations Children's Fund (UNICEF), Global Database on Child Malnutrition [online] www.childinfo.org/eddb/malnutrition/index.htm.

[a]   Using the most recent malnutrition figure available in each country between 1996 and 2006.

[b]   Weighted average of prevalence in the countries.

The Latin American and Caribbean countries have taken major steps forward in combating low weight-for-age (see figure II.3). Unfortunately, the latest official data available from the countries do not allow of a full comparison; they are used to establish a regional average. The regional average masks inadequate progress in some areas in Trinidad and Tobago, Haiti, Uruguay, Panama and Guatemala. Considerable ground has been lost even in some countries whose general malnutrition rates in the early 1990s were close to 5%; this was the case with Costa Rica in 1996 and Paraguay in 2005.[5] The 2005 figure shows a serious setback in Argentina. The estimated improvement of 31% in Brazil reflects only the limited period under review (1990-1996), as up-to-date figures could not be obtained. Mexico and the Dominican Republic have already reached the target, and Jamaica will do so shortly. The Bolivarian Republic of Venezuela,

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[5]   In Argentina, Panama and Honduras there have also been advances or setbacks with undernutrition.

Bolivia, Ecuador and Honduras are more than 75% of the way to the target, which they will probably reach by 2015. Lastly, the progress made in Chile, Peru, Guyana, El Salvador, Nicaragua and Colombia has matched or exceeded the minimum expected between measurements, suggesting they could reach the target, except in the event of major economic or food crises, natural disasters or the suspension of current policies and programmes.

Meanwhile, 9% of children are underweight for their age. The most critical rates are those of Honduras (14%), Ecuador (16%) and, particularly, Haiti (21%) and Trinidad and Tobago (23%). The levels in these last two cases exceed even those of sub-Saharan Africa. Conversely, levels are lower in Chile, Cuba and Belize (6%) than in industrialized countries.

Micronutrient malnutrition (deficiency of vitamins and minerals), also known as "hidden hunger", is a serious nutritional problem.[6] Deficiencies of iron and vitamin A and, to a lesser extent, iodine are the most frequent and best documented. Iron deficiency anaemia is very widespread, particularly among children under 2 and pregnant women (see figure II.4). In Bolivia, for example, 83.8% of under-twos, 51.6% of under-fives and 37% of expectant women suffer from anaemia (Bolivia, 2007). In Peru, rates in these same vulnerable groups were 66%, 50.4% and 42.7%, respectively, in 2005 (Peru, 2005). In Guatemala, the figures were 55% of under-twos, 39.7% of under-fives and 22.1% of expectant mothers (Guatemala, 2002). Haiti and Bolivia have the joint-highest rate of anaemia in under-twos (83.3%), while in the case of under-fives Haiti comes bottom of the regional ranking with a rate of 65.8% (Haiti, 2001).

Vitamin A deficiency is not a national public health problem in most of the countries, but the situation is serious in the case of indigenous children and women. In Panama, for example, just 1.8% of children under five suffer from this deficiency nationally, but the rate is 23.6% of the same age group in indigenous districts (Panama, 1999). Information about the scale of zinc deficiency, meanwhile, is inadequate not just in the region but worldwide, as it is difficult to measure (Sanghvi and others, 2007, p. 28). Partial studies in some countries show, however, that this problem is very likely to be as serious as that of iron deficiency anaemia.[7] This is because zinc is obtained from the same foods as iron; furthermore, there is a direct association between having a zinc deficiency and short stature, as well as frequent and severe infections.[8]

Another important micronutrient, for which there are no national studies in the region's countries, is folic acid, a deficiency of which is associated with congenital malformations of the central nervous system—one of the main causes of neonatal mortality (UNICEF, 2005, 2006a and 2007a). Meanwhile, control of iodine deficiency has fortunately seen a gradual increase in most of the countries, and consumption of adequately iodized salt is now near-universal (see figure II.5).[9] In four countries, however, consumption of iodized salt has not increased in recent years, and while there are large differences between them, all are a very long way from meeting the standard: Haiti, Trinidad and Tobago, Dominican Republic and Guatemala, with 1%, 11%, 18% and 67%, respectively. In El Salvador, consumption was significantly lower in the latest year (62%) than in earlier years, when it was in excess of 80% (UNICEF, 2007a).

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[6]   The WHO Vitamin and Mineral Nutrition Information System uses the national figures given below.

[7]   This is shown by partial studies and hospital records from the countries. In Panama, these come from the provinces of Mironó and Santa Fé; in Guatemala, from Alta Verapaz in 2005; Argentina, from the 2004 National Nutrition Survey and the Federal Health and Nutrition Plan; in El Salvador, 2002-2004 data were provided by the Health Information Unit of the Ministry of Public Health and Social Assistance (MSPAS). Demographic and health surveys from a number of countries show congenital malformations as being one of the leading causes of neonatal mortality.

[8]   According to the International Zinc Nutrition Consultative Group (IZiNC) at meetings in Lima in 2005 and Istanbul in 2007.

[9]   Consumption is considered universal when more than 95% of households consume salt with an iodine content of at least 15 parts per million (15 ppm).

23

Figure II.4
**LATIN AMERICA AND THE CARIBBEAN (21 COUNTRIES): PREVALENCE OF ANAEMIA
(HB < 11G/DL) IN CHILDREN UNDER 5 YEARS OF AGE**
(Percentages)

Country	Value
Haiti	65.8
Ecuador	57.9
Bolivia	51.6
Peru	50.4
Jamaica	48.2
Cuba [a]	45.7
Guatemala	39.7
Uruguay [b]	36.1
Venezuela (Bol. Rep. of)	36.0
Panama	36.0
Colombia	33.2
Brazil	31.4
Honduras	29.9
Costa Rica	26.0
Dominican Rep. [b]	25.0
Mexico	23.7
Argentina [a]	22.4
Paraguay	22.0
El Salvador	19.8
Nicaragua	17.0
Chile	1.5
Latin America and the Caribbean [c]	34.3
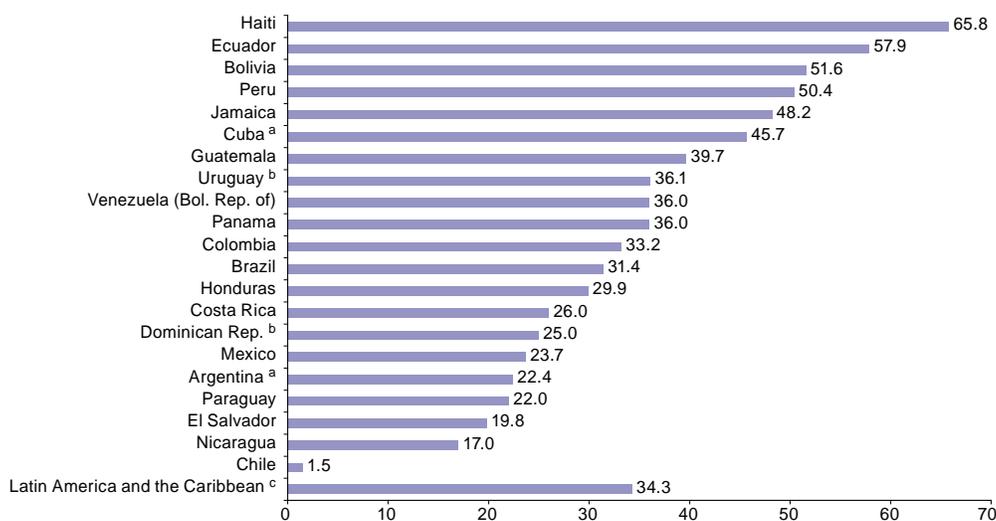
Source: World Food Programme (WFP), on the basis of information from the World Health Organization (WHO), Vitamin and Mineral Nutrition Information System (VMNIS) and the latest national surveys in the Bolivarian Republic of Venezuela, Bolivia, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala and Paraguay.

[a] Children under 24 months old in certain areas of the country.
[b] Children in certain areas of the country.
[c] Simple average of 21 countries.

Figure II.5
**LATIN AMERICA AND THE CARIBBEAN (22 COUNTRIES): HOUSEHOLD CONSUMPTION
OF ADEQUATELY IODIZED SALT (15 PPM OR OVER)**
(Percentages)

Country	Value
Chile	100
Jamaica	100
Ecuador	99
Costa Rica	97
Nicaragua	97
Panama	95
Colombia	92
Peru	91
Mexico	91
Venezuela (Bol. Rep. of)	90
Belize	90
Argentina	90
Bolivia	90
Paraguay	88
Brazil	88
Cuba	88
Honduras	80
Guatemala	67
El Salvador	62
Dominican Rep.	18
Haiti	11
Trinidad and Tobago	1
Latin America and the Caribbean [a]	78
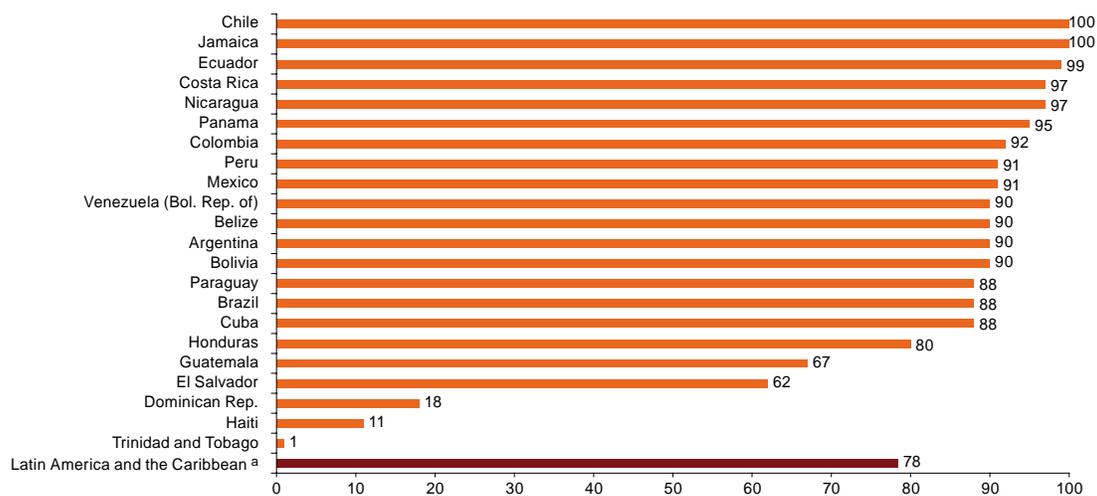
Source: World Food Programme (WFP), on the basis of data from United Nations Children's Fund (UNICEF), *The State of the World's Children, 2007*, New York, 2007.

[a] Simple average of 22 countries.

(c) International comparison of inequality in respect of malnutrition

Although the population living in poverty is most vulnerable to malnutrition, the two things should not be conflated (ECLAC, 2004; León and others, 2004). Nor is there a straightforward relationship between the level of child malnutrition and its socio-economic distribution. International comparisons with other developing countries show that there are countries where levels of undernutrition (children under 5 who are short for their age) are high but relatively evenly distributed across the socio-economic strata, a pattern that might be described as one of "mass privation". In others, conversely, the prevalence of malnutrition is relatively low but is heavily concentrated in the lower socio-economic strata, a pattern that might be described as one of "social exclusion" (Paraje, 2008).[10] Both patterns are found in developing countries, but it is the second that prevails in the region.

As figure II.6 shows in relation to chronic child undernutrition, 17 of the 21 observations with the highest levels of inequality are in Latin America and the Caribbean, which indicates the scale of the distribution problem in the world's most unequal region (De Ferranti and others, 2004; ECLAC, 2007b). Chapter IV will take a detailed look at the marked inequality in the distribution of malnutrition and the factors determining it, presenting findings that highlight the importance of reducing socio-economic inequalities if progress towards the Millennium Development Goals is to be made.

Figure II.6
DEVELOPING COUNTRIES (49 COUNTRIES, 86 OBSERVATIONS): PREVALENCE OF CHRONIC CHILD UNDERNUTRITION AND INEQUALITY OF ITS SOCIO-ECONOMIC DISTRIBUTION, 1990-2005
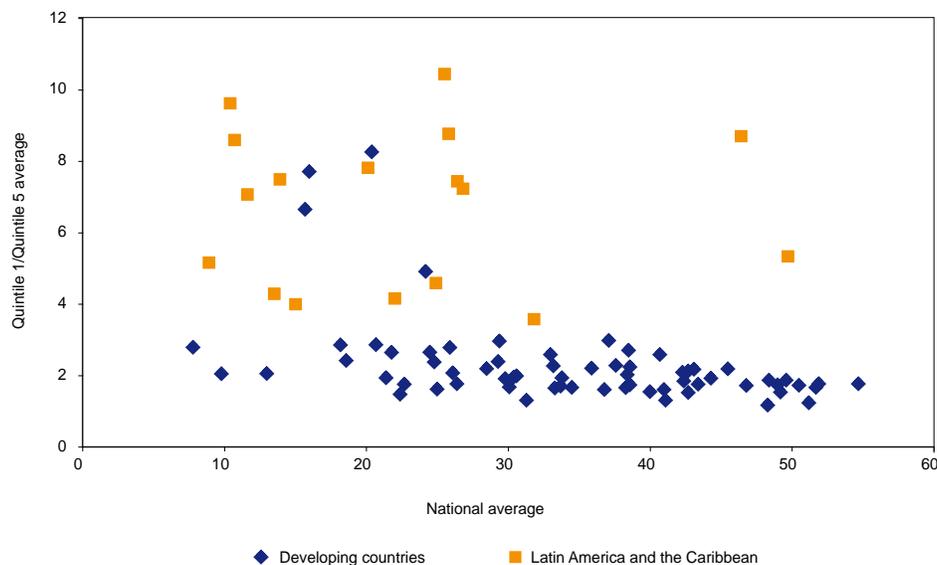
Source: Guillermo Paraje, "Evolución de la desnutrición crónica y su distribución socioeconómica en siete países de América Latina y el Caribe", *Políticas sociales series*, No. 140 (LC/L.2878-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.17.

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[10] This is based on measurements carried out using demographic and health surveys (DHS), which provide information about the use of certain physical assets, the habitability of dwellings and access to certain household services. Using this information and applying Filmer and Pritchett's (2001) principal component analysis-based methodology, it was possible to construct a "wealth index" and thus rank and stratify households and individuals by their "socio-economic" situation.

(d) The costs of hunger and malnutrition

People whose diets are insufficient are subject to limitations on their physical, intellectual and emotional development, and the consequences for health, education and productivity have been described in the conclusions of numerous studies.[11] Thus, 20% of all deaths among expectant mothers are associated with iron deficiency anaemia (Brabin, Hakimi and Pelletier, 2001). Other studies reveal that infants who do not increase in weight in the first year of life have a 50% likelihood of dying, and this increases in a range of 20% to 24% in cases of diarrhoea, malaria or measles in vitamin A deficient children. A zinc deficiency, meanwhile, increases the risk of death by between 13% and 21% (Guilkey and Riphahn, 1998). According to ECLAC (2007a), in 2004 there were 77,000 infant deaths in the Central American countries and the Dominican Republic associated with low weight-for-age, i.e., 30% of the total, to which must be added 87,000 cases of acute diarrhoeic disease, 39,000 of acute respiratory infections and 30,000 of anaemia. It has also been shown that coronary disease, type 2 diabetes, strokes and high blood pressure have their origin in foetal and childhood malnutrition (Barker, 2004).

The effects on cognitive development have also been well studied. For example, child malnutrition affects the proper development of the cranial circumference, with all the ensuing effects on the child's intellectual development and subsequent academic performance (Ivanovic, 2000). Conversely, there is evidence for the positive effects of dietary supplements taken between 6 and 24 months of age on the school performance of Guatemalans living in rural areas (Alderman, Berhman and Hodinott, 2004).

The negative effects of malnutrition on people's health, education and productivity translate into major human and economic costs not only for them personally, but also for the societies they belong to. These can be classified into two types: direct costs incurred in preventing and recovering from malnutrition and treating the damage caused, and indirect costs resulting from lower productivity and earnings. In some cases these manifest themselves in the short term, but in others they arise throughout people's life cycles and may even be passed on from one generation to the next. Beyond the ethical imperative, therefore, eradicating this scourge would have an enormous social impact and generate substantial savings for individuals and entire societies.

In developing countries, the direct costs are estimated at US$ 30 billion a year, while indirect costs (combining protein-calorie malnutrition, low birth weight and micronutrient deficiencies) represent at least 5% to 10% of GDP. In terms of higher life expectancy, conversely, the benefits of reducing malnutrition are calculated at US$ 120 billion a year (FAO, 2004).

According to the data available, low weight-for-age in Central America and the Dominican Republic over recent decades generated a cost that amounted in 2004 to almost US$ 6.7 billion dollars in the form of medical treatment, educational inefficiencies and lost productivity. This sum is equivalent to 6.4% of the seven countries' GDP that year, with national figures ranging all the way from 1.7% in Costa Rica to 11.4% in Guatemala (see table II.2). Some 90% of these costs reflect lost productivity among the 1.7 million malnourished people of working age and the loss of an average of two years' schooling among those suffering from malnutrition as children (ECLAC/WFP, 2008).

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[11]   See Martínez and Fernández (2006b) for further details.

Table II.2
CENTRAL AMERICA AND DOMINICAN REPUBLIC: COST OF CHILD MALNUTRITION, 2004

	Total (millions of dollars)	Percentage of GDP	Percentage of public social spending
Costa Rica	318	1.7	9.5
El Salvador	1 175	7.4	136.6
Guatemala	3 128	11.4	185.4
Honduras	780	10.6	80.9
Nicaragua	264	5.8	64.3
Panama	322	2.3	13.2
Dominican Republic	672	3.6	59.1
TOTAL	**6 659**	**6.4**	

If these countries succeeded in halving child malnutrition by 2015, they would save some US$ 1 billion in 2004 dollars. If they eradicated it, the saving would be in excess of US$ 2.2 billion (ECLAC/WFP, 2008). These figures may be compared with the US$ 2.62 billion in additional public investment that would be required for Latin America and the Caribbean to meet the World Food Summit target. In other words, losses of almost US$ 6.7 billion attributable to the cost of hunger in Central America, set against an investment of US$ 2.62 billion to eradicate it throughout the whole of Latin America (ECLAC/FAO/WFP, 2007).

(e) Income shocks due to rising food prices: the effects on poverty, hunger and nutrition

According to FAO, the increase in food prices in international markets, which began to accelerate in 2005, is jeopardizing the region's hard-won progress with nutrition. The rise in prices has occurred because the pressure of demand has overwhelmed the supply of staple products, particularly, maize, rice, soy and wheat, and it marks a major step backwards in terms of access to the staple basket of food and, more generally, of food and nutritional security, especially among the poor who are net consumers of food, i.e., the landless, wage earners working for low pay or under substandard conditions, and informal workers. The rise in food prices could prevent the Millennium Development Goals relating to the reduction of indigence and hunger from being achieved, and this would have knock-on effects for the ones concerned directly with health (see figure II.7).

Several decades ago, Amartya Sen and Jean Dreze underlined a pertinent point: famines are not characteristic of countries with democratic political systems (Sen, 1982). Nonetheless, given the complex array of factors underlying the current rises in food prices, even democratic regimes will have to deal with unprecedented strains and challenges as regards social cohesion and equity in order to avoid impoverishment among their populations, nutritional risks and, in the worst case, famine. This is why it is urgent to find out what factors have led to this unusual and ongoing surge in prices.

Figure II.7

THE UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION (FAO) FOOD PRICE INDEX
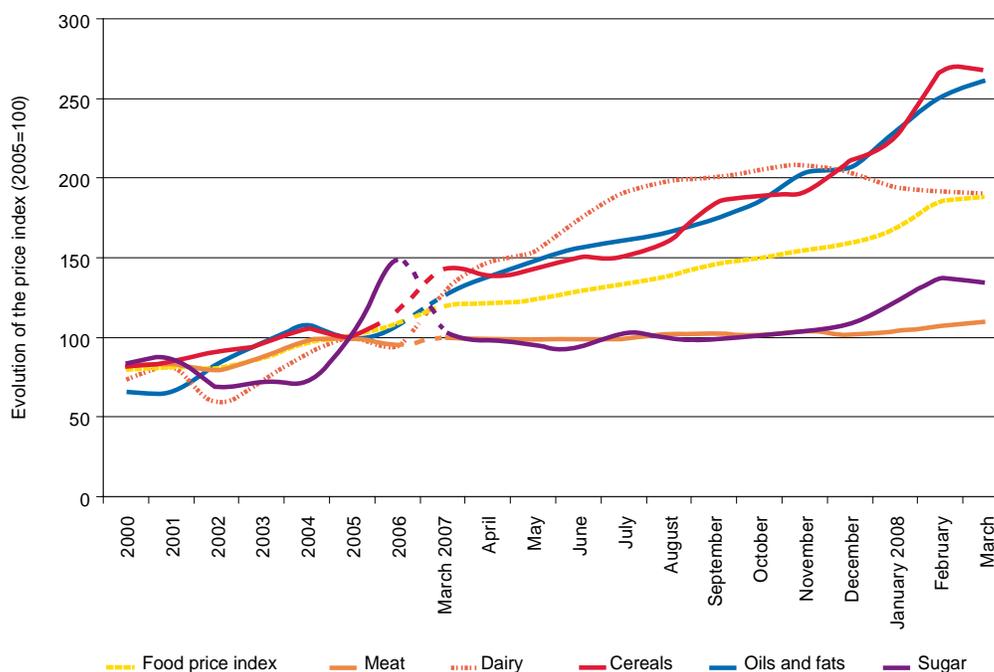
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Food and Agriculture Organization of the United Nations (FAO), *Crop Prospects and Food Situation*, No. 2. April 2008 [online] http://www.fao.org/docrep/010/ai465e/ai465e00.HTM.

Note : The **Food Price Index** is the average of 6 commodity group price indices (meat, dairy, cereals, oils, fats, sugar) weighted with the average export shares of each of the groups for 1998-2000; it includes a total of 55 food products. The **Meat Price Index** consists of 3 poultry meat product quotations, 4 bovine meat product quotations, 3 pig meat product quotations, 1 ovine meat product quotation. In all cases, these are averages weighted by assumed average trade weights. The four meat group average prices are weighted by world average export trade shares for 1998-2000. The **Dairy Price Index** consists of butter, whole milk powder, skimmed milk powder, cheese, and a value for the amount of casein in these products; the average is weighted by world average export trade shares for 1998-2000. The **Cereals Price Index** is compiled using the grains and rice price indices weighted by their average market share for 1998-2000; the Grains Price Index consists of the International Grains Council (IGC) wheat price index, itself an average of 9 different wheat price quotations, and 1 maize export quotation, the base period being 1998-2000. The Rice Price Index consists of three components containing average prices of 16 rice quotations: the components are Indica, Japonica and Aromatic rice varieties and the weights for combining the three components are assumed (fixed) trade shares of the three varieties. The **Oils and Fats Price Index** consists of an average of 11 different oils (including animal and fish oils) weighted with average export trade shares of each oil product for 1998-2000. The **Sugar Price Index** is an index form of the International Sugar Agreement prices.

In fact, a very wide array of factors are involved, and their confluence has caused some to speak of a new phase in the food crisis that will cause famines around the world not as a result of natural disasters such as droughts, but because of food prices. FAO calculates that prices will ease somewhat once the initial upheaval is past, but that they will remain at a higher plateau for at least 10 years. Some factors include the financial crisis, currency volatility and the development of biofuels in developed countries; according to studies by FAO and other international bodies, biofuels accounted for between 5% and 10% of the price increases in 2006 and 2007, but if the United States or the European Union continues to convert more and more agricultural output into biodiesel or bioalcohol in future, this could become a major problem in the medium term, besides which Brazil is currently seen as the only country capable of obtaining biofuels profitably and without subsidies. Another factor is that countries such as China and India that account for 40% of the world population have increased their living standards substantially and with them their

demand for food, and this, in combination with population growth and high prices, has resulted in a problematic equation. Furthermore, spurred partly by the current subprime or financial crisis, food products have become a haven for investors and speculators, something that had not happened for three decades: because food reserves are at their lowest for 30 years, an opportunity has arisen to generate profits over the coming years and these investments have begun to push prices up. Large producers are also refusing to export part of their output for the time being, in a return to self-sufficiency. In the short term, much will depend on how good forthcoming harvests are and whether any natural disasters occur (Sumpsi, 2008).

This is a complex state of affairs in which prices are increasing as a result of both demand pressures and supply constraints and, more recently, speculative factors. Volatility in energy markets, and especially in fossil fuel prices, has fed through not only to the supply of agricultural products because of rising production costs, but also to demand, as there are agricultural products that are a source both of food and of energy that offers a substitute for fossil fuels. In most cases, demand is also being driven by production and consumption subsidies and by the creation of guaranteed markets via regulations requiring the use of vegetable oil/diesel and petrol/ethanol mixtures. In this complex situation, as ECLAC has pointed out, the interactions between agricultural markets and energy markets have become unprecedentedly strong, as have those between agricultural and non-agricultural commodity markets and financial markets.

Developments in international food markets are affecting domestic prices in most of the world's countries, and those of Latin America and the Caribbean have been no exception. Food importing countries are having to pay ever higher prices to supply their domestic markets, but producer countries, especially those that are also exporters, have seen domestic prices rise as well, largely owing to the powerful influence of international prices. Beginning in early 2006, but especially since 2007, consumer food price indices have risen in the majority of the region's economies at an annual rate of between 6% and 20%, with an average of about 15%. Where prices have risen by less, this is probably due to specific policies to cushion the impact of rising staple food prices. The rise in international food prices has been particularly harsh for those who have to spend a large proportion of their incomes on food, so that it is having a clearly regressive impact on distribution (Machinea, 2008).[12]

When prices of staple foodstuffs rise, the poorest experience higher inflation than everyone else. Not only does the distributive effect penalize those who have least, but it also leads to a net rise in the percentage of poor and indigent people who cannot afford a staple food basket because their disposable income has not increased. There is consequently a rise in the proportion of poor households, i.e., of those whose current resources cannot buy a basket that includes food along with other staples. Likewise, other vulnerable groups earning close to the poverty line are put at risk of nutritional impoverishment.

The calculations of the incidence of poverty and indigence in the countries of Latin America that ECLAC regularly carries out can be used to simulate the potential impact of rising food prices on these variables. Setting out from projections of indigence for 2007,[13] if the prices of the foods in the basket used to calculate indigence increase by 15% and incomes remain unchanged, the indigence rate in the region rises by almost three percentage points, from 12.7% to 15.9% (see table II.3). In other words, a price change of 15% with constant incomes causes more than 15.7 million inhabitants of Latin America and the Caribbean to descend into indigence. In the case of poverty, there is a comparable increase when the simulation leaves the prices of the non-food items in the basket unchanged.

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[12] The following discussion of the effects of rising food prices on poverty and indigence in the region is taken, with very slight changes, from Machinea (2008).

[13] These are based on 2006 information and on projected changes in per capita GDP. Their purpose is strictly to provide a basis for the simulations presented here.

Table II.3
**SIMULATION OF THE IMPACT ON INDIGENCE AND POVERTY IN LATIN AMERICA
AND THE CARIBBEAN OF RISING FOOD PRICES**

	2007		Rise of 15% in food prices: effects on poverty and indigence compared with 2007			
			No rise in incomes		Incomes rise 5%	
	Percentage	Millions of people	Percentage	Millions of people	Percentage	Millions of people
Indigence	12.7	68.5	15.6	84.2	14.7	79.1
Change on 2007 situation			*2.9*	*15.7*	*2.0*	*10.6*
Poverty	35.1	189.5	37.9	204.5	37.0	199.6
Change on 2007 situation			*28*	*15*	*1.9*	*10.1*

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of household surveys conducted in the relevant countries.

Note: The methodology usually employed to project poverty and indigence rates in the countries consists in applying to the incomes measured in the survey the rate of change of per capita GDP in constant dollars that is expected between the survey year and the year to be simulated; the resulting income vector is used to estimate poverty and indigence rates, the value of the lines being kept constant. This same methodology was used to assess the effect of rising food prices on poverty and indigence rates; the variant in this case consisted in raising the value of the indigence line by 15%. The poverty line, meanwhile, is the sum of the adjusted indigence line and the cost of non-food items included in the consumption basket, to which no price change has been applied.

This is obviously a crude calculation, as the figures and projections take no account of any changes in personal and family incomes, alterations in the prices of non-food goods and services or the broader effects of higher food prices on production and consumption.[14] Nonetheless, it is both methodologically relevant and useful, as it gives an idea of the scale of the impact of higher food prices in the event that there were no change either in the prices of other products or in incomes.

Even with nominal earnings rising over the period of calculation, however, higher food prices continue to have negative effects on poverty and indigence. This is because income increases usually take account of the change in the average price index, which rose by less than half as much as food prices in 2007. Thus, taking the combined effect (as the simulation does) of a rise of 15% in food prices and of just 5% in household incomes, the number of people becoming newly indigent as a result of the rise in food prices would be about 10 million, and a similar number would become poor. Then, of course, there are those people who were already poor or indigent before these increases, and whose situation would worsen by descending further into poverty. Unquestionably, this is a dramatic situation for vast numbers of people in Latin America and the Caribbean.

The picture is complicated yet further by the effects of fuel price rises, which are raising the cost of transport and a variety of public services. More expensive fuel, furthermore, has been one of the factors

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[14] Such as those that might be simulated using a computable general equilibrium model with a social accounting matrix and microsimulations from household surveys that factored in an income shock because of higher food prices, or indeed the overall effects of higher prices on national economies.

pushing up food prices. Here again, higher prices particularly penalize those who have the lowest incomes and spend a substantial share of their earnings on public transport and basic household services.

If appropriate measures are to be taken against the food price surge of recent months, it is essential to have a thorough understanding of the real effects of each different factor involved. Better knowledge is needed not just of the role of the demand of emerging countries and the role of energy inputs in raising production costs, but also of the impact (especially in developed countries) of subsidies for the production and use of biofuels, and the part played by market structures in the production and commercialization of farm products worldwide (Runge and Senauer, 2007).

Policy initiatives are needed in several areas. First, to encourage energy saving and greater energy efficiency in general; in this context, the energy model of which biofuel production forms a part will inevitably have to be reviewed. Second, to carry out a more thorough evaluation of the costs and benefits of biofuel production; these include the cost in water, land and biodiversity, the energy balance, food security, energy security versus any rural development benefits, lower emissions of vehicle pollutants, and currency savings. Third, to promote research and development and innovation policies that can open the way to an energy paradigm that provides an alternative to fossil energy without affecting food production, although energy derived from biomass may play an important role. Fourth, to ensure that the range of biofuels and bioenergies in general is not underpinned by incentives and subsidies that artificially increase the returns on them by providing guaranteed markets and production or consumption subsidies, and that thereby also increase the opportunity cost of producing food; this is an issue akin to the one that has dominated the Doha Agenda over the last few years, but transferred to the sphere of biofuels. However, nothing should be done to constrict the genuine comparative advantages of those countries that can develop biofuels because they have the right conditions to produce them, such as crop diversity and the availability of land, water and solar energy, and that take care to strike the right balance with the production of food so that their population has adequate access to this (Rodríguez, 2008).

Consequently, argues ECLAC, the highest priority must be given to implementing and following through on policies to mitigate these effects, in accordance with the position of each country as regards factors such as its production structure (whether it is a net importer or exporter of food, for example), its experience in handling different instruments and its fiscal situation. The policies to be implemented might include measures to bring down food prices or moderate price increases in domestic markets, such as lowering tariffs and consumption taxes. Other policies may set out to improve people's incomes, especially among the worst-off, by targeting new subsidies at particular sectors or increasing existing ones. Developed countries and, to some extent, middle-income countries that are net food exporters also need to make an exceptional contribution to programmes and organizations such as the United Nations World Food Programme that can provide emergency aid to populations at risk. Because high food prices do not seem to be a passing phenomenon, lastly, there is a need not just to maintain specific policies aimed at lower-income sectors but also to introduce medium- and long-term measures to increase supply and productivity in a sustainable fashion.

According to FAO, while trade and the market are vital and measures need to be tailored to each country, there is a need for international disaster prevention mechanisms and for concerted action by a large number of organizations and countries. Accordingly, the organization has invited the leaders of all countries to a meeting in June where it will propose the creation of a kind of world food bank, i.e., an international system of stocks and regulatory measures to ensure a minimum of global reserves; the morphology of the mechanism to be proposed is now being designed. The intention is also to discuss agricultural measures being used by countries to raise production and seek measures to calm the current political climate. The starting point is that the main priority now is to increase production, and since it is not easy to increase supply in the poorest countries where agricultural yields are very low, these require help to distribute seeds

and raise output and to improve growing systems and fertilizers. The idea is to use this dramatic situation to create medium-term incentives for agricultural development around the world and to involve the advanced economies; Africa has great untapped agricultural potential, and if low-income countries make progress now, at a time when food prices are high, they will improve their quality of life (Sumpsi, 2008).

A whole host of crucial issues are now coming up in the debate about agriculture and food access: how to raise agricultural productivity, how to reconcile this effort with environmental considerations to safeguard health, how to increase international food reserves, how to multiply the yield of seeds and their resistance to new climate conditions while continuing to discuss the implications of genetic manipulation, how to increase agricultural research resources, what to decide about biofuels, how to reduce income concentration so that food is shared out in a more balanced way, how to support small producers with water, credit and advice so that they can increase yields, how to increase agriculture-specific development assistance, how to limit the wastage of food that could be used for energy production. Multiple approaches to an enormous task.

3. LESSONS FROM THE APPLICATION OF POLICIES TO COMBAT HUNGER AND MALNUTRITION

All the region's countries carry out a wide range of interventions to reduce malnutrition, with programmes usually being operated by health ministries or social security institutions.

Given the experience built up in different countries and the multiplicity of causes involved, it is clear that comprehensive State policies with a long-term approach and stable financing are required to eradicate hunger and combat malnutrition. The problem has three aspects to be addressed. First, there is a need to address the structural causes with a view to improving the medium- and long-term food situation, among other things, and to apply measures that encompass access to productive assets (especially land), modernization of agricultural production and improvements to food distribution channels, plus others designed to reduce socio-economic inequalities in the fields of employment, education and social protection systems. There is likewise a need to act in the short and medium term to increase the purchasing power of households so that their access to and use of foods can improve. Lastly, preventive or emergency measures are required to forestall or cushion the consequences of critical food access situations.

The impact of nutrition programmes depends on the socio-economic context of families. Reversing growth retardation is a complex process that requires a number of factors to be addressed in coordination with one another. A poorly educated mother, a low income and a lack of health services are associated with a higher risk of growth retardation in children. In countries that have succeeded in lowering poverty or indigence indices or both by the greatest amounts, malnutrition rates have also fallen considerably. Policies to reduce illiteracy, provide basic infrastructure and improve health services have contributed to a considerable decline in the prevalence of growth retardation in children. The best nutrition indicators in the region are found in Chile (a 1.3% chronic malnutrition rate among children under 6), which has had a mother and infant food programme with wide coverage for over 50 years. The key factors in this success are difficult to single out, since it is obviously due not just to the food programme but also to near-complete health service coverage of the most vulnerable population, programme continuity and the emphasis put on prevention, among other things. At the same time, the country has succeeded in achieving higher levels of schooling and environmental improvements and in substantially reducing the poverty and indigence indices in a context of economic expansion where the poorest families have shared in the general growth of per capita earnings (Atalah and Pizarro, 2008; ECLAC, 2007b).

As long as the structural problems giving rise to them persist, there will always be a need for temporary measures to deal with hunger and malnutrition and to enhance the capabilities and

socio-economic opportunities of the families affected, within the framework of an overall food and nutritional security policy that takes account of the causes contributing to hunger and malnutrition in each country, which include socio-economic, ethnic, cultural and territorial inequalities and the gender aspect.

The time required for an intervention to positively affect children's growth is variable. In some cases, even a long spell in the programme does not lead to significant reductions in growth retardation (de Caballero and others, 2004). There are also instances where growth retardation has been reduced by 5.3% in two years, thanks to an excellent combination of cash transfers and health care, as in the case of Nicaragua (IFPRI, 2002; Maluccio and Flores, 2004; Galván and others, 2008). In any event, the continuity of programmes is essential. They are often interrupted, however, not necessarily because of poor results but owing to changes of government or to administrative or financing problems that raise costs and make it harder to achieve long-term goals.

Conditional transfer programmes that can influence food demand have to deal with a number of challenges. One such challenge has to do with the impact that the quality of sectoral services has on the stock of human capital. It is a cause for concern that, even if children's health and nutrition are successfully improved and school attendance increased, they will not necessarily be free of poverty in future unless other conditions are also met. To make progress in this area, both the quality of health care and the quality and scope of school provision are now coming under closer scrutiny. Since these depend on the social sectors providing these services, the implication is that the quality of the health and education provision with which monetary transfer programmes interact needs to be improved (Sojo, 2007). Concerning these interactions, see box II.2.

Given the characteristics and consequences of child malnutrition, the priority must be to target interventions on children under 3 and on expectant and nursing mothers, as these are passing through critical stages of nutritional vulnerability whose consequences can be lifelong.

Programmes to combat hunger and malnutrition must not lose sight of the consequences in terms of excess weight and obesity that they could lead to in some populations, as these have negative repercussions for health and productivity and have increased in the region. This again highlights the need for a comprehensive approach.

Against this background, a set of short- and medium-term policy guidelines is suggested:

(a) Promote exclusive breastfeeding up to the age of six months, providing suitable conditions for working mothers.

(b) Maintain and improve programmes to fortify foods with micronutrients, which have proved very cost-effective in closing health, learning and productivity gaps.

(c) Provide food supplements and encourage their consumption by expectant and nursing mothers and by infants and preschool children.

(d) Promote and improve eating habits based on highly nutritional local and traditional food products, taking account of cultural and ethnic diversities.

(e) Create cash and food transfer programmes for people living in extreme poverty, in return for their participation in education and primary health-care services, community work, training, literacy education, etc.

(f) Strengthen preventive measures aimed at the most vulnerable groups, particularly public information programmes, education about food and nutrition, and the provision of information about best practices in childcare, hygiene, parasite removal, healthy eating, and food handling and storage.

Box II.2
**SOCIAL HEALTH PROTECTION FOR MOTHERS, CHILDREN AND NEWBORN INFANTS:
LESSONS LEARNED FROM THE LATIN AMERICAN REGION**

Bolivia's Universal Maternal and Infant Insurance (SUMI), Chile's Maternal and Infant Social Health Protection Policy (PPSSMI), Brazil's Family Health Programme (PSF) and Mexico's Opportunities programme have all improved equity in access to and use of health services. Meanwhile, Ecuador's cost-free maternity and childhood care law, the mother and child voucher system in Honduras and Peru's comprehensive health insurance have had mixed results and in some cases have made access to and use of health services more inequitable than before.

All seven plans seem to have succeeded in counteracting at least one of the social determinants adversely affecting health or repressing the demand for health services. The amounts invested in implementing them, the degree of coverage achieved, their continuity over time, success in strengthening women's position in the family and the explicit promotion of health rights appear to be crucial factors in the success of these programmes.

They have helped to extend coverage and increase access to technically appropriate interventions by mitigating or removing at least one cause of health-care exclusion. Most of them reduce the financial barrier to health-care access; analysis of Bolivia's SUMI, Honduras' BMI and Peru's SIS, however, shows that in ethnically diverse countries with geographically dispersed human settlements, merely removing financial obstacles does not guarantee access to health care.

Brazil's PSF and Chile's PPSSMI have increased the coverage of technically appropriate health-care interventions. Bolivia's SUMI, Ecuador's maternity law and Peru's comprehensive health insurance, on the other hand, have further overstrained these countries' health systems by increasing the demand for services without first proportionately expanding their supply, the resources available or the health-care infrastructure. In only two cases —Bolivia's SUMI and Chile's PPSSMI— has the social health protection system attained coverage in excess of 60% of the target population.

Four of the seven —the SUMI, the maternity law, the mother and child voucher system and the maternal and infant insurance— have suffered from underfunding that is threatening their sustainability.

In addition to continuity over time and investment in resources and infrastructure, it seems that institutional capacity and the degree to which plan administration is decentralized are important factors in determining whether the intended coverage is achieved. Experience shows that progress with maternal and infant health can only be achieved by taking a comprehensive approach involving a combination of interventions that are designed to overcome the social, financial, cultural and ethnic barriers to health-care access, and that are necessarily underpinned therefore by a long-term political and social covenant.

Source: Group on PHC-based health systems for social protection, on the basis of Pan American Health Organization (PAHO), "Esquemas de protección social en salud para la población materno-infantil: lecciones aprendidas de la región de América Latina", unpublished, 2007.

(g) Create or optimize food protection systems for emergencies arising because of natural disasters, sudden or sustained rises in food prices, and social conflicts, ensuring that children and their mothers are directly assisted.

(h) Increase infrastructure investment and improve the running of education and health services in order to expand coverage and improve the quality of provision.

(i) Improve water and sanitation infrastructure in marginal areas to reduce the transmission of diseases associated with malnutrition, irrigation infrastructure in dry areas to increase agricultural productivity, and road infrastructure to facilitate trade in local produce and food distribution in emergencies.

(j) Facilitate access to productive assets, including land, equipment and financing, for the most vulnerable families. This should be supplemented by soil improvement programmes,

water resource management and food storage, as well as measures to improve productivity and diversification, especially among subsistence farmers. Improve agricultural production processes by investing in new technology and training.

(k) Promote hygiene, especially in food handling in commercial establishments and households, along with effective sanitary control systems to protect children from diseases originating in the different stages of food production and distribution.

(l) Press for the adoption of a fair international trading system for farm products, giving special consideration to the adverse effects of subsidies and other protectionist mechanisms applied by the developed countries. While they may give certain sectors of the population easier access to food, these measures can affect the competitiveness of small farm producers and microproducers, who are usually the most vulnerable, as well as local food security.

(m) Foster South-South cooperation so that experts and policymakers in the region have greater opportunities to learn from each other's experience. Countries dealing with severe problems are often unaware of measures that have been tried successfully elsewhere, which means there is a need to promote policies based on actual experience and to be aware of and reproduce the best practices of successful programmes.

More attention also needs to be paid to the management quality of programmes to combat malnutrition. Problems arising in the design and operating phases of programmes affect the planned outcomes to a greater or lesser degree, examples being: time in programme that is less than the required minimum, low acceptance of food supplements, and dilution within the family. For example, an evaluation of Mexico's Opportunities programme showed that just half of children aged from 6 to 23 months ate the food provided for them once a week, and of these 50% consumed just half the recommended ration, indicating that there are problems with product acceptability, distribution difficulties or both (Hoddinott and Skoufias, 2003; Behrman and Todd, 1999; Behrman and Hoddinott, 2000; Rivera and others, 2004). According to recent evaluations, there have been positive results in terms of longitudinal growth and chronic malnutrition (Leroy and others, 2008; Fernald and others, 2008). In the case of Nicaragua's Social Protection Network, malnutrition was reduced when implementation improved. When Honduras' second Family Allowance Programme ran into financing and implementation difficulties, on the other hand, its results were modest (IFPRI, 2001 and 2003).

The importance of evaluation and its use in decision-making have yet to be properly recognized in the region. Evaluations measuring processes, results and impacts are thin on the ground and few projects have evaluation processes and financing in place, which makes it harder to systematize learning and identify the best interventions. Mexico's Oportunidades programme and Brazil's Family Allowance (Bolsa Familia) programme are positive exceptions here.

Given the scale of malnutrition in some countries and the high cost of policy implementation, regional policies are another important area. One successful example is the Regional Initiative for the Eradication of Chronic Child Undernutrition in Central America and the Dominican Republic. To speed the pace of progress towards the eradication of chronic undernutrition, the member countries have reviewed, linked and strengthened existing national programmes to coordinate the development of national plans by means of short-, medium- and long-term action. This initiative has been energetically fostered by governments and joined by a wide range of partners, including specialized United Nations agencies, non-governmental organizations and other governments in the region such as those of Chile and Mexico, within a framework of South-South cooperation.

CHAPTER III

THE HEALTH-RELATED MILLENNIUM DEVELOPMENT GOALS AND TARGETS: COMPARISON OF PROGRESS INDICATORS IN THE REGION'S COUNTRIES

1. GOAL 4: REDUCE THE UNDER-FIVE MORTALITY RATE

Target 5 of Millennium Development Goal 4 is to reduce the under-five mortality rate (better known as child mortality) by two thirds between 1990 and 2015. Almost 12 million children are born each year in Latin America and the Caribbean, but it is calculated that some 400,000 of them die before their fifth birthday, while 270,000 perish in their first year, 180,000 of these in their first month of life (PAHO, 2006).

The present analysis uses the two indicators proposed by the United Nations for following up this goal, namely the infant mortality rate and the under-five mortality rate. However, it gives priority to the first (the likelihood of dying between birth and the first birthday, expressed per 1,000 live births) because it accounts for the bulk of childhood mortality and because there is a larger body of comparable information for a greater number of countries. Given the weight of mortality in the first year of life as a proportion of all childhood mortality (i.e., all deaths among children under 5 per 1,000 live births), the two indicators track each other closely.[1]

Estimates for the Americas region show that meeting goal 4 will require a more rapid reduction in under-five mortality, which fell by an average of about 2.4% a year during the 1990s. To bring mortality down to a third of the 1990 rate by 2015, the pace of decline in under-five mortality will have to more than double to 5.6% a year. If this goal were achieved, the number of such deaths would be 250,000 a year, i.e., less than half the figure calculated for 2000, and a third of the 1990 figure.

In the 1990-2007 period, i.e., two thirds of the way to the deadline set for meeting the Millennium Development Goals, Latin America and the Caribbean have made substantial progress in terms of the health of their populations, particularly children. In that population group, mortality fell substantially and life expectancy at birth increased. In 2007, the region's child mortality rate was the lowest in the developing world and had been falling faster than in any other region, whence its relatively high global ranking (see table III.1).

The regional averages for infant mortality mask large disparities between countries, however (see figure III.1). Whereas levels in one group of five countries and territories were below 8.4, i.e., similar to those in Europe, the indices of another 11 exceeded the regional average of 22 per 1,000. Haiti, the poorest country in the western hemisphere, stands out with a rate of almost 50 deaths per 1,000 live births, indicative of its general state of underdevelopment. Likewise, the inadequacy of the progress made by the great majority of these countries towards the other Millennium Development Goals reveals how interconnected the different facets of social development are.

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[1]   The statistical annex includes estimates of childhood mortality rates for the region's countries.

Table III.1

INFANT MORTALITY RATE PER 1,000 LIVE BIRTHS, WORLDWIDE AND BY CONTINENT, 1990-2007 [a]

Geographical region	1990	2007	Change between 1990 and 2007 (percentages)
World	63.4	49.9	-21.31
Africa	104.9	87.5	-16.56
Asia	61.6	43.7	-29.08
Europe	14.2	8.4	-40.35
Latin America and the Caribbean	42.4	22.0	-48.16
North America	8.2	6.3	-23.78
Oceania	31.1	26.1	-16.01

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of tabulations from United Nations, World Population Prospects. The 2006 Revision [online database] http://esa.un.org/unpp/.

[a] Linear interpolation, calculated by the source, of the estimated probabilities of death before the first birthday in the five-year periods 1985-1990 and 1990-1995 (1990 data) and 2000-2005 and 2005-2010 (2007 data).

Figure III.1

LATIN AMERICA AND THE CARIBBEAN (35 COUNTRIES AND TERRITORIES): INFANT MORTALITY PER 1,000 LIVE BIRTHS, 2007 [a]
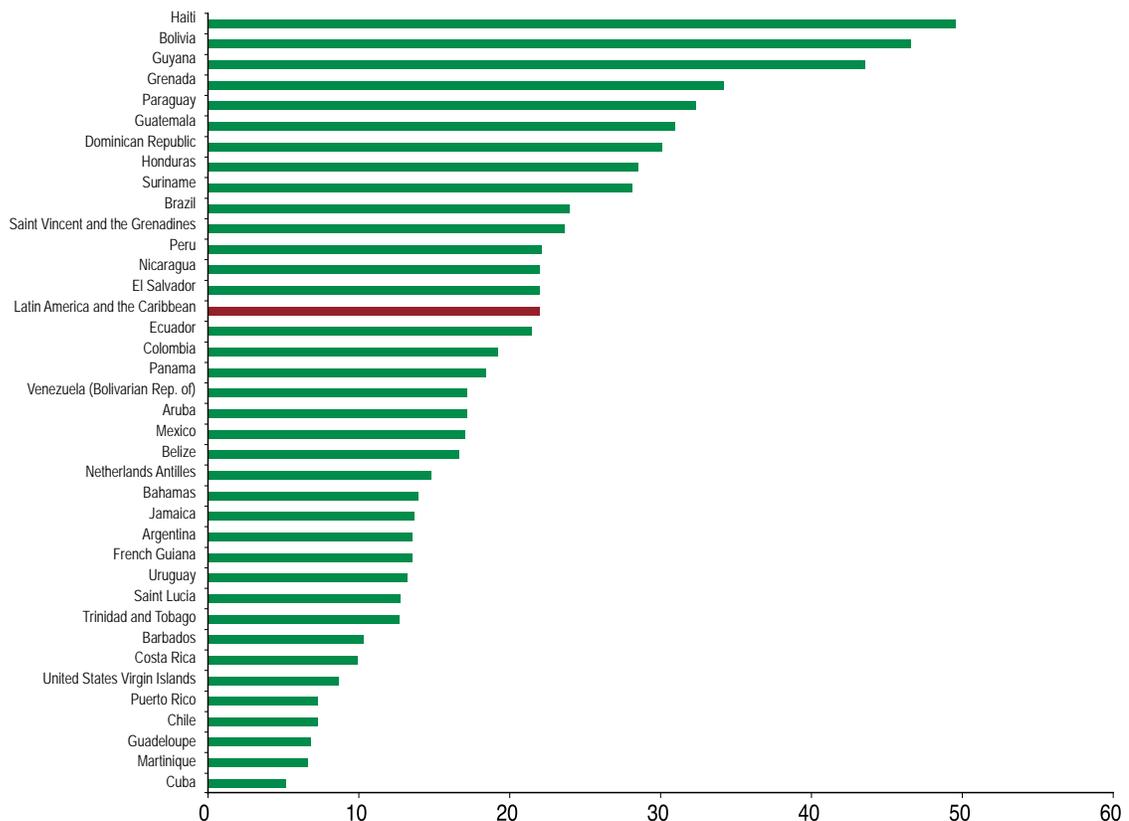
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of tabulations from United Nations, World Population Prospects. The 2006 Revision [online database] http://esa.un.org/unpp/.

[a] Linear interpolation, calculated by the source, of the estimated probabilities of death before the first birthday in the five-year periods 2000-2005 and 2005-2010.

Target 5 of goal 4, meanwhile, is to reduce infant mortality by two thirds irrespective of the starting level in each country. To be on track to meet this target, given that the period analysed (1990-2007) represents about two thirds (68%) of the period running up to 2015, the countries ought to be at least two thirds of the way there if a linear progression is assumed. In other words, infant mortality ought to have dropped by 45.3%, meaning that progress less than this can be considered inadequate.

Defined as the 35 countries and territories shown in figure III.2, the region as a whole exceeded this figure: between 1990 and 2007, infant mortality fell by 48.2%. The decline was less than 45.3% in 23 of them, however, while in 14 rates fell by over 45%, the best performer being Cuba, which has already reached the target.

Figure III.2
LATIN AMERICA AND THE CARIBBEAN (35 COUNTRIES AND TERRITORIES): PROGRESS IN REDUCING INFANT MORTALITY, 1990-2007, AND FURTHER REDUCTION REQUIRED BY 2015 [a]
(Indicator 14: infant mortality rate)
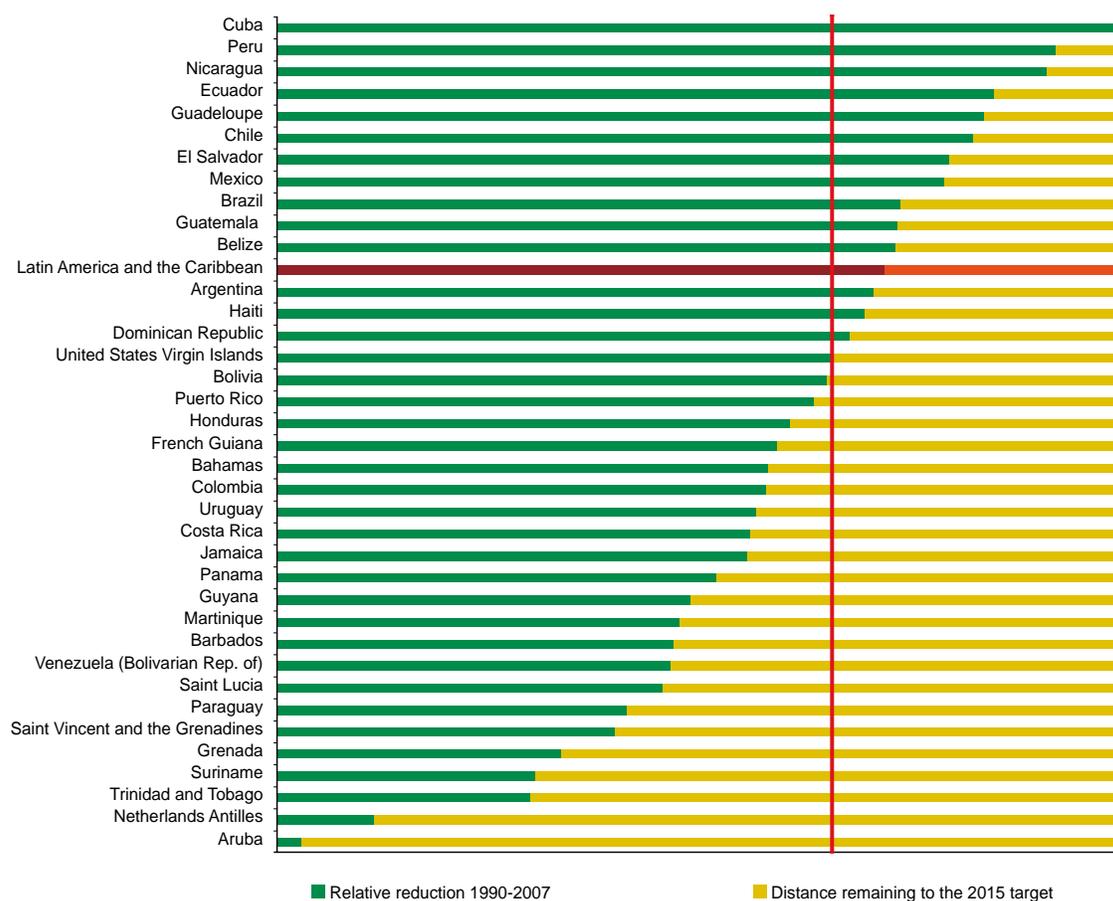
While the progress made in reducing infant mortality, measured as a weighted regional average, gives grounds for hoping that the target may be met, some of the poorest countries have advanced less than they need to. Levels in Haiti, Bolivia and Guyana are estimated at over 40 per 1,000 in 2007.

The situation of the underperformers is heterogeneous. In those which had a rate of 16 per 1,000 or less in 1990, i.e., Costa Rica and certain Caribbean countries (Martinique, Puerto Rico, Barbados, Trinidad and Tobago and the United States Virgin Islands), the slow pace of progress can be attributed in part to the difficulty of improving on their low starting rates of infant mortality. However, the situation in Paraguay, Guyana and Suriname is disturbing since, setting out from intermediate or high levels of infant mortality in 1990, they were unable to achieve a reduction of 45.3% by 2007.2 Concerning the case of Ecuador, see box III.1.

Box III.1

THE CHALLENGE OF IMPROVING NEONATAL HEALTH IN ECUADOR

The under-five mortality rate has fallen in Latin America and the Caribbean, with reduced post-neonatal (>28 days) mortality. In Ecuador, where there are 300,000 births a year, an under-five mortality rate of 53.5 per 1,000 live births and an infant mortality rate of 22 per 1,000 live births, the neonatal mortality rate (<28 days) rose by 40% between 2000 and 2005, from 8.9 to 12.5 per 1,000 live births. The early neonatal mortality rate (<8 days) rose by 42% over the same period, from 6.5 to 9.2 per 1,000 live births, and neonatal mortality accounted for 49% of all infant mortality (<1 year) in 2000 but 60% in 2005, thus increasing its share by 25%.

Between 22 February and 14 March 2007, Ecuador's Ministry of Public Health and PAHO/WHO Ecuador carried out inspections to evaluate implementation of the neonatal Integrated Management of Childhood Illnesses (AIEPI) programme and perinatal/neonatal care in nine public maternity hospitals. The relevant recommendations were made for improving maternal-perinatal/neonatal care and identifying the measures needed to attain the fourth goal.

In terms of biostatistics, the study revealed that hospitals were failing to properly calculate and record neonatal/perinatal and infant morbidity and mortality rates in accordance with the tenth International Classification of Diseases (ICD-10). Levels of knowledge about preventing or treating the leading causes of perinatal and neonatal mortality were very low, out of date and not evidence-based. There were no up-to-date evidence-based standards or guidelines available at gynaeco-obstetric and neonatal facilities.

The neonatal AIEPI programme is still in the process of being rolled out nationwide. There are high rates of Caesareans conducted by poorly trained personnel (general practitioners with 2 or 3 months' training), partograms are prepared poorly or not at all, ineffective uteroinhibitors (Berotec) are used, prenatal corticoids are underused or misused, antibiotics are misused in neonatal sepsis, and there is a lack of training in neonatal resuscitation and in the basic handling of newborn children.

Another very important factor is the lack of proper management. Rates and precise causes of perinatal-neonatal deaths are not recorded or understood, medical facilities are not properly organized to give priority to pregnant women (who may spend hours waiting to be seen) and newborns, with the latter receiving the poorest care (amounting in some cases to complete neglect), there is a lack of coordination between gynaeco-obstetrics and neonatology/paediatrics departments (nursing, epidemiology) and an

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2   Also, in small countries like these a small number of deaths can give rise to large variations in a year's values that do not necessarily represent a significant departure from the trend.

Box III.1 (concluded)

inappropriate distribution of human resources (priority is given not to maternal-perinatal/neonatal care but to external consultations), medical facilities do not have neonatology nurses, and newborn children are cared for by the least skilled staff (nursing assistants, interns, sometimes no-one at all). The study also found that there was no joint analysis of levels and causes of perinatal/neonatal mortality by all those involved (gynaecology/obstetrics, neonatology/paediatrics, nursing, epidemiology), or any consensus or commitment among actors when it came to implementing solutions. Lastly, it was found that there was no plan for reducing neonatal/perinatal mortality and no monitoring, evaluation or control at any level

Systematized solutions were devised for these problems, evidence-based perinatal intervention guidelines for the reduction of neonatal mortality were drawn up in April 2007, and 1,750 posters on neonatal resuscitation and other interventions were printed.

In 2008 the Ministry of Health launched the national campaign for the reduction of neonatal mortality, with political support at the highest level of government and financial and administrative backing. With the support of PAHO, a wide-ranging training process was begun in Quito, Guayaquil and Cuenca to prepare 267 national and regional facilitators throughout the country and implement the national plan for the reduction of neonatal mortality, involving application of the guidelines prepared, control of nosocomial infections and maternal health.

All these interventions highlight the need to implement the neonatal AIEPI. Neonatal mortality currently accounts for 60% of infant mortality in Ecuador; the interventions being implemented ought to bring neonatal mortality down significantly, and with it infant and under-five mortality.

Source: Pan American Health Organization (PAHO), on the basis of official documents.

As can be deduced from the figure below, the positive correlation between the infant mortality level in 1990 and its percentage reduction between 1990 and 2007 is virtually nil (see figure III.3). When infant mortality is low, highly specialized and costly technical resources and staff need to be available to treat the underlying diseases and pathologies, so that bringing the rate down further entails increasing institutional, technical and financial exertions. This provides a measure of the importance attached to public and health policies in the countries. Thus, Cuba, Chile and Guadeloupe have been able to reduce infant mortality from what were already relatively low levels. The consistent public and institutional priority given to the goal and a willingness to gradually adjust health programmes to emerging epidemiological realities (which means ensuring universal coverage of primary care and of preventive and prophylactic interventions and extending and improving protection and treatment for more complex pathologies) seem to have been crucial factors in this success. When mortality levels are high, a wide spectrum of measures can be used to bring them down, but countries that have not made progress must strive to identify the reasons for this and act accordingly.

Figure III.3

LATIN AMERICA AND THE CARIBBEAN (35 COUNTRIES AND TERRITORIES): CORRELATION BETWEEN THE LEVEL OF INFANT MORTALITY IN 1990 AND ITS PERCENTAGE REDUCTION BETWEEN 1990 AND 2007 [a]
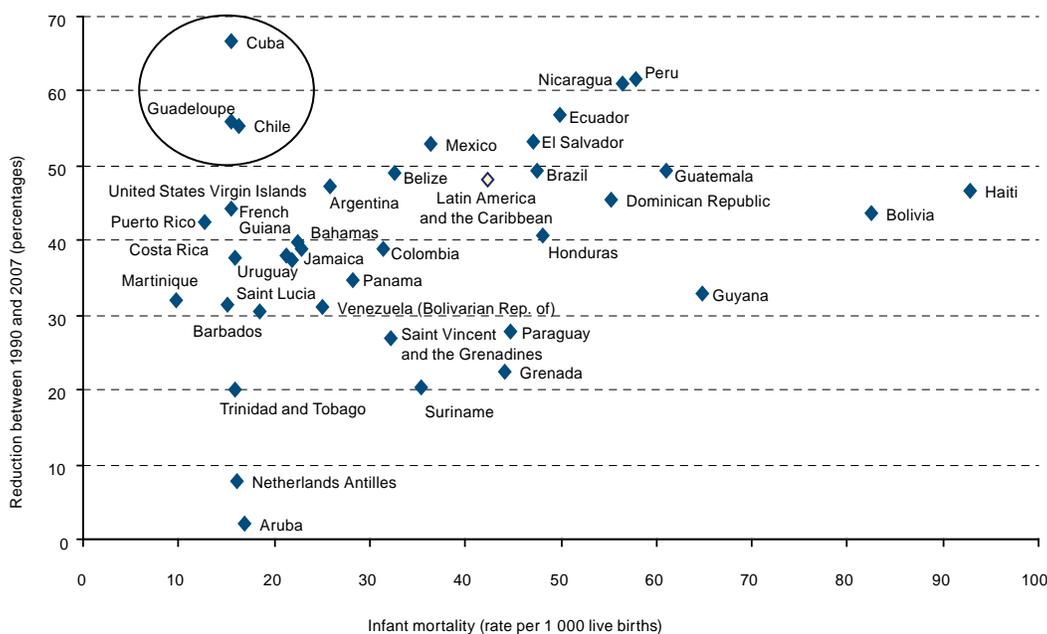
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of tabulations from United Nations, World Population Prospects. The 2006 Revision [online database] http://esa.un.org/unpp/.

[a] Calculations carried out using data from the source, obtained by linear interpolation of the estimated probabilities of death before the first birthday in the five-year periods 1985-1990 and 1990-1995 (1990 data) and 2000-2005 and 2005-2010 (2007 data).

The variety of situations notwithstanding, all the countries in the region will need to make further efforts to deal with the main determinants of mortality and adopt appropriate and specific measures for each circumstance.

Target 5 of goal 4 also includes the coverage of measles immunization among children aged from 12 to 23 months. With a rate of 92% in 2005, timely immunization against this disease is widely practised, and this is reflected in the absence of recorded deaths from this cause in the region since 2000 (see the PAHO site [online] www.paho.org). This shows the ability of the region to make major advances in health matters and the need to reinforce the policies involved so that the achievements endure.

As ECLAC, PAHO and other agencies have often pointed out, the countries of Latin America and the Caribbean are characterized by high levels of social inequality, and the region has the world's highest income concentration. Childhood mortality is linked to this, as historically the most excluded and vulnerable groups are the ones that have been the most seriously affected.

The situation with children is not clear-cut. Although the averages show a decline in mortality among all population groups, there are still divergent trends that reveal the effects of socio-economic divides between different population groups defined by ethnic origin, area of residence, household income and mother's educational level.

Although infant mortality has been brought down sharply in the region, territorial factors are still important: more urbanized regions have generally attained a higher level of socio-economic development

and there is better control of the main determinants of children's health, essentially schooling (particularly the mother's), medical coverage and access to basic infrastructure services.

While it is a fact that infant mortality has also declined substantially in populations affected by discrimination, there are still large differences between indigenous or African-descended people and the rest of the population, and between city and countryside: the incidence of mortality is still higher among indigenous and African-descended children, in both rural and urban areas (see table III.2 and figure III.4).

Table III.2
**LATIN AMERICA (13 COUNTRIES): INFANT MORTALITY RATE PER 1,000 LIVE BIRTHS,
BY ETHNICITY AND PLACE OF RESIDENCE**
(Censuses since 1990)

Country	Census year	Country total			Place of residence					
					Urban			Rural		
		Indigenous	African	Other	Indigenous	African	Other	Indigenous	African	Other
Bolivia	1992	104.0	…	65.9	82.7	…	52.9	121.0	…	93.8
	2001	77.7	…	50.5	67.8	…	48.1	87.8	…	57.1
Brazil	1990	61.1	63.9	39.4	76.7	59.7	36.1	56.7	73.1	50.5
	2000	39.7	40.2	26.7	37.2	37.6	24.7	41.8	48.1	35.0
Chile	2002	12.8	…	11.5	12.0	…	11.4	12.7	…	12.0
Colombia	2005	39.5	31.7	23.9	30.9	30.0	23.5	39.8	33.8	25.0
Costa Rica	2000	20.9	11.2	11.5	20.4	8.2	10.7	21.5	15.1	12.3
Ecuador	1990	101.8	…	53.3	61.5	…	39.6	108.0	…	69.4
	2001	72.2	…	30.5	42.9	…	24.7	76.6	…	39.1
Guatemala	1994	61.1	…	49.7	56.9	…	41.0	62.1	…	55.2
	2002	51.1	…	41.0	47.2	…	35.3	52.6	…	46.7
Honduras	2001	43.5	31.9	34.5	27.1	30.1	25.1	45.2	33.7	41.8
Mexico	1990	63.8	…	36.7	48.7	…	31.1	70.8	…	49.8
	2000	42.7	…	26.2	35.4	…	23.7	47.1	…	33.3
Nicaragua	2005	34.0	38.0	26.4	24.4	24.1	18.8	39.1	47.4	33.9
Panama	1990	72.2	…	21.6	39.9	…	17.7	75.3	…	26.0
	2000	53.5	…	17.3	31.7	…	15.7	57.5	…	19.5
Paraguay	1992	96.2	…	45.8	90.8	…	45.9	96.5	…	45.8
	2002	78.5	…	37.7	72.1	…	38.8	79.1	…	36.3
Venezuela (Bol. Rep. of)	2001	44.4	…	19.6	31.9	…	19.1	58.1	…	22.6

Source: Latin American and Caribbean Demographic Centre (CELADE) - Population Division of ECLAC, special processing of census microdata.

Note: To make the censuses comparable, two criteria were used to define the indigenous population. For Bolivia, Ecuador and Mexico, it was defined as those speaking indigenous languages, since only the latest census included self-definition as a criterion. In all other cases, the indigenous and African-descended populations were self-defined.

Figure III.4
**INFANT MORTALITY BY COUNTRY AND INDIGENOUS PEOPLE/TERRITORY, 2000 CENSUS,
PER 1,000 LIVE BIRTHS**
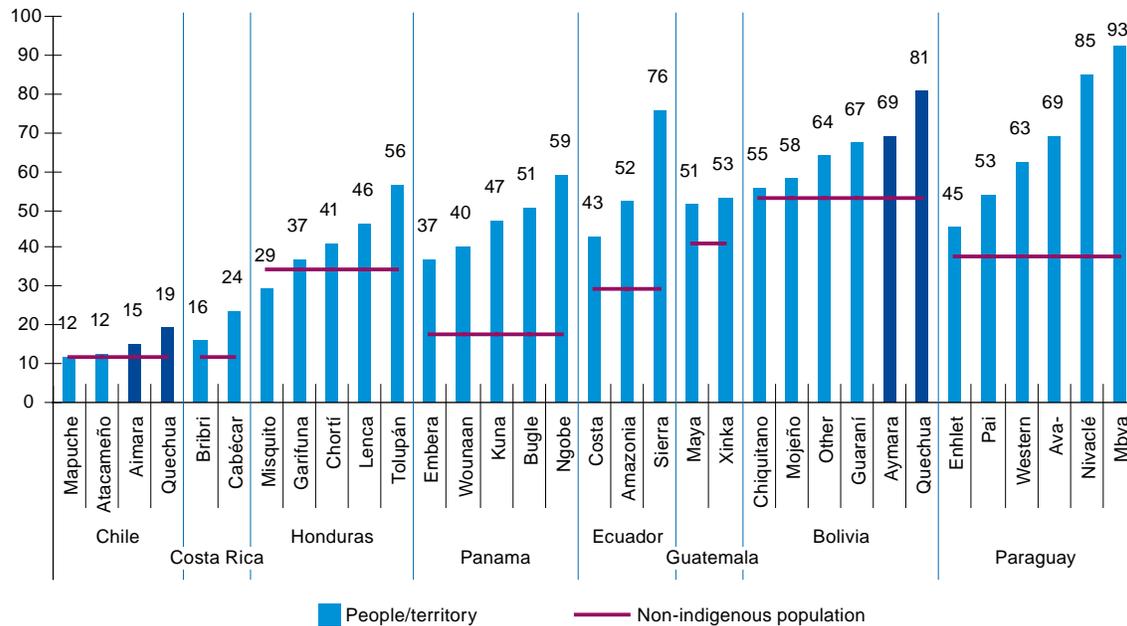
Mortality among indigenous and African-descended children varies to a notorious degree by country, which indicates that national context is fundamental. It also differs between the different indigenous peoples and African-descended groups. By way of example, the 2005 census in Nicaragua showed infant mortality affecting these groups most, particularly in rural areas, but to varying degrees: mortality was very high among the Mestizos of the Caribbean coast (40.2 per 1,000 live births), while the Creole infant mortality rate was 18.8 per 1,000 (see table III.2). As figure III.2 shows, the Mbya and the Nivaclé of Paraguay and the Quechua of Bolivia are particularly likely to die in childhood, with figures comparable to the regional average of 40 years ago. Conversely, the indigenous children at lowest risk are the Mapuches and Atacameños of Chile, who have rates of 11 and 12.5 per 1,000 live births, respectively, and live mainly in urban areas.[3] The conditions in which the Quechua and Aymara people live are very different in Bolivia and Chile: a Quechua child is five times more likely, and an Aymara child four times more likely, to die before its first birthday in Bolivia than in Chile. Consequently, mother and infant health programmes need to reflect the heterogeneity of peoples, areas and local contexts, and policies have to take territorial factors and cultural considerations into account, in both the countryside and cities.

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[3] One of the goals stated in the Programme of Action of the International Conference on Population and Development and reaffirmed in 2004 by all the countries of the region was to reduce the infant mortality rate to less than 50 per 1,000 live births by 2005. However, more than half the indigenous peoples included in the study still record rates in excess of this figure (Del Popolo and Oyarce, 2005).

Again, there are still substantial differences in childhood mortality between different socio-economic segments: the most disadvantaged groups systematically record higher mortality figures,[4] as can be deduced from the proxy value used for wealth in demographic and health surveys (see figure III.5).[5]

Figure III.5
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): INFANT MORTALITY RATE BY WEALTH QUINTILE IN DEMOGRAPHIC AND HEALTH SURVEYS, RECENT YEAR
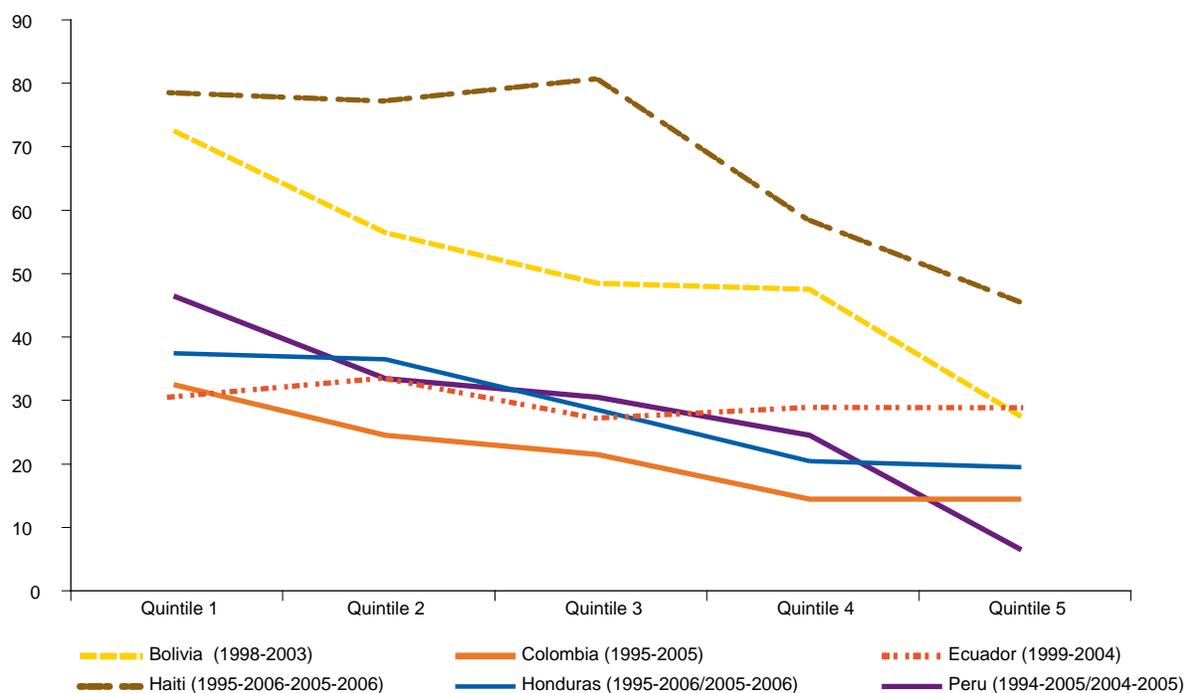
As has been seen, the Americas region has made substantial progress in reducing infant mortality. In many countries, however, high rates of neonatal mortality have not improved as expected. Between 1989 and 1998, for example, the mortality rate fell by 29% in Bolivia but neonatal mortality dropped by just 7%. Neonatal mortality accounts for 60% of deaths among under-ones in the region, which shows that progress in this area has been slow and that inequalities in access to prenatal care and health services generally, including primary care, still persist.

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[4] The Latin American and Caribbean Regional Plan of Action on Population and Development (ECLAC, 1996), which is the regional implementation instrument for the Programme of Action of the Cairo conference, lays down additional criteria concerning the need to reduce inequality by specifying that differences in infant mortality by place of residence, geographical area and social group should be reduced by 50%.

[5] These surveys do not include income data. The wealth measurement, consequently, is a proxy value for well-being constructed using information on certain physical household assets, the habitability of dwellings and access to certain services. It is not comparable, for example, with measurements of income or unsatisfied basic needs obtained from household surveys that do include information on incomes. On the numerous limitations of this proxy value for wealth, see Paraje (2008), section I.1.

Figure III.6 shows the leading causes of childhood mortality in the Americas around 2005. During the perinatal period (which extends from five months before to one month after birth), the leading causes of death are infections (32%), asphyxia (29%), premature delivery (24%), congenital malformations (10%) and others (5%) (PAHO, 2004). Some causes are direct, while others may be contributing factors, such as most cases of premature delivery and low birth weight.

Figure III.6
AMERICAS REGION: LEADING CAUSES OF UNDER-FIVE MORTALITY, AROUND 2005
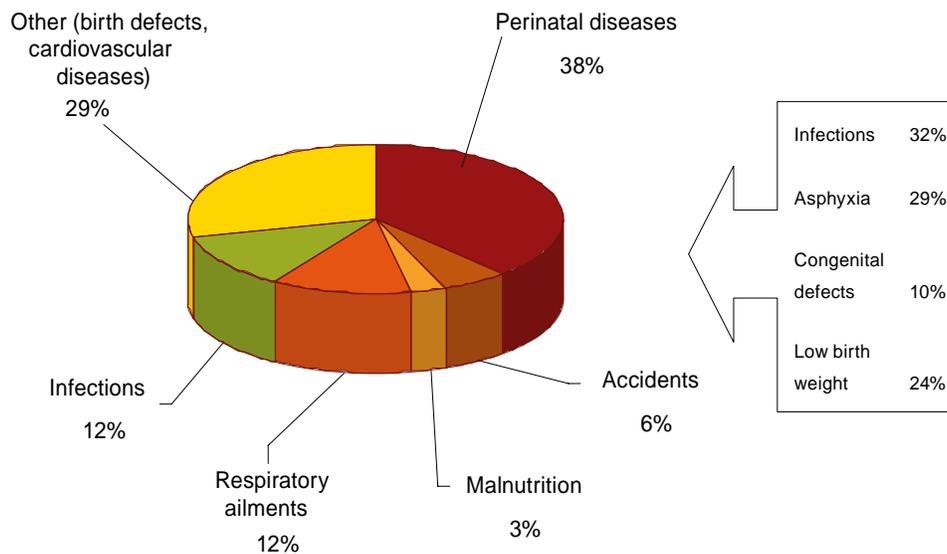
Source: Pan American Health Organization (PAHO), estimates of the Child and Adolescent Health Unit, 2005.

It has been shown that supplementation with iodine, vitamin A and zinc reduces infant mortality or the prevalence of serious diseases, or both. Again, the risk of mortality due to neural tube defects is reduced when mothers have adequate levels of folic acid in their diet. Interventions with micronutrients, especially vitamin A, iron and zinc, have accordingly had a positive effect in reducing infant mortality (SCN, 2004).

A number of mortality risk factors in infancy (including the neonatal period) are directly related to the mother's sexual and reproductive health. Children who are high in the birth order, whose mother is adolescent (particularly if she is under 18) or over 40, or who are born soon after the previous child, are more likely to die (see table III.3). These risk factors are more frequent when fertility is high or there is little access to family planning services. This being so, expanding the coverage of sexual and reproductive health care, including contraception, contributes not only towards fulfilment of the agreements laid down in the Plan of Action approved in Cairo, but also towards the Millennium Development Goals (World Bank, 2003).

If the region is to meet the fourth Millennium Development Goal, it is essential for health-care and community actors to give a prominent place to neonatal and child health (as part of an integrated care strategy), putting greater emphasis on the promotion of effective policies and programmes, on interventions based on proven data and on measures to strengthen systems of oversight that especially target poor and deprived populations.

Table III.3
**LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): INFANT MORTALITY
BY BIRTH INTERVAL (LESS THAN 24 MONTHS), PARITY AND
AGE OF MOTHER, 2002-2006**

	Birth interval	Parity				Age of mother (years)		National total
	< 2 years	First	Second-third	Fourth-sixth	Seventh +	<20	40-49	(10 years earlier)
Bolivia (2003)	115	55	60	77	90	79	74	68
Colombia (2005)	35	21	20	27	40	25	35	22
Dominican Republic (2002)	57	29	30	52	57	41	32	35
Guatemala (2002)	58	47	36	45	52	51	93	44
Haiti (2005/2006)	97	73	58	66	97	81	98	57
Honduras (2005)	43	28	26	28	42	35	59	29
Nicaragua (2001)	60	28	33	33	59	42	45	35
Peru (2004/2005)	63	20	35	33	40	42	25	30

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official publications in the countries [online] http://www.measuredhs.com, and figures obtained by STATcompiler processing of data from the same site.

2. GOAL 5: IMPROVE MATERNAL HEALTH

The maternal mortality ratio is defined as the number of women dying each year from causes related to pregnancy, childbirth and puerperium per 100,000 live births. Target 6 of goal 5 is to reduce this by three quarters between 1990 and 2015.

When it comes to identifying trends in terms of progress towards this goal and target, the maternal mortality indicator has to be used with care as there are a number of factors that affect its reliability, chief among them being underdetection and under-recording of this cause of death. Under-recording is widespread and especially affects poor women and vulnerable populations suffering from discrimination because of race or ethnicity, or because of situations such as abortion, which in most Latin American and Caribbean countries is concealed because it is illegal (Bergsj, 2001).

Maternal mortality and the morbidity associated with its determinants are serious public health problems that expose some of the deepest inequalities in living conditions. They reflect the state of health of women of childbearing age and the health services and quality of care available to them, such as contraceptives, prenatal check-ups and obstetric emergency care, the absence of which leads to deaths and health problems that could have been avoided by proper prenatal supervision and high-quality care during childbirth, puerperium and any complications that might arise subsequently. Mortality apart, harm to mothers' health has many other consequences, among which the World Health Organization has highlighted the high incidence of morbidity and disablement resulting from inadequate supervision and care during pregnancy and childbirth, including infertility, sexually transmitted diseases and, at other stages of the life cycle, genital prolapses and urinary incontinence.

Maternal mortality affects every stratum of society, but it is very strongly associated with poverty. It is concentrated among women in low socio-economic groups, usually because of limited access to services, shortcomings in health policies targeted on sexual and reproductive health, or the lack of guaranteed provision of high-quality comprehensive health services for women (Ortiz, 2002). It is also strongly associated with

constraints on the enjoyment of women's rights, making it a good indicator of gender inequalities and the effective exercise of reproductive rights as well (UNFPA/CST, 2004). Denial of the right to decide freely whether or not to have children, fear of violence because of gender inequalities, sociocultural pressure on the issue of motherhood that affects even adolescents, the absence or failings of public sexual and reproductive health information and provision services and a lack of sex education policies are causes associated with maternal mortality that ought to be addressed openly.

Maternal mortality in Latin America and the Caribbean declined between 1997 and 2005. Whereas in 1997 a mother was at 16 times greater risk of dying in the region than in Canada, by 2004 this relative risk ratio had dropped to 14. This ratio and the absolute number of deaths have hardly changed in the last decade, however, and this must be a cause for concern, as the region is not making clear progress towards the target of reducing the incidence of maternal mortality by three quarters by 2015. Further efforts are required for this.

Maternal mortality rates vary greatly between the region's countries, and trends are divergent, improving in some countries and worsening markedly in others. Levels in the group formed by Argentina, Chile, Costa Rica, Cuba and Uruguay are below 50 deaths per 100,000 births. In the rest, ratios vary from 60 in the Bolivarian Republic of Venezuela to 630 in the extreme case of Haiti (see figure III.7).

Figure III.7
**LATIN AMERICA AND THE CARIBBEAN: MATERNAL MORTALITY PER 100,000
LIVE BIRTHS, 2005**
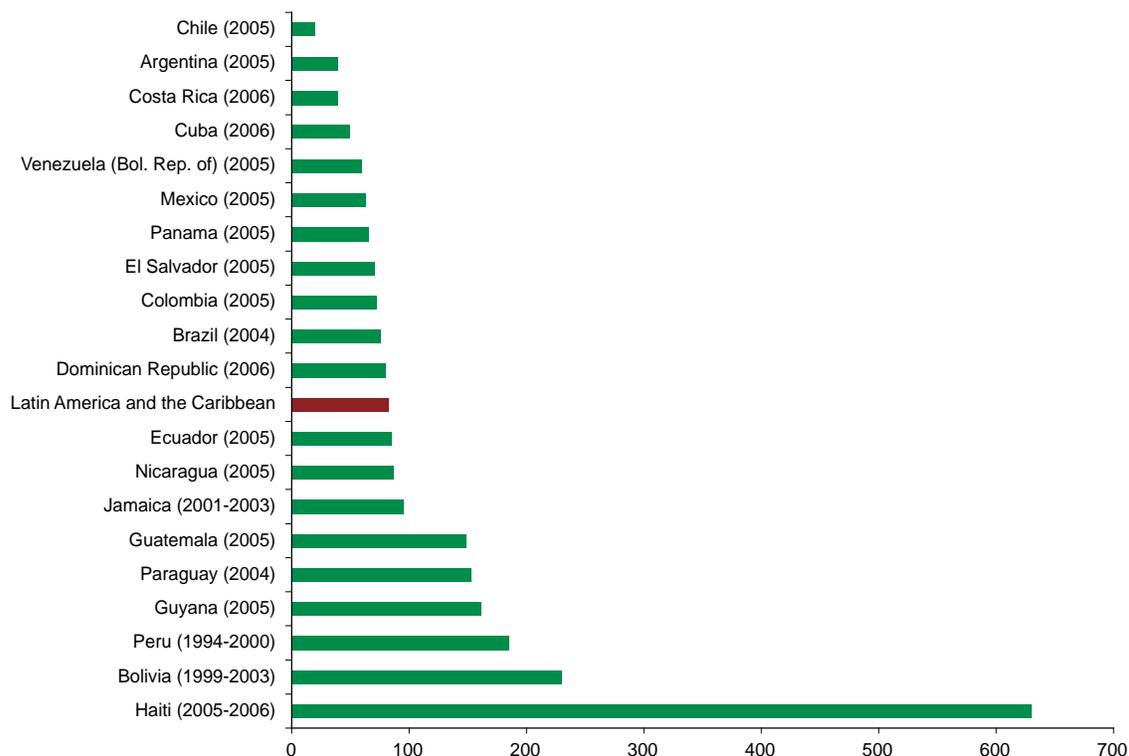
Source: Pan American Health Organization (PAHO), "Neonatal Health in the Context of Maternal, Newborn, and Child Health for the Attainment of the Development Goals of the United Nations Millennium" (CD47/12), Washington, D.C., 2006.

Maternal deaths are due primarily to direct obstetric causes, such as haemorrhaging (20%), toxaemia (22%), complications in puerperium (15%) and others (17%).[6] Deaths related to complications arising from unsafe abortions are believed to account for a large share; far higher at any rate than the 13% shown by official statistics, given that they go largely unrecorded. The other 13% are due to other causes. Anaemia is a leading cause of maternal mortality, and deficiencies of vitamins and minerals (such as vitamin A, iron, iodine, folic acid and calcium) are associated with complications in pregnancy (SCN, 2004).

One of the factors most closely and universally associated with lower maternal morbidity and mortality is skilled care during pregnancy and childbirth, which helps forestall complications. Also important are family planning services and prompt referral to services such as those that treat sexually transmitted diseases.[7]

Skilled care during pregnancy and childbirth is one of the indicators accepted for verifying that target 6 of the Millennium Development Goals, dealing with maternal mortality, is being met. By comparison with Africa and Asia, where the coverage of care of this type in 2005 ranged from 45% to 75% and from 38% to 83%, respectively, it can be said that the relative position of Latin America and the Caribbean is good, as 89% of births were attended by skilled personnel. However, this falls far short of European and North American levels (99%).

By looking at the figures for skilled care during pregnancy and childbirth, it is possible to identify situations and countries where substantial improvements are needed (see figures III.8a and III.8b). Of the 45 countries for which information is available (see the statistical annex), 34 have reached the threshold of 90% of births attended by professionals that was set as a target for 2015 by the United Nations General Assembly.[8] As in the case of maternal mortality, however, Haiti, Guatemala, Bolivia and Peru are the furthest from meeting it. Honduras, Nicaragua, Ecuador and El Salvador also have a great deal of ground to make up.

Box III.2 identifies some policies implemented in Peru to deal with its deficiencies in this area.

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[6] According to an analysis of maternal deaths reported in 20 countries that PAHO carried out between 1995 and 2000. This drew on different sources, chiefly vital statistics, epidemiological monitoring data and special national studies.

[7] By skilled care is meant that provided by any health-care professional (doctors, nurses, gynaecologists, midwives, etc.) trained in the disciplines needed to manage pregnancy and childbirth without complications and to provide care in the period immediately following birth, and to identify, administer and refer cases to more specialized services in the event that the mother or newborn child suffers complications.

[8] Special session held in 1999 to follow up the International Conference on Population and Development, known as "ICPD+5".

Figure III.8

LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): SKILLED CARE BEFORE AND DURING CHILDBIRTH, 2002-2006

(Percentages)
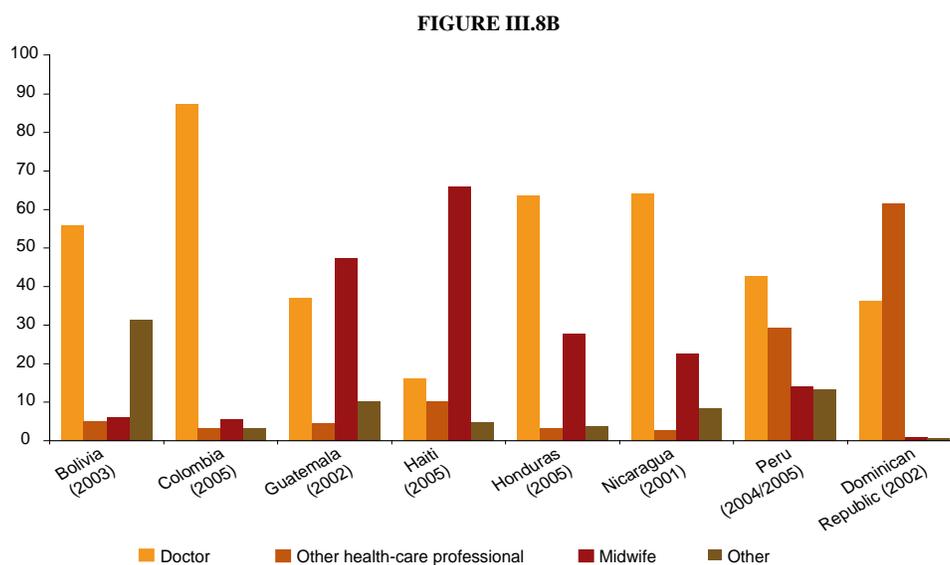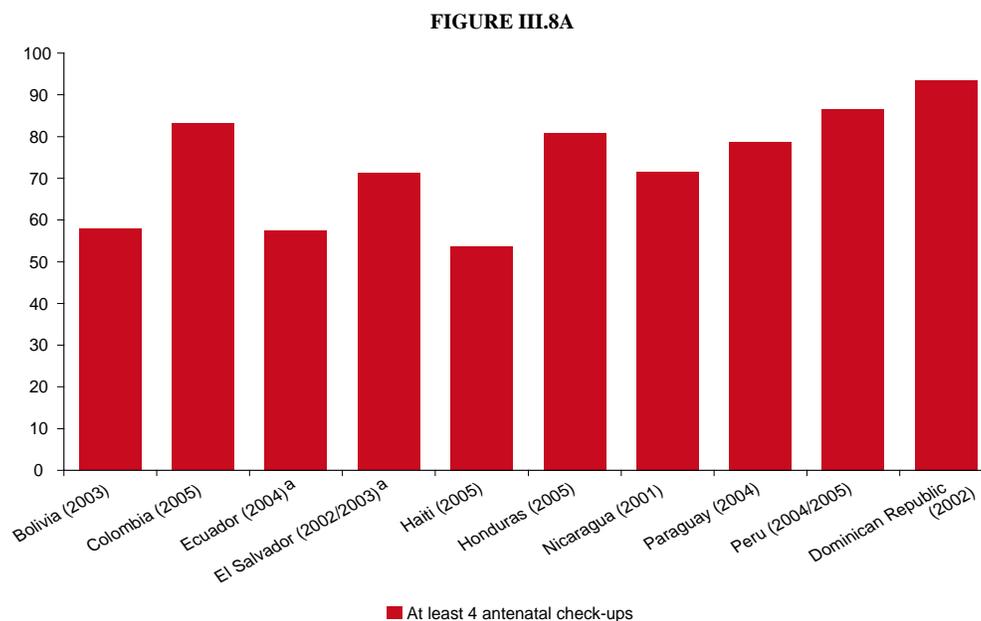
FIGURE III.8A

At least 4 antenatal check-ups

FIGURE III.8B

Doctor   Other health-care professional   Midwife   Other

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of demographic and health surveys (DHS); figures obtained by STATcompiler processing of final reports and data from the reproductive health surveys of the Centers for Disease Control and Prevention (CDC).

Note: Percentage of births in the five years prior to the survey concerned.

[a] Five or more antenatal check-ups.

Box III.2
MATERNAL AND PERINATAL CARE IN PERU

Peru has one of Latin America's highest rates of maternal mortality. Some 70% of maternal deaths take place in indigenous rural communities. About 60% of deaths occur at the time of childbirth, the leading causes being bleeding, toxaemia, infections, obstructed delivery and haemorrhages. All these factors are determined, of course, by the woman's previous condition.

One of the main reasons is lack of professional care during childbirth, due essentially to barriers of three kinds: geographical, owing to the distance of health centres from people's homes; financial, owing to poverty and extreme poverty; and cultural factors, which discourage women from seeking professional care during childbirth.

In view of this, three of the most important achievements in the last decade have been the implementation of integral health insurance, homes for expectant mothers, and vertical childbirth with intercultural adaptation.

Integral health insurance (SIS) is a strategy to improve health-care access for the poor population. It was created in 2002 under Ministry of Health Law 27657 of 20 January 2002, as a subsidy for poorer populations that lack health insurance (under-eighteens, expectant women and targeted groups of adults). Its purpose is to lessen constraints on health-care access, whether due to financial barriers or to cultural and geographical differences. Some of its achievements are presented below:

- It financed approximately 79.1 million health-care interventions in just 60 months.
- Its focus is on free mother and child health care in deprived urban and rural areas.
- Over 1,206 million soles have been allocated for health-care provision right across the country.
- Free care has been provided to expectant mothers, and as of December 2006, 1.554.896 births had been attended.
- Affiliates include over 2.7 million children, from newborns to 4-year-olds, and over 196,000 poor mothers.
- SIS serves 7.1 million children and young people of school age (5 to 17), even if they are not regular students at educational establishments.

Homes for expectant mothers are establishments where women living a long way from health centres can stay until they give birth. Expectant women do not give birth at these homes, but are looked after and prepared for childbirth at a clinic or hospital. Efforts have been made to create warm environments similar to their own homes, and to accommodate their eating habits. Women may also be accompanied by their husbands, younger children or some relative. They have been in operation since 1999 and currently number about 100, spread over 12 health regions, namely Cusco, Andahuaylas y Abancay (Apurímac), Loreto, Bagua (Amazonas), Junín, Huancavelica, Huanuco, Ayacucho, Cajamarca, Junín, Ancash and Puno.

Vertical childbirth refers to the position adopted by the mother to give birth, which may be standing, sitting or squatting, while health-care personnel take up position in front of or behind her. This position allows the baby to orient itself mainly towards the birth canal, which facilitates the birth and reduces traumatisms for the newborn child. This strategy has been institutionalized in Ministry of Health technical standard no. 33, called the technical standard for attending vertical childbirth with intercultural adaptation, published on 2 August 2005.

These policies resulted in an average increase of 20% in the rate of institutional childbirth between the 1996 and 2004 National Demographic and Health Survey (ENDES). This increase has been most significant in the countryside, where the rate of institutional childbirth tripled in the period from 15% to 45%. This has contributed to progress towards the relevant Millennium goals.

Source: Pan American Health Organization (PAHO), on the basis of official documents.

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However, a given level of assisted childbirth does not guarantee lower maternal mortality, as this also depends on the effectiveness and quality of health care, as well as other socio-economic, cultural and environmental factors. For example, while the coverage of professional care in childbirth is over 85% in Guyana and Paraguay, the maternal mortality rate in the two countries is in excess of 150 per 100,000 live births, with 161 and 154 deaths, respectively. In other words, elevated "skilled care" index values do not always mean that this care is provided by properly trained personnel.

Inequalities within countries also need to be considered. The proportion of births attended by skilled personnel is substantially lower in rural areas and those further from cities (see figure III.9). The contrast may be as marked as in Haiti, where professional care is some four times as prevalent in urban areas as in rural ones (UNFPA/CST, 2004). Socio-economic status is also decisive. When this indicator is analysed by wealth quintile, for example, using CDC and DHS data, it transpires that in Peru just 28% of births to women in the poorest quintile were attended by skilled personnel, while virtually all births in the wealthiest households were.

Figure III.9
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): BIRTHS ATTENDED BY SKILLED PERSONNEL, BY MOTHER'S AREA OF RESIDENCE, 2002-2006
(Percentages)
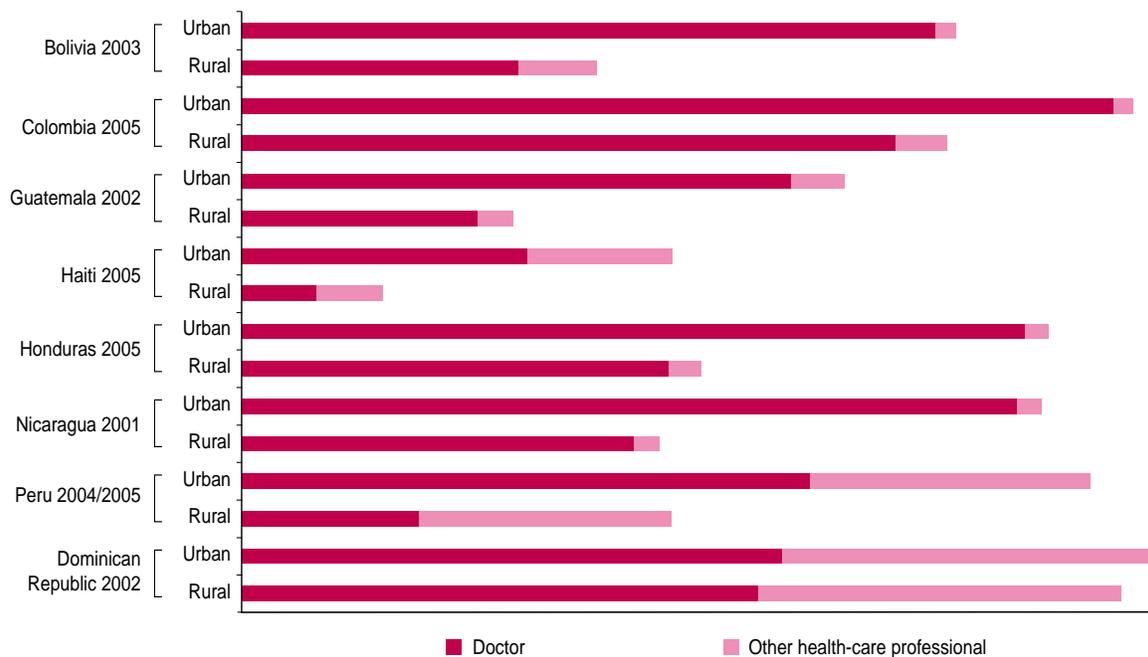
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of demographic and health surveys (DHS), figures obtained by STATcompiler processing, and final reports and data from the reproductive health surveys of the Centers for Disease Control and Prevention (CDC).

As already pointed out, lack of access to contraceptive methods is another key factor in maternal mortality, as it gives rise to high-risk unwanted pregnancies. Contraceptive use by women of childbearing age (15 to 49) is still low in some countries, and there are large differences between rural and urban areas (see figures III.10 and III.11).

Figure III.10
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): CONTRACEPTIVE USE BY WOMEN IN CONJUGAL RELATIONSHIPS, BY METHOD AND AREA OF RESIDENCE, 2002-2006
(Percentages)
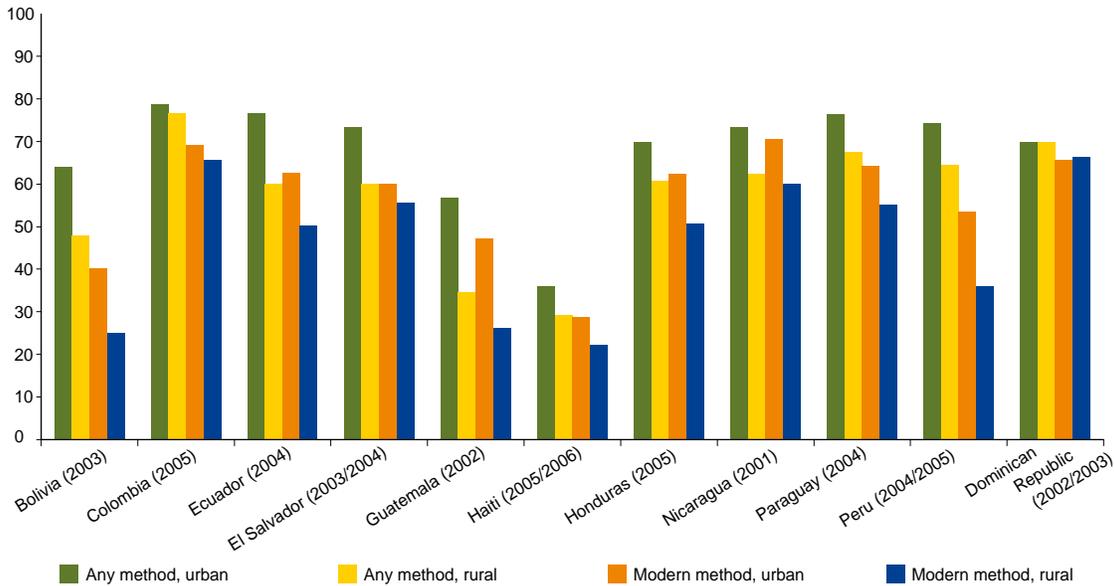
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official publications in the countries [online] http://www.measuredhs.com and figures obtained by STATcompiler processing of data from the same site.

Figure III.11
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): SATISFIED DEMAND FOR CONTRACEPTION, 2002-2006
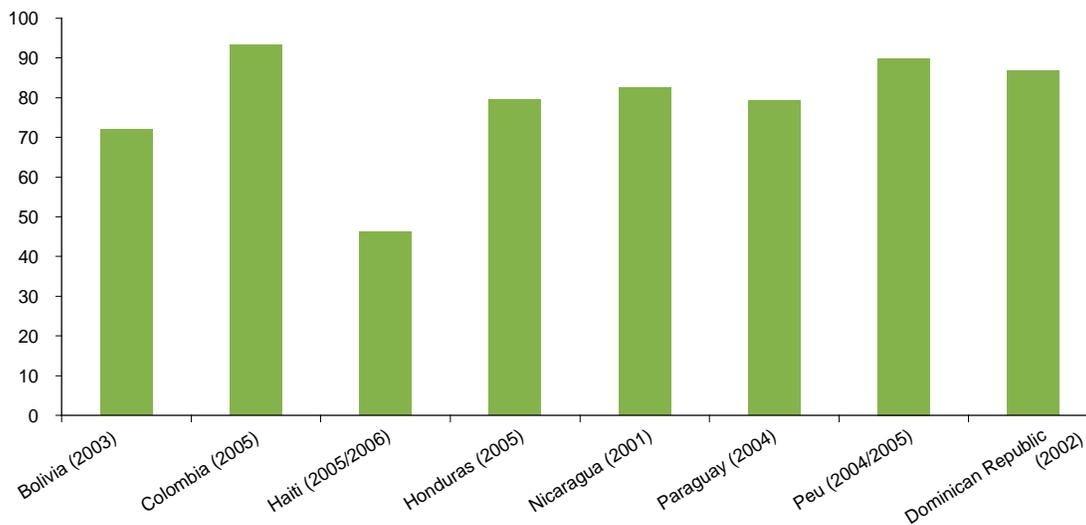
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official publications in the countries [online] http://www.measuredhs.com and figures obtained by STATcompiler processing of data from the same site.

Inequalities and difficulties in reproductive health service use and access, particularly in rural and indigenous populations with their high maternal mortality rates, are very pronounced. This is connected with the absence or high cost of emergency services and care, particularly when it comes to obstetric emergencies (see table III.4). In the early part of the present decade, countries such as Honduras and El Salvador did not have obstetric care centres equipped with the basic services recommended by the United Nations, and Bolivia had attained a mere 11% of the recommended level. Access is also complicated by the long distances that have to be travelled to reach health centres and by a general lack of information about the services available. Thus, one way of contributing to progress towards the goal would be to take steps to expand access and reduce inequalities.

Table III.4
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): EMERGENCY OBSTETRIC CARE SERVICES AS PERCENTAGE OF THE MINIMUM RECOMMENDED BY THE UNITED NATIONS, BY POPULATION SIZE

	Number of centres surveyed	Basic facilities	Basic and comprehensive facilities
Bolivia, 2003	85	11	48
Honduras, 2003	27	0	33
El Salvador, 2003	33	0	43
Nicaragua, 1999/2000 [a]	123	53	86
Peru, 1999/2000 [b]	31	48	58

Source: A. Paxton and others, "Global patterns in availability of emergency obstetric care", *International Journal of Gynecology and Obstetrics*, vol. 93, 2006.

[a] The evaluation was carried out for 9 of the 17 Local Integral Health Care Systems (SILAIS).

[b] The evaluation was carried out for 6 of the provinces in the Department of Ayacucho. The indicator is calculated by dividing the number of health centres attending obstetric emergencies by population size/500,000. The United Nations recommends a minimum of 4 centres with basic facilities and 1 centre with comprehensive facilities for every 500,000 inhabitants.

3. TARGET 8 OF GOAL 6: TO HAVE HALTED BY 2015 AND BEGUN TO REVERSE THE INCIDENCE OF MALARIA AND OTHER MAJOR DISEASES [9]

(a) The struggle against malaria

One target in the Millennium Development Goals is to have halted and begun to reverse the incidence of malaria by 2015. While some countries in the Americas region have made considerable progress with this, for the target to be met there will be a need in all of them for sustained efforts, adequate financing, greater collaboration between health programmes and other sectors, adequate recruitment and training of health-care personnel and people from the community, the participation of different sectors of society in disease control and prevention, and efforts to strengthen health systems and establish policies based on documented evidence.

The incidence of malaria in Latin America and the Caribbean is much lower than in the world's worst-affected regions. In 21 of the 35 countries and territories that are members of PAHO/WHO, however,

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[9] HIV/AIDS is not analysed, for the reasons given earlier.

there are areas where malaria is actively transmitted, and 124 million people are estimated to be at risk (in differing degrees) of contracting it. There were 919,877 cases in the region in 2006, which was 20% less than in 2000. About 75% of all cases are caused by *Plasmodium vivax*, and most of the rest by *Plasmodium falciparum*.[10] That same year, 219 malaria-related deaths were notified, a drop of 37% from 2000.

The incidence of malaria fell between 2000 and 2006 in 14 of the 21 countries where the disease is endemic. In four of them the decline was in excess of 75%, so that they met both the Roll Back Malaria Initiative target and the Millennium target. Another four reported drops of 50% to 75%, while in a further six the figure was less than 50%. In the same period, however, the number of cases was found to have risen in the Bolivarian Republic of Venezuela, Colombia, Costa Rica, the Dominican Republic, French Guiana, Haiti and Panama (see table III.5).

Table III.5
MALARIA INDICATORS IN ENDEMIC COUNTRIES OF THE REGION, 2006

Country	Number of cases reported, 2006	Percentage change since 2000	Annual Parasitic Index (API), 2006	Slide Positive Index (SPI), 2006
Argentina	209	-53	0.09	3.29
Belize	844	-43	3.18	3.28
Bolivia	18 995	-40	13.29	9.11
Brazil	549 184	-10	23.27	15.67
Colombia	120 096	+12	10.52	26.61
Costa Rica	2 903	+55	1.82	11.85
Dominican Republic	3 525	+186	0.51	0.79
Ecuador	9 863	-91	1.29	3.10
El Salvador	49	-93	0.01	0.04
Guatemala	31 093	-42	7.97	18.40
Guyana	21 064	-12	30.14	10.39
French Guiana	4 074	+10	24.98	…
Haiti	32 739	+94	4.13	37.22
Honduras	11 561	-67	2.02	9.42
Mexico	2 514	-66	0.90	0.18
Nicaragua	3 114	-87	0.56	0.67
Panama	1 663	+61	0.52	0.78
Paraguay	823	-88	0.47	0.74
Peru	64 871	-5	3.06	…
Suriname	3 631	-72	75.65	12.27
Venezuela (Bol. Rep. of)	37 062	+25	5.02	7.73

Source: Pan American Health Organization (PAHO).

Note: A negative value for the percentage change indicates a decline and a positive value an increase.
API below 1 means that the country can be deemed to be in the pre-elimination stage.
SPI below 5 in cases of fever indicates that the control programme is adequate.

[10] The Bolivarian Republic of Venezuela, Brazil, Colombia, French Guiana, Guyana and Suriname also recorded cases of *Plasmodium malariae*, representing less than 0.01% of all cases in the Americas region.

Meanwhile, nine countries where the disease is endemic reported a Slide Positive Index (SPI) of less than 5, showing that it is well controlled in areas of malaria risk. Seven of them also declared an Annual Parasitic Index (API) of less than 1/1,000 people in risk areas, a level at which a country is classified as being in the pre-elimination stage. If endemic patterns, epidemiological trends and other aspects are also considered, Argentina, El Salvador, Mexico and Paraguay can be considered to belong to this category and to have good prospects of going on to eliminate the disease. Conversely, overall epidemiological trends in the Dominican Republic and Haiti indicate that they are not moving in this direction. Given the incidence of malaria on the island and the fact that it is the only one in the Caribbean where the disease is endemic, and considering the risk of transmission to other islands, an effort at eradication is both practicable and advisable. See box III.3 for the therapies being used to combat malaria.

Box III.3
IMPACT OF COMBINED MALARIA THERAPIES

Ever since the 1950s, there have been warnings that *Plasmodium falciparum* was becoming resistant to the antimalarial drugs most commonly used as stand-alone therapies (monotherapy). Plasmodium falciparum is the most pathogenic of the plasmodia and chiefly affects the countries sharing the Amazon forest in South America. When resistance arises, treatment can be ineffective and the disease can progress to severe malaria and even death.

In 1998, the Pan American Health Organization began working with experts from the countries to draw up a protocol for dealing with cases of *Plasmodium falciparum* in the Americas on the basis of the WHO protocol. The protocol was reviewed again by PAHO in 2000 and eventually updated in 2001 at a PAHO meeting on the monitoring of antimalarial drug resistance.

As part of the Roll Back Malaria (RBM) alliance, PAHO has helped the Amazonian countries set up a monitoring system that follows the protocol referred to. As part of this work, in March 2001 the countries agreed to form the Amazon Network for the Surveillance of Antimalarial Drug Resistance and the Amazon Malaria Initiative (RAVREDA-AMI), whose members are the Bolivarian Republic of Venezuela, Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru and Suriname.

One of the key aspects of the network is the use of evidence-based treatments. In Peru, before RAVREDA-AMI started, studies had been carried out on the effectiveness of malaria treatment and the decision was taken, on the basis of the results obtained, to change the system and start using combined therapies based on artemisinin. Since 2002, all the other countries in the network have carried out effectiveness studies of the most commonly used antimalarial drugs and they have all used the results of these for evidence-based decision-making.

One example of the impact of these changes can be seen in Guyana and Suriname, the countries with the highest *Plasmodium falciparum* infection and mortality rates in the 1990s. In 2004, once again on the basis of the findings of effectiveness studies, they changed their official treatment policy and began using combination therapy based on artemisinin derivatives. Between 2004 and 2006, Suriname notified a 60% reduction in the number of malaria cases, while Guyana recorded a 14% reduction. Similar trends can be seen in Bolivia, Ecuador and Peru, countries that changed their policies and began using artemisinin-based combination therapies in 2004. Meanwhile, Brazil and Colombia, which only switched their systems to the use of combination therapies in 2006, have yet to report any reduction in *Plasmodium falciparum* infections.

Besides combination therapies, it is important to stress that the countries have made other investments, such as in the prevention, monitoring, detection and containment of outbreaks and in the use of insecticide-impregnated mosquito nets; they have expanded malaria diagnosis and treatment facilities, and they have worked to strengthen health-care systems. All these efforts have been made possible by substantial financing from the countries' own funds, supplemented by investments from other financing sources such as the Global Fund to Fight AIDS, Tuberculosis and Malaria.

Source: Pan American Health Organization (PAHO).

In the countries and territories of the Americas that WHO deems transmission-free, an annual average of 1,300 cases have been reported since 2000. These are "imported", i.e., they concern travellers from countries in the region and elsewhere in the world where malaria is endemic. In 2006 there were outbreaks in Bahamas and Jamaica, two countries that are transmission-free, but national efforts carried out with the collaboration of WHO and other international agencies brought them under control and the situation is being actively monitored to prevent further outbreaks.

Following the main lines of the Regional Strategic Plan for Malaria in the Americas, 2006-2010, which coincide with the working areas of the Global Malaria Control Strategy in the region, the strategy has encompassed five components: prevention; surveillance and early detection and control of epidemics; integrated management of vectors, diagnosis and treatment; an environment supportive of efforts to prevent and control malaria; and efforts to strengthen the countries' health systems and build capacities there.

(b) Controlling tuberculosis

The incidence of tuberculosis has also been falling since the 1980s (see figure III.12) and this trend is expected to continue through to 2015. In 2006, the countries of Latin America and the Caribbean reported 209,000 new cases, 120,000 of which were of smear-positive pulmonary tuberculosis, a form that represents a grave threat to the sufferer and the wider population owing to the high risk of death and contagion in the community if it is left untreated. Some 80% of reported cases of smear-positive pulmonary tuberculosis affected people aged between 15 and 54, with a preponderance of men over women (1.6 men per woman). It affects people at the reproductive stage of life, with severe economic implications for families and society.
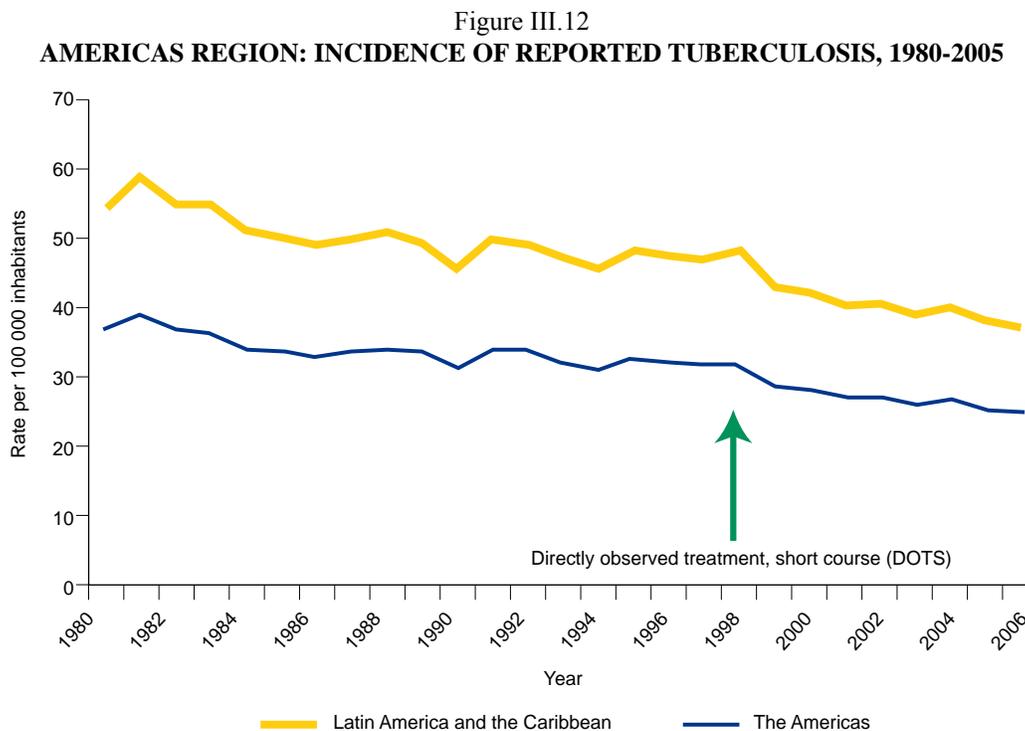
Figure III.12
AMERICAS REGION: INCIDENCE OF REPORTED TUBERCULOSIS, 1980-2005

Source: World Health Organization (WHO), *Global Tuberculosis Control, 2008. Surveillance, Planning, Financing,* Washington, D.C., 2008.

The reduction in reported tuberculosis is put down to effective control measures in countries that have successful, long-standing national tuberculosis control programmes. From 1996 to 2005, the decline accelerated thanks to the successful application and extension of the directly observed treatment, short course (DOTS) strategy, which improved control, especially in countries with limited financial resources and high prevalence rates. As a result, by 2006 many countries were able to reach the international targets of detecting 70% of existing cases of infectious tuberculosis and successfully treating 85% of these (see figure III.12 and map III.1).

Alongside the progress with tuberculosis treatment and detection, the prevalence of the disease and the mortality associated with it have also diminished. According to estimates by the World Health Organization global tuberculosis monitoring and control programme, by 2006 the Americas region had managed to halve the prevalence of the disease from its 1990 level (from 96 to 44 per 100,000 inhabitants) and cut mortality by 44% (from 9 to 5 per 100,000 inhabitants), a position very close to the Millennium target, which is to reduce tuberculosis prevalence and death rates by 50% from their 1990 levels.

The figures for the Latin American and Caribbean countries are very disparate, however. Those with greater financial resources or successful control programmes (Argentina, Brazil, Chile, Costa Rica, Cuba, Dominican Republic, Mexico, Nicaragua, Panama) reached the Millennium target before 2005, Peru and Puerto Rico did so before 2006, and the remainder are expected to do so by 2015. To achieve this, however, the countries that have a high prevalence or risk of tuberculosis, namely the Bolivarian Republic of Venezuela, Belize, Bolivia, Colombia, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Paraguay and Suriname, will have to take deliberate measures to control the disease and make a firm political commitment in the form of sustainable financing provision. Because of the HIV/AIDS epidemic now ravaging Guyana, the incidence, prevalence and mortality rate of tuberculosis have risen steadily, and it will probably be the only country in the Americas region not to achieve this component of the 2015 Millennium targets (see table III.6).

Map III.1
GEOGRAPHICAL COVERAGE OF THE DIRECTLY OBSERVED TREATMENT, SHORT COURSE (DOTS) STRATEGY IN THE AMERICAS, 2006
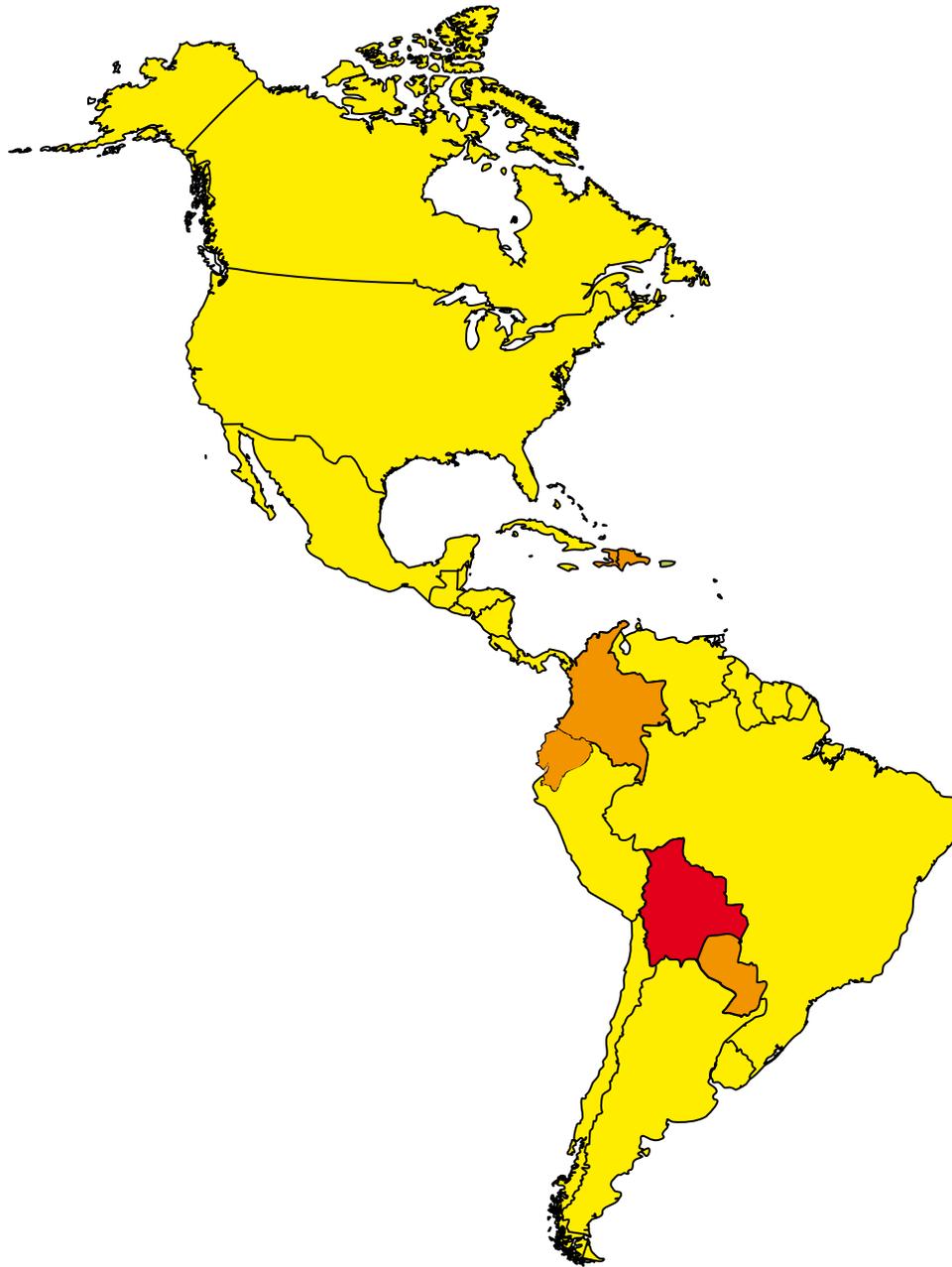
Table III.6
**LATIN AMERICA AND THE CARIBBEAN: PREVALENCE AND MORTALITY RATES
OF ALL FORMS OF TUBERCULOSIS, 1990 AND 2006**

Country	1990		2006	
	Prevalence	Mortality	Prevalence	Mortality
Argentina	122	10	48	5
Belize	79	10	58	6
Bolivia	478	53	266	30
Brazil	128	7	57	4
Chile	59	5	16	1
Colombia	107	10	58	6
Costa Rica	36	4	16	1
Cuba	38	3	10	1
Dominican Republic	236	29	117	15
Ecuador	348	45	193	26
El Salvador	163	17	67	9
Guatemala	142	15	111	14
Guyana	79	10	187	29
Haiti	774	111	400	58
Honduras	189	17	96	11
Jamaica	14	1	10	1
Mexico	103	10	25	2
Nicaragua	197	22	74	7
Panama	114	9	44	4
Paraguay	119	13	101	12
Peru	501	37	193	16
Puerto Rico	34	4	5	1
Suriname	167	19	96	13
Uruguay	45	4	34	3
Venezuela (Bol. Rep. of)	60	6	53	6
AMR	96	9	45	4

Source: World Health Organization (WHO), *Global Tuberculosis Control, 2008. Surveillance, Planning, Financing*, Washington, D.C., 2008.

Note: Prevalence rate = cases per 100,000 inhabitants; mortality rate = deaths per 100,000 inhabitants.

Tuberculosis control in the Americas is based on application of the Stop TB Strategy, which involves a comprehensive, patient-centred approach so that action is not limited to the diagnosis and treatment of detectable tuberculosis but extends to the identification of individuals or groups who are at particular risk of illness or death, such as those with TB and HIV coinfection, those suffering from multidrug-resistant TB, and vulnerable and deprived populations generally. At the same time, other initiatives are being implemented to improve the responsiveness of health services and bring all health-care providers on board with a view to creating an efficient health system that respects basic rights and encourages the participation of sufferers and communities.

The regional Stop TB strategy and the Global Plan to Stop TB 2006-2015 are being implemented in the Americas region through the Regional Tuberculosis Control Plan for 2006-2015. The two documents set out the steps to be taken towards the tuberculosis-related Millennium targets and represent an appeal for political commitment and for the mobilization of resources sufficient to eliminate tuberculosis as a public health problem in the long term. El Salvador is an example of high-quality implementation of the Stop TB strategy. Since implementation, tuberculosis detection and cure rates have both increased, coinfection with TB and HIV has become less lethal, and multidrug resistance has fallen below 1% in both new and previously treated cases, and this has helped to improve the quality and resolution capacity of the health system generally. This outcome confirms the need to implement the strategy regionwide.

ANNEX

Table A-III.1
EVALUATION OF PROGRESS TOWARDS SELECTED HEALTH-RELATED MILLENNIUM DEVELOPMENT GOALS

	Indicator 13			Indicator 14			Indicator 15				Indicator 16				Indicator 17			
	Under-five mortality rate per 1.000 live births			Infant mortality rate per 1.000 live births			Children immunized against measles				Maternal mortality rate per 100.000 live births				Births attended by skilled medical personnel			
	1990 level	2007 level	Progress by 2007 (%)	1990 level	2007 level	Progress by 2007 (%)	1990 level	2000 onward		Progress	2000 level	2000 and after		Progress	2000 level	2000 and after		Progress
Latin America and the Caribbean	55.7	27.5	-50.6	42.4	22.0	-48.2	76	92			87	82.8		-0.05	85			
Countries with medium-low and low human development																		
Haiti	133.5	73.0	-45.3	92.8	49.6	-46.6	31	66	2006	112.9	523	630	2005/2006	20.5	24	26	2005	8.3
Guatemala	85	39.9	-53.1	60.95	31.0	-49.2	68	95	2006	39.7	153	148.8	2005	-2.7	41	31	2004	-24.4
Nicaragua	75.8	26.6	-64.9	56.5	22.0	-61.1	82	98	2006	19.5	100	86.5	2005	-13.5	82	80	2005	-2.4
Honduras	66.8	42.4	-36.5	47.7	28.5	-40.1	90	91	2006	1.1						67	2005	
Bolivia	113	62.1	-45.0	82.6	46.6	-43.6	53	88	2006	66.0	230	230	1999/2003	0.0	52	64	2006	23.1
Countries with medium human development																		
El Salvador	64.1	29.6	-53.8	47.1	22.0	-53.3	98	98	2006	0.0		71.2	2005			44	2005	
Ecuador	65.3	26.4	-59.6	49.85	21.5	-56.9	60	97	2006	61.7	90	85	2005	-5.6	69	80	2005	15.9
Dominican Republic	70.7	33.6	-52.5	55.25	30.1	-45.5	96	99	2006	3.1	77	80	2006	3.9	96	96	2006	0.0
Paraguay	55.8	38.4	-31.2	44.8	32.4	-27.8	69	88	2006	27.5	152	153.5	2004	1.0	86	86	2004	0.0
Peru	85.7	30.2	-64.8	57.8	22.1	-61.7	64	99	2006	54.7	185	185	1994/2000	0.0	59	71	2004	20.3
Countries with medium-high human development																		
Colombia	52.3	26.2	-49.9	31.45	19.2	-38.8	82	88	2006	7.3	105	72.7	2005	-30.8	86	97	2005	12.8
Brazil	59.6	29.5	-50.5	47.45	24.0	-49.5	78	99	2006	26.9	45	76.1	2004	69.1	97	97	2004	0.0
Venezuela (Bolivarian Rep. of)	30.3	22.2	-26.7	25	17.2	-31.2	61	95	2006	55.7	60	59.9	2005	-0.2		95	2008	
Panama	35.8	24.3	-32.1	28.3	18.4	-34.8	73	94	2006	28.8	61	66	2005	8.2	90	91	2005	1.1
Countries with high human development																		
Mexico	44.3	20.5	-53.7	36.3	17.1	-52.9	75	96	2006	28.0	79	63.4	2005	-19.7	85	94	2006	10.6
Cuba	19	7.1	-62.6	15.6	5.2	-66.7	94	96	2006	2.1	34	49.4	2006	45.3	100	100	2006	0.0
Costa Rica	18.6	11.1	-40.3	15.95	10.0	-37.6	90	90	2006	0.0	36	39.3	2006	9.2	96	94	2006	-2.1
Uruguay	25	16.2	-35.2	21.35	13.2	-38.0	97	94	2006	-3.1	11					100	2005	
Chile	19.3	9.1	-52.8	16.25	7.3	-55.2	82	91	2006	11.0	19	19.8	2005	4.2	100	100	2005	0.0
Argentina	30	22.5	-25.0	25.6	13.6	-47.1	93	97	2006	4.3	35	39.2	2005	12.0	98	99	2005	1.0

	Indicator 13 — Under-five mortality rate per 1,000 live births			Indicator 14 — Infant mortality rate per 1,000 live births			Indicator 15 — Children immunized against measles				Indicator 16 — Maternal mortality rate per 100,000 live births				Indicador 17 — Births attended by skilled medical personnel			
	1990 level	2007 level	Progress by 2007 (%)	1990 level	2007 level	Progress by 2007 (%)	1990 level	2000 onward		Progress	2000 level	2000 and after		Progress	2000 level	2000 and after		Progress
Caribbean countries																	
Anguilla						…		93	2006			0	2006			100	2006	
Antigua and Barbuda						…	89	99	2006	11.2	65	0	2006	-100.0	100	100	2006	0.0
Netherlands Antilles		17.0		16.05	14.8	-7.7		93	2006									
Aruba		20.2		16.85	17.2	2.0									99	96	2002	-3.0
Bahamas		17.2		22.85	14.0	-38.9	86	88	2006	2.3						99	2006	
Barbados		11.3		15.05	10.3	-31.4	87	93	2006	6.9	81	0	2005	-100.0	98	100	2005	2.0
Belize		20.3		32.6	16.6	-49.0	86	99	2006	15.1	68				100	91	2006	-9.0
Bermuda								96	2005							100	2005	
Dominica						…	88	99	2006	12.5		0	2005		100	99	2005	-1.0
Grenada		41.6		44.15	34.2	-22.6	85	99	2006	16.5		0	2002		100	100	2005	0.0
Guadeloupe		9.1		15.6	6.9	-56.1										92	2005	
French Guiana		15.2		22.45	13.5	-39.7										49	2004	
Guyana		58.1		64.8	43.6	-32.8	73	90	2006	23.3	133	161.2	2005	21.2	90	94	2005	4.4
Cayman Islands						…		86	2006			0	2006			100	2006	
Turks and Caicos Islands						…		99	2006						88	100	2006	13.6
United States Virgin Islands		10.1		15.55	8.7	-44.2										98	2004	
British Virgin Islands						…		99	2005			0	2005			100	2006	
Jamaica		17.2		21.85	13.7	-37.3	74	87	2006	17.6		95	2001 2003			89	2002	
Martinique		8.1		9.75	6.6	-31.9						0	2004			100	2004	
Montserrat						…		99	2006			0	2006			100	2006	
Puerto Rico		9.1		12.7	7.3	-42.6										100	2005	
Saint Kitts and Nevis						…	99	99	2006	0.0		0	2005			100	2005	
Saint Vincent and the Grenadines		28.4		32.3	23.6	-26.8	96	99	2006	3.1		0	2006			100	2005	
Saint Lucia		16.3		18.45		…	82	94	2006	14.6	35				100	100	2005	0.0
Suriname		35.4		35.35	28.1	-20.5	65	83	2006	27.7	153				91	90	2004	-1.1
Trinidad and Tobago		18.2		15.85	12.7	-20.1	70	89	2006	27.1						100	2003	

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official documents from the countries.

CHAPTER IV

**CHRONIC CHILD UNDERNUTRITION, ITS DETERMINANTS AND ITS EFFECT
ON FULFILLING THE GOALS**[1]

Individual health is not an isolated phenomenon; its main determinants are social ones, in particular poverty, malnutrition and poor employment conditions, but gender, ethnicity and race are also influential; hence, the various aspects of the Millennium Development Goals are interrelated (PAHO, 2007b). Any explanation of the determinants of health and of prevailing inequalities needs to recognize that advantages and disadvantages in one dimension of life tend to be accompanied by advantages and disadvantages in other areas, which are longitudinally structured throughout people's lives. Disadvantages tend to cluster and reinforce each other, and they may produce significant social gradients in individual health and specific vulnerabilities among certain population groups, calling for analysis and action on many levels (CSDH, 2007).

For the specific purpose of focusing the attention of governments, civil society, international organizations and donors on feasible ways of promoting better social health conditions, particularly for the most vulnerable, the World Health Organization formed the Commission on Social Determinants of Health (CSDH) in 2005. This has a three-year mandate to promote equity as a shared objective among the different sectors of Government to which different social actors contribute, and to lay foundations for a new health agenda. The strategy supports changes in health policies in the various countries, through effective and evidence-based models and practices that address the social determinants of health; it also supports the formation of new action and research networks to confront them which involve simultaneous participation by leading scientists, professionals, civil society organizations, civil servants and global initiatives.

The analysis that follows approaches this subject from the standpoint of the nutritional status of the child population. As numerous studies show, eradicating extreme poverty and hunger, and reducing child mortality are closely related to the nutritional status of children. Chapter II showed that malnutrition was disproportionately prevalent in the lowest socio-economic strata: in policy terms, the glaring inequality that exists in chronic undernutrition and its high prevalence among the poorest population groups requires it to be tackled from the standpoint of its unequal distribution. Hence the importance of understanding not only its causes, to be able to act on them, but also its socio-economic distribution through time, and to detect the relevant socio-economic, environmental and biomedical variables that explain this.[2]

To that end, based on an analysis of demographic and health surveys in five Latin American and two Caribbean countries in the 1990s and the first few years of the new century,[3] this chapter describes the

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[1]   This chapter is based on Paraje (2008), a consultancy paper to which the reader is referred for further details.

[2]   Given the sample quality required for the econometric analysis, it was impossible to analyse other dimensions of the Goals, such as infant or maternal mortality. Therefore it was decided to focus on chronic child malnutrition.

[3]   The countries were chosen on the basis of the availability of relatively recent demographic and health surveys —better known as DHSs— which made it possible to make a comparison: Bolivia (1994, 2003); Colombia (1995, 2005); Dominican Republic (1996, 2002); Haiti (1994, 2005); Guatemala (1995, 1999); Nicaragua (1997, 2001) and Peru (1996, 2004). As can be seen, this includes a number of countries that are behind schedule in terms of progress towards fulfilling the Millennium Development Goals. The sample includes children under five years of age (59 months of life), except in Bolivia where it covers children under three (35 months of life). The explanatory variables were chosen on the basis of theoretical-empirical evidence obtained from relevant studies and survey data. Estimates of the relation between chronic child undernutrition and the set of explanatory variables are "reduced forms" which implicitly incorporate a certain number of relations between malnutrition and variables that are not directly used.

general trends of chronic child undernutrition,[4] analyses its level relative to the causes of its socio-economic distribution, and reviews the changes that have occurred in this distribution. As findings are discussed for seven countries, the intention is not to obtain universal conclusions for policies acting on the determinants of malnutrition.

1. GENERAL TRENDS IN THE LEVELS OF CHRONIC UNDERNUTRITION IN SELECTED COUNTRIES

Although levels of child undernutrition vary across the countries studied, its characterization is similar. Table IV.1 shows its prevalence (i.e., the percentage of all children who are malnourished) in selected categories. To avoid confusion in the subsequent causal analysis, it should be noted that the table does not show causal relationships —or even a statistical relation— but percentages of chronic malnutrition considering just one variable or category at a time.

In all cases, it is more prevalent among rural households than urban ones. Despite varying from one country to another, it is not infrequent to find rural malnutrition rates that are twice as high as in urban areas (e.g., Bolivia, Colombia, Haiti, Nicaragua) or even four times as high (e.g., Peru).

Moreover, in all cases it is more prevalent the lower the "wealth" quintile[5] to which the household belongs, and it becomes less frequent as the level of the mother's or partner's education rises.

In contrast, the relation between malnutrition and the mother's employment status is less clear. In some countries (Colombia, Dominican Republic, Guatemala and Nicaragua) the highest rates of chronic undernutrition are found among children whose mothers do not have paid work. Elsewhere, however (Bolivia, Haiti, Peru), this occurs among children whose mothers do unskilled work, possibly because the low incomes earned in such jobs are insufficient to gain access to an appropriate nutritional intake, or else the children do not receive adequate care.

In terms of biomedical variables, malnutrition is more prevalent among male children in nearly all cases. Rates also tend to be higher among third or later children in birth order, and they are much higher among children over one year old, possibly due to the benefits provided by maternal breast feeding of children under one. Lastly, children born with professionally attended delivery suffer less malnutrition in all cases.[6]

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[4]   This measure of deprivation was chosen rather than others, such as acute malnutrition (low height/weight ratio), because it reflects more faithfully past critical situations and continuous deprivations suffered by children, which can permanently impair their development. It makes it possible to consider not only the person's current situation, which may vary little after measurement, but also the genetic, geographic, socio-economic and other long-term determinants of their health status (Larrea and Kawachi, 2005).

[5]   We underline again that DHSs do not provide any information on monetary expenditure and/or income indicating a household's socio-economic level. But they contain data on the use of certain physical assets, conditions of housing, and household access to certain services. Not all countries collect the same information, but ideally it is possible to ask whether they possess the following items: (i) electricity; (ii) radio; (iii) television; (iv) refrigerator; (v) telephone; (vi) cellular phone; (vii) computer; (viii) bicycle; (ix) motorcycle; (x) automobile; (xi) separate room for cooking; and (xii) own farm land. In addition, the following items are considered among housing characteristics: (i) number of persons per room; (ii) source of drinking water; (iii) type of sewerage services; (iv) flooring material; (v) materials used for walls; and (vi) roofing material. Using this information and applying the Filmer and Pritchett (2001) methodology based on principal components analysis, an index of material well-being or material wealth can be calculated and used to rank and classify households and individuals by their socio-economic position. This is a rudimentary proxy value for wealth, which makes it possible to locate each household in the socio-economic quadrant and to make a Oaxaca decomposition, as done by Paraje (2008), which will be described below. As this is a proxy value with these limitations, the terms "wealth" or "wealth index" are used between inverted commas throughout this chapter.

[6]   Professional care at delivery is that provided by a doctor, nurse, professional midwife, auxiliary midwife or some other professional, depending on each country's definition.

Table IV.1
LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): CHARACTERIZATION OF CHRONIC UNDERNUTRITION BY CATEGORIES, 1994-2005
(Percentages)

Variables	Bolivia		Colombia		Dominican Republic		Guatemala		Haiti		Nicaragua		Peru	
	1994	2003	1995	2005	1996	2002	1996	2002	1994	2005	1997	2001	1996	2004
National average	**26.8**	**24.1**	**14.8**	**11.5**	**10.8**	**8.9**	**49.7**	**46.1**	**32.0**	**23.1**	**24.6**	**20.0**	**25.8**	**24.3**
Regions														
Region 0	31.7	29.4	16.4	12.2	6.5	8.7	33.5	27.8	17.0	15.9	14.9	7.5	10.6	8.0
Region 1	17.1	15.0	15.1	13.8	14.3	11.7	55.3	56.3	37.4	26.5	23.6	15.9	25.3	17.7
Region 2	28.2	25.4	13.5	10.6	6.8	7.5	44.0	49.4	34.5	27.2	31.7	27.4	34.4	36.2
Region 3	-	-	13.3	9.7	14.6	7.0	44.8	45.0	-	-	28.5	27.7	32.9	21.0
Region 4	-	-	16.6	11.3	18.4	12.8	45.8	45.6	-	-	-	-	-	-
Region 5	-	-	-	-	11.6	9.1	59.5	54.6	-	-	-	-	-	-
Region 6	-	-	-	-	20.4	10.5	69.7	69.0	-	-	-	-	-	-
Region 7	-	-	-	-	11.8	6.5	-	-	-	-	-	-	-	-
Area														
Rural	34.8	33.0	18.9	16.7	15.3	10.9	56.5	54.5	36.4	27.3	31.1	28.8	40.4	40.0
Urban	19.7	17.5	12.4	9.0	7.4	7.8	35.2	31.8	23.6	14.8	18.8	11.3	16.2	9.3
Wealth														
Quintile 1	40.9	38.0	23.6	19.5	21.3	15.6	64.3	66.3	45.2	32.6	37.8	34.9	45.6	47.6
Quintile 2	33.2	31.1	16.5	12.4	10.4	9.8	61.5	59.7	34.7	31.0	28.7	25.7	30.5	33.5
Quintile 3	23.4	18.5	13.2	9.8	7.9	7.6	53.4	53.7	37.8	25.4	22.2	15.9	18.8	14.4
Quintile 4	18.9	14.3	7.4	6.2	5.7	5.4	33.6	27.5	25.3	15.4	12.9	8.0	10.1	4.4
Quintile 5	7.1	7.1	6.0	2.8	2.5	2.9	11.9	7.6	11.2	4.6	8.5	4.5	5.1	4.8
Mother's education														
No education	43.2	38.5	25.6	26.7	23.4	14.9	63.3	63.8	39.0	33.5	37.4	35.7	50.8	54.3
Incomplete/complete primary	30.0	30.2	18.6	15.0	13.8	12.0	46.2	43.1	28.4	22.1	26.1	20.7	32.7	39.1
Incomplete/complete secondary	15.0	13.3	7.5	8.0	6.7	7.0	14.2	12.7	16.1	8.7	11.3	8.2	12.7	13.7
Incomplete/complete tertiary	6.8	9.6	6.8	3.9	1.6	3.2	8.1	1.7	0.0	2.6	5.2	4.3	4.9	3.4
Mother's employment status														
Not working	22.8	21.4	14.9	14.5	12.7	10.4	52.6	48.5	30.6	21.4	25.9	22.4	24.0	13.9
Skilled work	16.2	21.4	9.6	4.9	3.6	6.3	36.6	35.9	14.7	5.6	16.3	8.2	7.0	7.6
Unskilled work	31.8	26.4	15.8	11.6	10.0	7.0	43.9	42.3	34.6	25.7	24.5	19.3	29.3	32.1
Partner's education														
No education	38.5	31.7	19.4	16.3	21.4	13.6	61.8	59.9	36.9	33.4	34.4	30.2	49.4	45.3
Incomplete/complete primary	31.9	32.5	17.7	14.8	15.3	12.0	52.3	51.4	35.8	27.0	25.9	22.1	37.1	39.7
Incomplete/complete secondary	22.4	16.3	8.7	7.8	7.2	6.9	18.1	17.3	16.0	11.2	15.8	9.7	17.5	19.6
Incomplete/complete tertiary	9.1	10.5	6.7	3.9	2.1	2.8	13.4	4.2	16.1	5.8	10.3	4.4	8.6	7.1
Sex														
Male	26.6	25.7	15.8	12.2	12.0	10.1	50.3	47.3	33.1	24.0	26.1	20.2	26.4	26.4
Female	26.9	22.4	13.7	10.8	9.4	7.6	49.0	45.1	30.9	22.2	23.2	19.9	25.1	22.2

Table IV.1 (concluded)

Variables	Bolivia		Colombia		Dominican Republic		Guatemala		Haiti		Nicaragua		Peru	
	1994	2003	1995	2005	1996	2002	1996	2002	1994	2005	1997	2001	1996	2004
Birth order														
First child	18.9	17.0	10.7	7.8	6.0	6.5	39.8	36.7	29.7	17.3	17.6	14.9	15.9	16.5
Second child	19.7	22.9	13.3	10.9	10.2	8.0	39.6	35.4	26.5	18.6	20.9	15.8	21.3	17.5
Third child	24.4	21.9	16.3	11.7	10.5	8.7	47.2	44.2	30.5	21.6	23.5	17.4	22.3	21.7
Fourth or subsequent child	35.0	30.2	21.5	19.4	18.0	13.7	59.2	56.7	35.6	29.7	32.2	29.0	38.1	41.0
Age														
Under 12 months	11.0	9.5	6.0	6.0	6.3	5.3	22.5	21.1	10.0	11.2	9.1	6.3	10.2	7.1
12-24 months	38.1	32.5	16.8	16.6	14.8	11.6	57.2	53.1	31.5	30.3	29.7	21.9	31.5	29.0
Over 24 months	31.4	29.1	17.1	11.7	10.8	9.0	57.2	51.7	40.4	24.7	28.1	23.7	28.8	28.9
Professional attendance at childbirth														
Without professional attendance at delivery	37.0	36.8	26.7	19.5	24.6	18.3	62.0	60.2	36.5	30.1	34.2	35.4	42.0	45.2
With professional attendance at delivery	16.4	17.1	12.6	10.7	10.2	8.6	46.8	43.6	26.8	17.6	19.8	18.4	14.0	15.5

Source: Guillermo Paraje, "Evolución de la desnutrición crónica y sus distribución socioeconómica en siete países de América Latina y el Caribe", *Políticas sociales series*, No. 140 (LC/L.2878-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, on the basis of demographic and health surveys (DHSs).

Figure IV.1 shows the prevalence of chronic undernutrition according to the latest survey analysed, along with the corresponding socio-economic distribution indicator. The horizontal axis shows national average chronic undernutrition (a higher coefficient implies a greater incidence/depth of malnutrition), whereas the vertical axis shows the socio-economic concentration index of that coefficient.[7]

The figure shows that while the prevalence of chronic undernutrition was relatively low in some countries (e.g., the Dominican Republic in 2002), it was disproportionately concentrated among lower-income households: of the seven countries reviewed, it is one of the three most unequal. Among the other countries, Colombia and Nicaragua recorded an "average" incidence —less in the case of Colombia— whereas Haiti, Bolivia, Peru and Guatemala, reported the highest levels. Nonetheless, this latter subgroup display different characteristics, because in Haiti it is less concentrated than in Bolivia, Guatemala and, above all, Peru, which is the most unequal of the seven countries reviewed.

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[7] The concentration index is calculated and interpreted similarly to the Gini coefficient and takes values in the range [0; 1]. If the variable is concentrated among households in the highest socio-economic group, the coefficient will be closer to one in absolute terms, and vice versa. It is also possible to estimate the relation between the variable in question and a number of explanatory variables, and to deduce how the independent variable is affected by inequality in the socio-economic distribution of those explanatory variables. The index can also be broken down in terms of the variables that determine the behaviour of the independent variable.

Figure IV.1
**LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): SOCIO-ECONOMIC
DISTRIBUTION OF UNDERNUTRITION, 1999-2005**
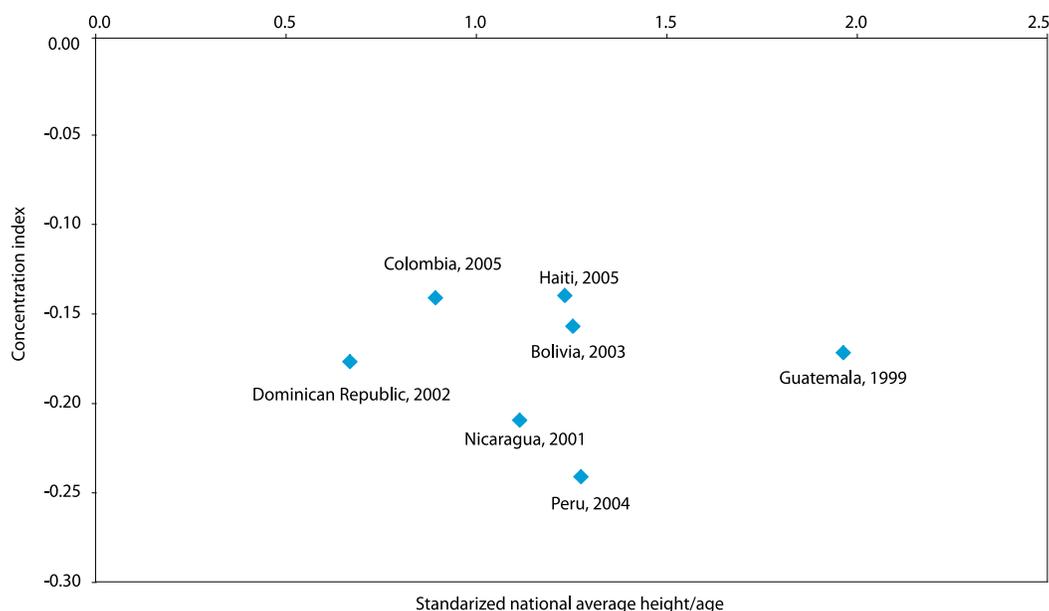
Source: Guillermo Paraje, "Evolución de la desnutrición crónica y sus distribución socioeconómica en siete países de América Latina y el Caribe", *Políticas sociales series*, No. 140 (LC/L.2878-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, on the basis of demographic and health surveys (DHSs).

Figure IV.2 shows how chronic undernutrition and its distribution varied when the two surveys were compared. In all of the countries analysed, the prevalence and depth of chronic malnutrition decreased, albeit by varying amounts: the greatest reduction occurred in Haiti and Nicaragua, whereas Guatemala and Peru were at the lowest point on the scale.[8] It should also be noted that countries differ in the way the decrease occurred. Whereas in Haiti this reflected a reduction in inequality, in Nicaragua it was closely related to an increase in inequality, since malnutrition fell mostly among the relatively more affluent households.[9]

[8] In statistical terms, changes in the national mean height/age coefficient were only significantly different from zero in Colombia, the Dominican Republic, Haiti and Nicaragua (all at a level above 99%). In Bolivia, Guatemala and Peru differences between mean height/ age coefficients are statistically equal to zero; i.e., in these countries, chronic undernutrition did not vary during the period. A t-test for differences in means was used to measure the statistical significance of the mean height/age coefficient and its concentration index. The key assumption of this test is that the samples are independent. In the case of the DHSs, and given the difference between the samples in time, this assumption seems safe.

[9] Changes in the concentration index of the height/age coefficient were only significantly different from zero in the Dominican Republic and Nicaragua (both at a level above 99%) and in Peru (at 95%).

Figure IV.2

**LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): CHANGES IN THE INCIDENCE
OF CHRONIC UNDERNUTRITION COMPARED TO CHANGES IN
THE INEQUALITY OF UNDERNUTRITION**
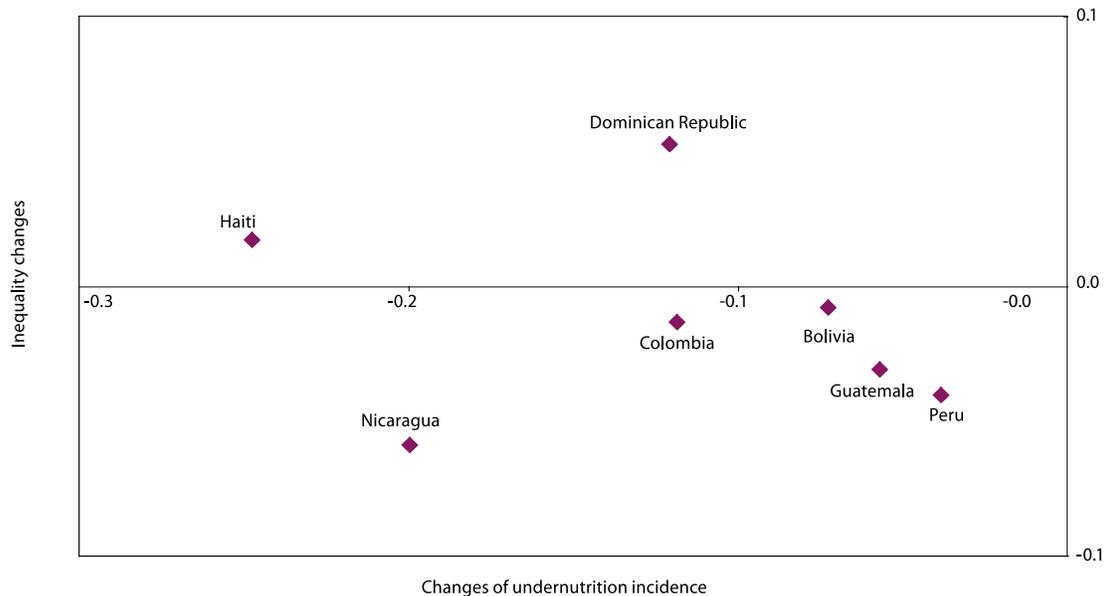
Source: Guillermo Paraje, "Evolución de la desnutrición crónica y sus distribución socioeconómica en siete países de América Latina y el Caribe", *Políticas sociales series*, No. 140 (LC/L.2878-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, on the basis of demographic and health surveys (DHSs).

2. DETERMINANTS OF CHRONIC CHILD MALNUTRITION

As noted above, table IV.1 showed only the prevalence of malnutrition with respect to each variable or category, and not its depth. Moreover, many of the variables considered in the table affect the prevalence of chronic malnutrition simultaneously, since all of them affect its level. From the public policy standpoint, however, it is useful to distinguish the effects exerted by each variable, to be able to act on the most influential ones. For this purpose, a regression analysis was performed to measure the magnitude of the effect of each variable on chronic undernutrition, while holding the influence of the others constant. Table IV.2 summarizes the results of the linear regressions (ordinary least squares - OLS) for the seven selected countries, with two observations per country.[10]

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[10] The annex in Paraje (2008) contains tables with the results for each country, showing not only the coefficient on each variable but also the value of the t-statistic. The fit of the model used is relatively appropriate for this type of study, because the R2 values obtained range from 0.106 (Dominican Republic, 2002) to 0.383 (Peru, 2004). Moreover, in cases where this indicator is quite low, high values were obtained for the F-statistic, which measures the statistical significance of all the coefficients jointly. The regressions were estimated using the Huber-White/sandwich variance estimator, which makes it possible to obtain robust standard errors when a given group of observations may not be independent. In the case of the DHSs, the group consists of the sample target cluster.

Table IV.2
LATIN AMERICA AND THE CARIBBEAN (7 COUNTRIES): DETERMINANTS OF CHRONIC CHILD MALNUTRITION, 1994-2005
(Linear regression coefficients)

	Bolivia				Colombia				Dominican Republic				Guatemala			
	1994		2003		1995		2005		1996		2002		1996		2002	
Constant	1.427	**	1.904	**	1.712	**	1.490	**	2.152	**	1.808	**	2.238	**	2.463	**
Region 1	-0.416	**	-0.376	**	-0.394	**	-0.245	**	0.024		-0.003		-0.223	*	-0.225	
Region 2	-0.070		-0.146	**	-0.291	**	-0.326	**	-0.071		-0.018		-0.201	*	-0.231	
Region 3	-		-		-0.326	**	-0.351	**	0.077		-0.068		-0.215	**	-0.259	
Region 4	-		-		-0.387	**	-0.322	**	0.157	*	0.004		0.064		0.020	
Region 5	-		-		-		-		-0.012		-0.046		0.326	**	0.129	
Region 6	-		-		-		-		0.101		-0.019		0.474	**	0.154	
Region 7	-		-		-		-		-0.038		-0.105		-		-	
Urban	0.115		0.067		0.184	**	0.008	**	0.018		0.029		-0.021		0.058	
Wealth	-23266.5	**	-0.239	**	-18277.3	**	-0.149	**	-18535.8	**	-15324.7	**	-35418.1	**	-47508.0	**
Mother's education	-0.017		-0.057	**	-0.070	**	-0.038		-0.024		-0.002		-0.058	**	-0.073	**
Mother's education squared	0.000		0.003	**	0.002	*	0.001		0.000		-0.001		0.002	*	0.002	
Mother: skilled work (ref. not working)	-0.106		-0.017		-0.052		-0.145	**	-0.080		-0.064		-0.038		0.298	*
Mother: unskilled work (ref. not working)	-0.018		0.003		0.047		-0.074	*	-0.047		-0.059		-0.043		0.046	
Partner's education	-0.007		-0.012	*	-0.012	*	-0.007	*	-0.011	*	-0.008	*	-0.014	*	-0.015	
Sex of child: female	-0.069		-0.068	*	-0.086	**	-0.071	**	-0.145	**	-0.107	**	-0.035		-0.048	
Second child	-0.028		0.033		0.031		0.081	**	0.112	**	0.081	**	0.002		0.051	
Third child	0.118		0.043		0.058		0.088	**	0.097	*	0.132	**	0.051		0.139	
Fourth or subsequent child	0.139	*	0.025		0.028		0.171	**	0.145	**	0.113	**	0.145	**	0.176	*
Age in months	0.125	**	0.107	**	0.025	**	0.025	**	0.020	**	0.016	**	0.083	**	0.072	**
Age in months squared	-0.003	**	-0.002	**	0.000	**	0.000	**	0.000	**	0.000	**	-0.001	**	-0.001	**
Birth weight (g)	0.000	**	0.000	**	-		-		0.000	**	0.000	**	0.000	**	0.000	**
Professional attendance at childbirth	-0.186	**	-0.111	**	-0.040		-0.005		-0.093		0.053		-0.042		0.117	
N	2864		5054		4333		10161		3317		8128		7943		2947	
R²	0.255		0.265		0.127		0.126		0.184		0.106		0.334		0.358	
F-test	46.80	**	74.94	**	24.41	**	48.06	**	25.29	**	26.81	**	96.84	**	54.19	**

Table IV.2 (concluded)

|	Haiti		Nicaragua		Peru	
	1994	2005	1997	2001	1996	2004
Constant	1.186 **	1.704 **	1.913 **	1.800 **	1.730 **	2.216 **
Region 1	0.064	0.022	0.008	0.103 *	0.245 **	0.097
Region 2	0.032	-0.051	0.082	0.189 **	0.240 **	0.165
Region 3	-	-	-0.096	0.098	0.249 **	-0.060
Region 4	-	-	-	-	-	-
Region 5	-	-	-	-	-	-
Region 6	-	-	-	-	-	-
Region 7	-	-	-	-	-	-
Urban	0.219	0.114	0.214 **	-0.019	0.011	0.037
Wealth	-42213.0 **	-0.252 **	-27494.9 **	-21167.0 **	-19077.4 **	-0.323 **
Mother's education	-0.065	-0.029	-0.041 **	-0.051 **	-0.035 **	-0.034
Mother's education squared	0.002	0.001	0.000	0.002 *	0.000	0.000
Mother: skilled work (ref. not working)	0.284	0.055	0.047	-0.050	0.038	0.124
Mother: unskilled work (ref. not working)	0.013	-0.007	0.045	-0.020	0.089 **	0.176 **
Partner's education	0.005	-0.018	0.000	-0.004	-0.014 **	-0.004
Sex of child: female	-0.184	-0.143 *	-0.113 **	-0.057	-0.061 **	-0.139 **
Second child	-0.012	-0.047	0.065	0.045	0.059 *	-0.041
Third child	0.044	-0.155 *	0.075	0.062	0.092 **	-0.008
Fourth or subsequent child	-0.018	0.068	0.133 **	0.138 **	0.177 **	0.143 *
Age in months	0.053 **	0.037 **	0.044 **	0.036 **	0.045 **	0.042 **
Age in months squared	-0.001 **	-0.001 **	-0.001 **	0.000 **	-0.001 **	-0.001 **
Birth weight (g)	0.000	0.000 **	0.000 **	0.000 **	0.000	0.000 **
Professional attendance at childbirth	0.003	-0.161 **	-0.120 **	-0.074	-0.210 **	-0.143
N	2693	2371	6443	5633	14468	2237
R^2	0.208	0.137	0.177	0.231	0.282	0.383
F-test	21.40 **	19.57 **	50.00 **	56.14 **	123.82 **	37.18 **

Source: Guillermo Paraje, "Evolución de la desnutrición crónica y sus distribución socioeconómica en siete países de América Latina y el Caribe", *Políticas sociales series,* No. 140 (LC/L.2878-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, on the basis of demographic and health surveys (DHSs).

Note: The dependent variable is the negative value of the height/age ratio for children under 60 months old.

* Different from zero at the 95% significance level.

** Different from zero at the 99% significance level.

A number of general trends should be noted. Firstly, in all cases, socio-economic conditions —captured by the "wealth" index— significantly affect chronic malnutrition (i.e., under equal conditions, less "wealth" is associated with higher malnutrition levels). This result, which is frequent in studies on this subject, reveals the clear and predictable relation between long-term nutritional status and the household's capacity to ensure a stable supply of food.[11] Some of the components of this particular "wealth" index, such as the existence of secure sources of water and sewage disposal, could have a major influence on child malnutrition, as noted in several studies (Smith, Ruel and Ndiaye, 2005).

Secondly, age and age-squared are highly significant in all cases. As the child grows older, the incidence of chronic malnutrition rises, albeit at declining rates.[12] As noted in table IV.1, chronic malnutrition generally increases rapidly during the first year of life, which suggests a negative relation between maternal breast feeding and the level of malnutrition. Nonetheless, in most of the cases reviewed, the effects of age on malnutrition diminish through time.

In most countries, chronic malnutrition levels apparently do not vary between urban or rural sectors.[13] Only in three cases (Colombia, 1995 and 2005; Nicaragua, 1997) does living in urban areas have positive consequences for chronic malnutrition. In other words, while malnutrition is more frequent in rural zones (see table IV.1), this is due to the specific characteristics of the area, such as the level of "wealth" and the mother's education. This would suggest that geographically selective policies should target other aspects such as income levels or the mother's education.

Regional effects are also likely to mitigate the effect of this variable. Although these are not always significant, in some countries they are highly relevant, albeit with differing signs. In Bolivia, for example, the Llano region had significantly lower levels of malnutrition than La Paz or el Valle in the two years compared (1994 and 2003). In Colombia, all regions reported lower levels than those of the Bogotá area. In Peru, in 1996 the figures for Lima were significantly lower than in the rest of the country, although these differences had disappeared by 2004.[14]

The influence of the mother's education is not uniform: while higher levels always have a positive influence on reducing chronic malnutrition, the coefficient is not significant in seven cases.[15] There is also evidence of a nonlinear effect; i.e., as the mother's education increases, malnutrition declines, but at a decreasing rate, significantly in four cases. The partner's education also has an effect but, apart from the Dominican Republic in 2002, this is much less than that of the mother's education, which would suggest that it is the mother who has the greatest influence on children's nutritional status.

Generally speaking, chronic malnutrition affects boys more than girls, and the effect is significant in most cases.[16] Birth order also tends to affect chronic malnutrition: the higher in the order, the greater the malnutrition, although there are sharp differences between countries.

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[11] For example, Wagstaff, van Doorslaer and Watanabe (2003); Valdivia (2004); Smith, Ruel and Ndiaye (2005); Harttgen and Misselhorn (2006); van de Poel and others (2006); van de Poel, O'Donnel and van Doorslaer (2007).

[12] This result is consistent with those obtained by Valdivia (2004), Larrea and Karachi (2005) and by Harttgen and Misselhorn (2006), although not with those reported by Wagstaff, van Doorslaer and Watanabe (2003).

[13] This agrees with the findings of Smith, Ruel and Ndiaye (2005) and van de Poel, O'Donnel and van Doorslaer (2007). Table IV.1 shows that chronic undernutrition is greater in the rural sector in all cases. This result is compatible with that obtained in the regression analysis: geographic area *per se* does not greatly affect chronic malnutrition, but it is other variables such as wealth and educational factors which are distributed differently by geographic area. The regression analysis thus shows that the higher prevalence of chronic malnutrition in rural areas is due to the fact that average socio-economic conditions, measured mainly by wealth and the mother's education, are inferior.

[14] Variables that were not considered, such as race, or, more generally, culture, probably act through this variable in countries such as Bolivia or Peru, where there are major cultural/ethnic differences between the Andean zone and other regions.

[15] The effects of the mother's education on malnutrition are not equal to the value of the coefficient associated with it, but are more than double the coefficient associated with the mother's education squared, the latter multiplied by the mean of mothers' education (if the effect is measured for the average group).

[16] This is consistent with the findings reported by Marcoux (2002).

Lastly, professional care at childbirth, which is used as a proxy for the household's access to health care, is negatively related to chronic malnutrition, but in many cases the relation is not significant.[17] Nonetheless, this is important when health-care coverage is low, but its effect tends to fade as coverage improves.[18] In Bolivia, for example, the service covered 49.5% of all cases in 1994 and 65.1% in 2003. Here the coefficient is significant and negative, although its value decreases considerably. Nicaragua is an illustrative and notable case, where the coefficient loses statistical significance when coverage expands from 66.7% in 1997 to 90.6% in 2001.

3. THE CAUSES OF INEQUALITY IN CHRONIC CHILD MALNUTRITION

Table IV.3 shows the proportion in which each variable contributes to the distribution of chronic child malnutrition, for each country and year.[19]

As shown in table IV.3, the most important variable in explaining the inequality of chronic malnutrition is "wealth", which accounts for between 41% in Peru (1996) and 97% in Haiti (1994). In all cases, these high percentages were the consequence of the high level of the "wealth-elasticity" of malnutrition and, in particular, high "wealth" concentration levels.[20] This again reveals the widely recognized glaring socio-economic inequality that characterizes Latin American and Caribbean countries (ECLAC, 2007a; PAHO, 2007b; De Ferranti and others, 2004). It also quantifies the social determinants of malnutrition, and, hence, infant mortality, which are broader and transcend sector-level health or nutrition policies, for example. Thus, reducing the incidence of chronic malnutrition in the poorest households firstly requires improving their living conditions and socio-economic environment; and this means applying a wide range of policies including housing, employment and income policies, along with macroeconomic policies to assure these households at least a setting of economic stability.[21]

Some of the elements used to construct the "wealth" index, such as the availability of adequate drinking water and sanitation services in the home, may affect chronic child undernutrition directly (Wagstaff, van Doorslaer and Watanabe, 2003; Smith, Ruel and Ndiaye, 2005).[22] The mere fact of improving these services could thus produce a significant reduction in the incidence of undernutrition, aside from its effects on "wealth".

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[17] Unlike the causes of infant mortality, according to Harttgen and Misselhorn (2006), variables measuring access to the health infrastructure are relatively unimportant in explaining child malnutrition.

[18] This can be seen from data on the means of each variable in the annex of Paraje (2008), tables A.3, A.6, A.9, A.12, A.15, A.18 and A.21.

[19] Three elements affect a factor's potential contribution to the chronic undernutrition concentration index. The first of these is the importance of that factor, under equal conditions, on its level if it has a high coefficient in the explanatory linear regressions, it contributes more to the inequality of undernutrition. Secondly, the mean of this variable is important: the higher the mean, the greater will be its contribution to the inequality of malnutrition. Both elements —the regression coefficient and the variable's mean— make it possible to estimate the elasticity of each variable with respect to chronic malnutrition, i.e., how much a 1% increase in each variable affects its prevalence (Paraje, 2008, section 2). The third element is the socio-economic distribution of each variable, i.e., its socio-economic concentration index. If a variable has a significant influence on undernutrition (i.e., a high elasticity with respect to it) and it is relatively concentrated in a specific group (e.g., among poor households) this does more to explain the relative concentration of the result.

[20] Both the "wealth elasticities" and their concentration indices (which in this case are the same as the Gini coefficients) for each country are shown in Paraje (2008), tables A.3, A.6, A.9, A.12, A.15, A.18 and A.21.

[21] The volatility of growth has clearly negative effects on household poverty (Sauma, 2007 and Sánchez, 2007).

[22] For information on housing and sanitation deficiencies, see the UBN measurements contained in section 1 of chapter II of this report.

Table IV.3
**LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): TREND OF THE
DETERMINANTS OF INEQUALITY IN CHRONIC CHILD MALNUTRITION, 1994-2005**
(Percentages)

	Bolivia		Colombia		Dominican Republic		Guatemala	
	1994	2003	1995	2005	1996	2002	1996	2002
Region 1	6.1	6.2	-18.8	-9.3	0.3	0.0	-3.0	-2.6
Region 2	-0.5	-0.4	-1.7	-1.6	0.3	-0.1	-0.8	-1.8
Region 3	-	-	4.2	-2.1	0.8	-0.7	-1.4	-1.3
Region 4	-	-	-3.0	-0.5	1.6	0.1	-0.4	-0.1
Region 5	-	-	-	-	0.0	-0.2	1.0	0.7
Region 6	-	-	-	-	1.8	-0.4	7.0	2.3
Region 7	-	-	-	-	-0.3	-0.8	-	-
Urban	-11.8	-7.2	-27.9	-1.2	-1.6	-2.4	1.1	-2.7
Wealth	64.7	68.1	84.8	70.8	58.6	61.6	68.1	82.4
Mother's education	14.2	46.1	76.7	41.0	21.5	2.4	27.3	29.1
Mother's education squared	0.6	-31.9	-37.6	-17.3	-6.6	17.9	-10.8	-9.2
Mother: skilled work (ref. not working)	2.1	0.3	1.4	4.1	1.7	1.9	0.4	-2.3
Mother: unskilled work (ref. not working)	-0.6	0.0	-0.3	0.3	0.5	1.1	0.5	-0.7
Partner's education	5.6	8.8	14.3	7.6	10.1	9.5	7.4	6.9
Sex of child: female	0.1	-0.1	-0.5	0.0	0.0	0.6	-0.1	-0.2
Second child	0.4	-0.5	-0.5	-1.4	-1.3	-1.4	0.0	-0.5
Third child	-1.1	0.0	0.1	0.1	-0.4	-0.6	-0.1	-0.6
Fourth or subsequent child	6.1	1.0	1.6	8.8	5.3	5.5	4.2	4.5
Age in months	-10.7	2.8	-0.8	-3.7	-1.5	-3.7	-2.2	-3.4
Age in months squared	8.3	-3.0	0.0	2.1	1.1	3.7	1.6	2.6
Birth weight (g)	1.9	0.8	-	-	4.2	4.1	0.3	0.7
Professional attendance at childbirth	15.8	8.2	2.5	0.2	1.1	-0.5	1.1	-2.6
Residual	-1.1	0.8	5.5	2.0	2.8	2.7	-1.2	-1.1
Total	100	100	100	100	100	100	100	100

Table IV.3 (concluded)

	Haiti		Nicaragua		Peru	
	1994	2005	1997	2001	1996	2004
Region 1	2,8	1,0	-0,1	-1,5	-1,0	-1,1
Region 2	0,7	-1,5	3,5	6,1	8,4	4,6
Region 3	-	-	-2,2	2,9	2,4	-0,9
Region 4	-	-	-	-	-	-
Region 5	-	-	-	-	-	-
Region 6	-	-	-	-	-	-
Region 7	-	-	-	-	-	-
Urban	-18,4	-11,7	-20,2	1,7	-0,8	-2,6
Wealth	97,2	77,9	76,9	51,9	40,9	60,9
Mother's education	34,2	24,4	29,2	37,2	21,1	19,5
Mother's education squared	-11,1	-12,4	-2,7	-13,7	-0,8	-1,3
Mother: skilled work (ref. not working)	-1,3	-1,0	-0,8	0,9	-0,5	-2,1
Mother: unskilled work (ref. not working)	0,1	-0,2	-0,8	0,3	0,9	4,6
Partner's education	-2,9	15,8	-0,1	3,2	7,3	1,7
Sex of child: female	-1,1	-0,2	0,0	0,0	0,1	0,2
Second child	0,1	0,8	-0,8	-0,5	-0,7	0,3
Third child	-0,2	0,5	-0,3	-0,2	-0,3	0,0
Fourth or subsequent child	-0,5	3,7	4,8	4,7	5,6	4,1
Age in months	-3,1	-5,1	-0,7	4,6	-4,4	4,0
Age in months squared	0,4	3,4	0,5	-2,5	3,1	-3,8
Birth weight (g)	-0,1	-6,0	4,1	3,6	4,3	3,5
Professional attendance at childbirth	-0,1	9,4	8,0	1,5	14,4	7,0
Residual	3,4	1,4	1,7	-0,2	-0,1	1,4
Total	100	100	100	100	100	100

Source: Guillermo Paraje, "Evolución de la desnutrición crónica y sus distribución socioeconómica en siete países de América Latina y el Caribe", *Políticas sociales series*, No. 140 (LC/L.2878-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, on the basis of demographic and health surveys (DHSs).

Note: The dependent variable is the chronic child malnutrition concentration index (equation (2) of section 2.2).

Secondly, the mother's and partner's education levels explain the inequalities seen. In all cases, apart from the Dominican Republic in 2002, the mother's education has a major influence, albeit mitigated by the non-linear relation that exists between this variable and child undernutrition, as noted above. The fact that education is relatively concentrated among the "wealthier" households helps to explain the inequality of

malnutrition; but its influence is reduced because of the non-linear effect of the mother's education, which tends to fade as the level of schooling rises. The mother's and partner's education, and the corresponding non-linear effect, jointly explain between 20% (Bolivia, 1994; Haiti, 1994) and 53% (Colombia, 1995) of the inequality in chronic undernutrition.[23]

Moreover, while certain biomedical variables (sex, age, birth order, birth weight) are important in explaining the level of malnutrition —as would be expected— they are not themselves significant in explaining inequality in the distribution of chronic child malnutrition. The sex of the children, for example, does not follow a defined socio-economic distribution pattern (poor households do not have more or fewer girls, for example) and therefore cannot explain this inequality. Taken individually, the other variables have some effect on the inequality of malnutrition, especially those indicating birth order, but jointly they never account for more than 10% of that inequality; the highest value being 9.7% in the case of Nicaragua, 2001.

Geographic/regional variables also do not display a defined pattern, but vary from one country to another. Whereas in the Dominican Republic neither regional variables nor those distinguishing between urban and rural areas help to explain inequality in the distribution of chronic malnutrition (e.g., malnourished children are not concentrated in a specific region/area when other variables are taken into account), in Colombia they have a considerable influence. For example, chronic undernutrition in Region 1 (Atlantic) is far less than in the benchmark region (Bogotá), and a large proportion of poor households are concentrated there. Taken together, these two factors mean that, under equal conditions, the lower level in the Atlantic region tends to reduce the inequality of chronic undernutrition nationally.

Lastly, professional care at childbirth, which proxies for the household's access to the health system, also varies considerably between countries. As one would expect, in those that have broad coverage (Colombia, the Dominican Republic, Guatemala and Nicaragua, 2001) the effect is small, for socio-economic inequalities in its distribution tend to disappear, so its power to explain malnutrition also fades.[24] Nonetheless, when coverage is relatively low (Bolivia, Peru, Nicaragua, 1997), it has more effect on chronic malnutrition and exceptionally reaches high levels. The highest (16%) was recorded in Bolivia, 1994, when coverage was just 49.5%.

4. DETERMINANTS OF CHANGES IN THE INEQUALITY OF CHRONIC CHILD MALNUTRITION

Apart from statically considering the determinants of inequality in the distribution, it is important to analyse how variations in those factors affect trends in the inequality of undernutrition. A consideration of past changes may shed light on the effects that public policies may have on such factors as inequality in the distribution of malnutrition and, often, its level.

Table IV.4 provides information on this through a Oaxaca decomposition of changes in the inequality of chronic malnutrition.[25] Holding other factors constant, it shows the contribution of each of the variables analysed to the increase/decrease in the inequality of chronic malnutrition in the years studied.

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[23] In the case of Colombia (1995), for example, this would mean that if all mothers had received the same level of schooling (equal to the national average in 1995), under equal conditions, the inequality of chronic malnutrition would have been 52% less than it actually was

[24] This probably does not mean the disappearance of socio-economic differences in professional care at childbirth, since these are most likely to be manifested in terms of quality rather than coverage. Unfortunately, the information provided by DHSs does not make it possible to measure this dimension.

[25] Here the contents of equation (3) from section 2.2 are applied. In Paraje (2008), tables A.4, A.7, A.10, A.13, A.16, A.19 and A.22 show each of the terms needed to make this decomposition for each of the countries considered.

Table IV.4

**LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES): BREAKDOWN OF
VARIATIONS IN THE INEQUALITY OF CHRONIC CHILD MALNUTRITION, 1994-2005**

(Percentages)

	Bolivia	Colombia	Dominican Republic	Guatemala	Haiti	Nicaragua	Peru
Region 1	7.5%	81.3%	1.6%	-0.9%	18.2%	-5.3%	-1.5%
Region 2	0.9%	-1.2%	1.5%	-6.5%	18.8%	12.6%	-14.5%
Region 3	-	-62.2%	5.7%	-0.9%	-	16.1%	-17.3%
Region 4	-	23.8%	6.8%	1.2%	-	-	-
Region 5	-	-	0.6%	-0.6%	-	-	-
Region 6	-	-	9.5%	-19.3%	-	-	-
Region 7	-	-	1.5%	-	-	-	
Urban	79.3%	255.0%	1.1%	-20.1%	-73.4%	57.8%	-11.7%
Wealth	132.0%	-64.1%	48.6%	147.9%	254.7%	-12.1%	161.0%
Mother's education	647.3%	-301.3%	85.8%	37.3%	114.0%	57.8%	11.4%
Mother's education squared	-644.2%	177.2%	-89.0%	-1.8%	-0.7%	-42.0%	-3.6%
Mother: skilled work (ref. not working)	-33.7%	30.7%	1.1%	-14.7%	-4.1%	5.2%	-10.1%
Mother: unskilled work (ref. not working)	12.9%	6.3%	-1.3%	-6.0%	3.4%	3.1%	23.4%
Partner's education	70.2%	-56.1%	12.1%	4.6%	-155.5%	11.7%	-26.5%
Sex of child: female	-2.8%	4.9%	-1.8%	-0.6%	-8.6%	-0.2%	0.7%
Second child	-16.2%	-9.7%	-1.2%	-2.5%	-5.3%	0.4%	5.0%
Third child	20.5%	-0.4%	0.4%	-2.7%	-5.4%	-0.1%	1.4%
Fourth or subsequent child	-95.2%	77.4%	4.7%	5.9%	-34.9%	4.5%	-3.4%
Age in months	256.6%	-31.0%	5.8%	-8.9%	13.4%	18.3%	45.6%
Age in months squared	-215.9%	22.0%	-7.8%	7.1%	-24.4%	-10.0%	-38.4%
Birth weight (g)	-19.6%	-	4.6%	2.1%	48.4%	2.4%	-0.6%
Professional attendance at childbirth	-135.5%	-21.8%	6.2%	-19.8%	-78.1%	-15.3%	-29.7%
Residual	36.0%	-30.9%	3.4%	-0.9%	19.7%	-4.8%	8.8%
Change in inequality	100%	100%	100%	100%	100%	100%	100%
Change in concentration index	-0.008	-0.013	0.053**	-0.031	0.017	-0.059**	-0.040*

Source: Guillermo Paraje, "Evolución de la desnutrición crónica y sus distribución socioeconómica en siete países de América Latina y el Caribe", *Políticas sociales series*, No. 140 (LC/L.2878-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, on the basis of demographic and health surveys (DHSs).

Note: This breakdown corresponds to equation (3) of section 2.2.

* Different from zero at a 95% significance level 95%.

** Different from zero at a 99% significance level 99%.

The bottom row of the table shows how the chronic undernutrition concentration index has varied; a negative figure means inequality has increased (i.e., it has become increasingly concentrated among the poorest groups), while a positive change indicates the opposite. Variations in inequality have only been significant in the Dominican Republic, Nicaragua and Peru; in other cases, the measurement is useful not in terms of its magnitude but in analysing its direction.

As shown in figure IV.2 and table IV.4, in this period inequality decreased in two of the seven countries: Dominican Republic and Haiti. However the change was only significant in the first case —which in itself merits analysis. The most influential variable in this reduction was "wealth", which accounted for half of the recorded decrease in the inequality of chronic malnutrition. Two elements were crucial to this. An improvement in the distribution of physical assets, measured by the variation of the "wealth" concentration index, was easily the most important factor. Between 1996 and 2002, the distribution of the "wealth" index improved significantly in both countries (Paraje, 2008, table A.10 of the annex). As "wealth" tends to reduce malnutrition, less concentration tends to improve the situation of the most deprived, which has a favourable impact on chronic undernutrition among their children and thus reduces the inequality of undernutrition.[26]

The socio-economic improvement among the poorest households did not have major repercussions on chronic malnutrition because the "wealth" elasticity increased in this period, i.e., a 1% increase in "wealth" caused chronic malnutrition to fall in both years, but its effect was greater in 2002 than in 1996. Despite these socio-economic improvements and given the magnitude of the concentration of wealth and the increasing importance of "wealth" in explaining malnutrition, this tended to favour wealthy households, thereby widening the malnutrition gap between them and poorer households. Nonetheless, as this effect was not so strong as the one described in the previous paragraph, the change in "wealth" had levelling effects.

Changes in education were large when considered individually, although their influence was not very important overall. These variables explain 12% of the reduction in inequality. The average number of years' schooling received by the mother and partner increased, which favoured the poor by reducing the concentration of inequality. Moreover, in both cases, and as a result of the increase in educational levels, the education-elasticity of undernutrition decreased; and this also helped to close the undernutrition gap between poor households and rich ones, which continue to enjoy a relatively higher level of education. Nonetheless, these important changes were mitigated because, although the increase in the mother's schooling occurred at all education levels, it was greater at the secondary and tertiary levels and thus had less of an effect on malnutrition (Paraje, 2008, table A.10 of the annex).

There were statistically significant changes in just two of the countries in which the socio-economic inequality of chronic undernutrition increased: Nicaragua, the country in which inequality increased most, and Peru. The case of Nicaragua has a number of interesting features: e.g., it is the only country where chronic undernutrition did not become more unequal as a result of the "wealth" effect: in fact, the "wealth" elasticity of malnutrition declined. The other element that favoured the poor was professional care at childbirth. During this period, the coverage of this health service increased significantly (in 1997 only 67% of deliveries were professionally attended, whereas in 2001 around 91%) mainly among the poorest households.

Although "wealth" and professional care at childbirth had levelling effects, other variables were more influential and clearly increased the inequality of chronic undernutrition in both countries. The main variables were educational and geographic. The first explains just over one quarter of the increase in the

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[26]   Given the shortcomings of the "wealth" index (noted in section 1.1), care is needed when working with the trend of this index through time, and when drawing conclusions from it. Nonetheless, there are other elements that may be linked to the trend of "wealth " (or more generally, the households' socio-economic position), such as the distribution of education variables (maternal and partner), which display a similar behaviour pattern to the "wealth" index (rising average and less concentration). These factors indicate an improvement in the socio-economic situation of lower-income groups.

inequality of malnutrition; and, in the case of both the mother's and her partner's education, this reflected an increase in the education-elasticity of undernutrition (Paraje, 2008, table A.18 of the annex) and to its greater concentration among the wealthiest households.[27]

The regional variables (regions and urban/rural area) also increased the inequality of chronic malnutrition, with greater regional or area elasticity contributing to this effect in all cases. In the latter, for example, "wealthy" households became relatively more concentrated in urban, i.e., in these households the quality of life tended to diverge from that of rural areas.

5. CONCLUSIONS

In general, the numerous causes that determine the level of chronic child malnutrition in a country form a complex web of reciprocal relations. From the public policy standpoint, this stems from isolated health policies which individually can only partially reduce the problem; they need to be applied comprehensively in areas such as education, housing and income, and in a stable macroeconomic environment that promotes economic growth and a better distribution of the fruits of development. When the socio-economic distribution of undernutrition is so unequal, reducing it has strong socio-economic determinants in terms of basic social infrastructure.

The socio-economic situation of families not only determines the level of chronic malnutrition among their children, but also its causes; the more concentrated this "wealth", the more this form of deprivation will be concentrated among "poor" households. As noted in the Dominican Republic, the lesser concentration of "wealth" has significantly reduced the concentration of chronic child malnutrition, and particularly its levels.

The "wealth" indicator used does not measure family incomes/expenditure, but housing conditions, possession of assets, and available services. Some of these elements, such as better access to drinking water and adequate sanitation, could directly influence malnutrition and its distribution.[28] The corresponding policies could certainly also have a redistributive effect depending on how progressive the tax structure is. Similarly, policies that improve the housing situation of less privileged groups can also help to reduce malnutrition.

The parents' education level, and in particularly the mother's, has a decisive influence on the level and distribution of chronic malnutrition. Nonetheless, for education improvements to have their full effects, they must be biased in favour the poorest households. Despite some progress, countries such as Bolivia, Colombia, Guatemala, Haiti and Nicaragua are still far from achieving universal primary school enrolment.

Geographic, cultural, ethnic and idiosyncratic factors, some of which were measured directly and others indirectly, have an explanatory role, but apparently based on their link with the distribution of socio-economic variables such as "wealth" and the mother's education, which sector policies need to consider comprehensively.

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[27] It is highly likely that the greater concentration of education in wealthy households has caused an increase in the education-elasticity of undernutrition. This greater concentration tends to "separate" "poor" households from "wealthy" ones, thus widening the differences between them and increasing the explanatory power of education.

[28] On this latter aspect, chapter II made a detailed analysis of unsatisfied basic needs (see table II.1).

CHAPTER V

OUT-OF-POCKET HEALTH EXPENDITURE: EVIDENCE OF PRONOUNCED INEQUALITIES

Health goods and services are funded in three main ways, which vary from one country to another according to the structure of each health system: general and specific taxes, social security contributions collected through payroll deductions, other taxes or contributions, and outlays made by households in respect of direct payments and private insurance premiums. While social protection and security funding systems play a key role in the population's health, it should be remembered that the region's labour markets have not displayed a capacity for inclusion either in terms of quality job creation or in terms of contributory social protection (ECLAC, 2006 and 2007a).

Household income and expenditure surveys make it possible to quantify and analyse the amounts households spend on health. In relation to the Millennium Development Goals in the health sector, however, this source does not allow for breakdowns that would establish links between the indicators used to measure the goals and the direct household spending on health care. Examples of the latter include expenses arising from episodes of illness which could be related to indicators such as maternal or child mortality and could give rise to catastrophic expenses, or information on households that lack access to services and are unable to pay health-care expenses out of their own pocket, even when affected by patterns of disease related to the indicators.

Nonetheless, household health expenses provide interesting pointers to the provision of health services and highlight the need to move towards equity in their financing and supply, which is why this perspective has been included in this document.[1]

As will be seen below, although indirectly related to the Millennium targets and relevant indicators in the health sector, a worrying feature in Latin America and the Caribbean is the number of poor households that lack health-care coverage and seem unable to finance their health expenses. As will be noted, while catastrophic expenditure relates more to large health-care outlays than to lack of payment capacity, the latter is another basic constraint. This is important because the presence of children under five involves clearly higher health expenditure, albeit mitigated, for instance, by the existence of specific health care programs targeting this age group. In keeping with the unequal distribution of income or the high levels of inequality in chronic malnutrition reviewed in the previous chapter, Latin America and the Caribbean also displays extreme inequity in out-of-pocket expenditure on health-care as a proportion of household incomes.[2]

In addition to the prices charged by private suppliers, or the co-payments involved in public or private insurance schemes, family outlays on health care could well reflect the availability of public resources and services, through which it is possible to indirectly assess equity in health-service access. The proportion of the family budget assigned to health care, and its relative composition, together with comparisons between income groups, provide important information on household expenditure alternatives

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[1] Albeit not systematically, out-of-pocket health expenses have also been studied in other analyses of progress towards achieving the Millennium Development Goals in the health sector. For example, Wagstaff and Claeson (2004, p. 72 and 73) provide specific information on cases of disease that involve out-of-pocket expenses and argue that these constitute access barriers to health goods and services for the poor, and undermine progress towards achieving the Goals.

[2] Household spending on health has increased significantly, and it is now recommended that poverty measurements in the region take this variable into acount. Two corrections to the standard measurements of poverty have been proposed: (a) subtracting out-of-pocket household expenditures on health from total household income in order to better reflect the income available for spending on "food and other necessities"; and (b) adding to the non-food basket the item "necessary spending", which is to cover a certain minimum level of health spending (Rio Group, 2006, pages 67-73).

(PAHO, 2007b, pp.336-342; Suárez, Gordillo and Vane, 2007). An analysis will be made of the inability of families to pay out-of-pocket expenses on health goods and services under certain circumstances, no matter how necessary and appropriate those expenditures may be (Perticara, 2008a and 2008b).

To review these aspects of health-care access, a group of 12 countries has been analysed which have specific characteristics in the regional context in terms of their public health achievements and health systems (Perticara, 2008a and 2008b), namely Argentina, Bolivia, Brazil, Chile, Colombia, Dominican Republic, Ecuador, Honduras, Mexico, Nicaragua, Peru and Uruguay. An econometric model is developed to make a more in-depth analysis of the characteristics of households that face the highest out-of-pocket medical expenses, and those that seem unable to pay them in seven of those countries (Perticara, 2008a).[3]

Some surveys are nationally representative, while others are only urban; some are limited to the national capital, or to state capitals; some are from the 1990s and others from the current decade. An important variable, insurance policies, was considered only in some cases. All of this restricts substantially the comparison between countries (see table V.1).

Table V.1
LATIN AMERICA (SELECTED COUNTRIES): COVERAGE AND PERIODS FOR UNDERTAKING INCOME AND EXPENDITURE SURVEYS

Country	Name	Coverage	Period
Argentina	National expenditure and income household survey	urban	February 1996-March 1997
Bolivia	Continuous household survey	national	November 2003-November 2004
Brazil	Family budget survey	national	July 2002-June 2003
Chile	Family budget survey	Greater Santiago	August 1996-July 1997
Colombia	National expenditure and income household surveys	23 departmental capitals	March 1994-February 1995
Dominican Republic	National expenditure and income household surveys	national	October 1997-October 1998
Ecuador	National income and expenditure urban household survey	urban	February 2003-January 2004
Honduras	Living conditions survey	national	July-December 2004
Mexico	National income and expenditure	national	Third-quarter 2004
Nicaragua	National living standard measurement household survey	national	April-July 2001
Peru	National household survey	national	May 2003-April 2004
Uruguay	Income and expenditure household survey	Montevideo and other urban areas	June 1994-May 1995

Source: Economic Commission for Latin America and the Caribbean (ECLAC).

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[3] With the aim of enriching this interagency document, the consultancy performed by Marcela Perticara (2008a) analyses Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, and Uruguay. For a broader treatment of the arguments, explanation of the methodology used and a full bibliography, see the text. This study reproduces its arguments partially, either literally or with minor modifications of form. At the outset of the study, ECLAC was reviewing certain categories of expenditure from surveys that could not be included. Nonetheless, following this review, several variables were processed later from the following income and expenditure surveys: Bolivia, 2003-2004; Peru, 2003-2004; Dominican Republic, 1997-1998; Honduras, 2004; and Nicaragua 2001 (Perticara, 2008b). This chapter combines the findings of both texts, and the reader is referred to the first of them for a more detailed treatment of the issues.

1. BRIEF DEFINITION OF CERTAIN CONCEPTS

Household spending on health services as a percentage of total domestic consumption represents the costs of health-care services paid for directly by families (also referred to as out-of-pocket expenses), or indirect expenses relating to prepaid medical care plans, private medical insurance, and contributions to public insurance (PAHO, 2007b). Households make these direct payments on a fragmented basis, generally to the service provider. As they depend on each household's payment capacity they do not have any solidarity or risk diversification rationale (Sojo, 2003). Direct out-of-pocket expenses are considered one of the most inefficient and unfair methods of financing health care, and can lead to family impoverishment.

Out-of-pocket health expenditure encompasses direct net outlays by households on health-related expenses, such as hospitalization, outpatient procedures and medicines, i.e., having deducted the reimbursements received from the health system or insurance system to which the person is affiliated. The burden of out-of-pocket expenditure expresses the magnitude of such expenses in relation to the household's payment capacity, defined as the total income of the household minus its subsistence expenses.[4]

Subsistence needs refer to food expenditure incurred by each household, including the consumption of food but excluding luxury goods. The level of subsistence expenditure (i.e., the amount the household needs to feed its members adequately) needs to be estimated for each country. Following Xu (2005), a poverty line or relative subsistence line is defined, which is estimated as the average per capita expenditure on food made by a family located between percentiles 45 and 55 of the distribution of the ratio between food and total expenditure. This subsistence line thus reflects expenditure by a "typical" family, i.e., one located in the middle of the distribution.[5] In order to ensure that the findings of this analysis can be related to previous studies, the poverty line traditionally used in research in this area will be employed in this chapter.

It should be noted that this poverty line is not comparable with the poverty or indigence lines used generally in Latin America and the Caribbean to analyse household surveys, as was done to measure indigence in chapter II of this volume. Indigence thresholds are established on a normative basis in each country according to the value of a basic subsistence food basket. In other words, extreme poverty lines are equal to the cost of that basket, per person per month in the national currency. Poverty lines, in contrast, are calculated on the basis of a consumption basket that includes other basic items apart from food. To highlight the specific nature of the poverty line proposed by Xu which is used here and is not comparable with others, the terms "poverty" or "impoverishment" will be used between inverted commas throughout this chapter.

Another aspect of out-of-pocket health expenditure is catastrophic expenditure: when the magnitude of the burden of out-of-pocket expenses exceeds a certain threshold of the family's expenditure capacity, these are considered catastrophic. Generally speaking, this threshold is set at 40% of payment capacity, and expenses in this category can impoverish a family (Xu, Evans, and Aguilar, 2003). Constraints on social protection in the health sector may lead to serious acute or chronic disease events, (e.g., hypertension, kidney transplant, HIV/AIDS), or to small-scale but recurrent events (recurrent bronchitis in breast-feeding children) which can result in high out-of-pocket expenses; consequently, both are potentially catastrophic. Catastrophic expenses do not necessarily relate to high-cost diseases; their relative incidence depends not only on health status but also on the characteristics of insurance. Incidence should be less, for example, in countries that offer a package of explicit guarantees that are universal and demandable, or where the State provides universal free coverage to the entire population. Nonetheless, studies are not yet

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[4] This has also been referred to as effective income not destined for subsistence.

[5] Xu (2005) suggests defining the "typical" family as one located in the centre of the distribution of the ratio between expenditure on food and total expenditure, for the level of food expenditure of a family that spends 100% of its expenditure on food will be low because it is a low-income family, whereas one that spends 5% on food is highly likely to be in the high-income bracket.

conclusive in identifying the key elements of a health insurance system that protects households against catastrophic expenses or, on the contrary, encourages households to incur expenditures of that magnitude (Perticara, 2008a).[6]

It should be added that the nature of what is catastrophic depends not only on the size of the outlay but also on the time for which such expenses have to be incurred, or on their specific or repetitive nature. The periodicity of expenditure, for example, should be related to the type of disease: such is the case of chronic illnesses, which are of high incidence also in low-income population groups. Seen in this way, measurement through income or expenditure surveys can not fully reflect the incidence of catastrophic expenditure or the "impoverishment" suffered by households for this cause (Knaul and others, 2003), and the analysis of this chapter is subject to that underestimate.

Studies on out-of-pocket health expenses have tended to ignore a key aspect that emerges in the region, namely repressed health expenditure. Clearly, a lack of household health expenditure may occur for widely varying reasons, both positive and negative: good health-care coverage through public or private systems, the absence of disease events in the period, the precarious nature of household incomes and lack of access to credit that prevents them from incurring expenses during disease episodes, even when lacking adequate coverage. Nonetheless, if a household has limited expenditure possibilities for the latter reason, the amount of its real health expenditure needs is not observed, and the reasons could depend on the same set of determinants of out-of-pocket health expenses, which will be analysed in depth in this chapter.

2. THE BURDEN OF OUT-OF-POCKET HEALTH EXPENDITURE AND "IMPOVERISHMENT"

The significance of out-of-pocket health expenditure varies considerably from one country to another (see tables V.2a and V.2b). In some cases the burden is not that high. The smallest amount is recorded in Bolivia, at 4%, whereas in Brazil, Chile, Colombia, Mexico, Uruguay the burden reaches roughly 5%, in the Dominican Republic 6%, and in Ecuador 7.4%. The highest levels are in Argentina with 8%, Peru, with almost 9%, and Nicaragua, with 10%. Among the countries studied, Honduras easily registers the highest burden, at roughly 16% (see figure V.1).

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[6] Perticara (2008a) discusses a number of possible links between the characteristics of out-of-pocket health expenses and those of health systems in the seven countries analysed.

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Table V.2a
LATIN AMERICA (SELECTED COUNTRIES): OUT-OF-POCKET HEALTH EXPENDITURE INDICATORS
(Percentages)

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Honduras	Mexico	Nicaragua	Peru	Dominican Republic	Uruguay
Total per capita income (as a proportion of total average income)												
Expenditure capacity/total per capita income	73.9	56.4	86.6	78.6	73.3	80.7	82.1	80.9	54.7	…	65.2	79.8
Total expenditure/ expenditure capacity	108.8	138.7	113.2	109.3	128.0	83.0	150.2	113.9	179.0	139.6	365.4	109.5
Health expenditure/total expenditure	8.5	3.2	5.4	6.0	3.8	5.2	13.5	4.8	5.9	6.6	3.3	10.4
Cost of medical coverage/ health expenditure	27.7	…	27.4	9.6	8.3	0.5	…	1.4	…	…	…	57.2
Out-of-pocket health expenditure/total health expenditure	72.3	100.0	72.6	90.4	91.7	99.5	99.7	98.6	100.0	100.0	97.1	42.8
Out-of-pocket health expenditure/payment capacity	8.1	3.9	4.9	5.5	5.3	7.4	16.2	5.3	10.1	8.8	5.8	5.2
Distribution of households by coverage												
Percentage of households with out-of-pocket health insurance expenditure	27.5	…	23.1	22.2	8.0	0.5		0.8	…	…	…	80.7
Percentage of households with zero out-of-pocket health expenditure	50.1	43.9	19.9	37.1	23.9	5.8	20.6	23.6	23.2	13.6	52.0	26.9
Out-of-pocket health expenditure/payment capacity, households with positive expenditure	…	7.0	…	…	…	…	20.4	…	13.1	10.2	10.9	…
Percentage of households with zero out-of-pocket health expenditure, but with expenses on medical insurance	10.3	…	1.8	6.4	1.0	0.0	…	0.1	…	…	…	18.4
Percentage of households whose burden of out-of-pocket expenses reaches a level of 40%	5.6	0.9	0.5	2.1	0.6	1.6	13.3	1.9	5.3	2.4	0.4	0.5
Poverty rate	13.8	13.0	4.4	11.1	7.7	7.4	20.3	3.9	23.2	10.7	59.6	3.8
Poverty rate in households with zero out-of-pocket health expenses	21.6	18.7	11.1	22.4	8.0	27.4	27.2	6.6	27.4	23.2	67.6	9.5
Percentage of households "impoverished" after meeting out-of-pocket health expenses	1.9	0.6	0.6	0.9	1.0	1.1	4.8	0.5	2.5	1.4	1.3	0.3

Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series*, No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished, on the basis of income and expenditure surveys conducted by selected countries.

Note: See table V.1 for the periods in which the surveys were undertaken.

Three dots (...) indicate that data are not available or are not separately reported.

Table V.2b

LATIN AMERICA (SELECTED COUNTRIES): OUT-OF-POCKET HEALTH EXPENDITURE INDICATORS, BY HOUSEHOLDS WITH AND WITHOUT MEDICAL INSURANCE

	Argentina		Brazil		Ecuador		Mexico		Peru		Uruguay	
	Households		Households		Households		Households		Households		Households	
	Without insurance	With insurance	Without insurance	With insurance	Without insurance	With insurance	Without insurance	With insurance	Without insurance	With insurance	Without insurance	With insurance
Total per capita income (as a proportion of total average income)	0.56	1.21	0.61	1.98	0.68	1.95	0.74	1.34	0.58	1.90	0.44	1.02
Expenditure capacity/total per capita income	50.2	80.0	78.0	95.0	71.6	92.6	75.3	91.6	…	…	60.2	80.4
Total expenditure/ expenditure capacity	181.9	98.1	128.6	101.7	98.4	62.5	128.7	88.9	159.8	118.3	157.6	108.8
Health expenditure/ total expenditure	4.4	9.7	3.9	6.8	5.0	5.1	5.0	2.7	5.0	7.3	2.7	10.6
Cost of medical coverage/ health expenditure	1.7	32.9	3.9	46.9	0.0	1.9	1.6	1.9	…	…	1.0	57.0
Out-of-pocket health expenditure/total health expenditure	98.3	67.1	96.1	53.1	100.0	98.1	98.4	98.1	100.0	100.0	99.0	43.0
Out-of-pocket health expenditure/payment capacity	5.5	9.1	4.9	4.5	7.5	7.0	5.9	2.4	7.0	9.1	3.1	5.3
Distribution of households by coverage	24.1	59.1	72.4	6.4	55.8	8.3	56.9	3.1	30.3	13.2	1.7	91.7
Percentage of households with out-of-pocket health insurance expenditure												
Percentage of households with zero out-of-pocket health expenditure	62.7	45.3	24.3	14.7	7.7	7.8	23.7	38.8	25.4	11.6	52.1	26.1
Out-of-pocket health expenditure/payment capacity, households with positive expenditure	…	…	…	…	…	…	…	…	9.4	10.3	…	…
Percentage of households with zero out-of-pocket health expenditure, but with expenses on medical insurance	0.6	15.2	0.2	11.3	0.0	0.0	0.2	0.0	…	…	0.0	18.4
Percentage of households whose burden of out-of-pocket expenses reaches a level of 40%	3.4	6.5	0.6	0.3	1.8	1.6	2.0	0.3	2.7	2.2	0.0	0.5
Poverty rate	30.9	6.5	6.0	0.1	12.2	1.9	6.3	0.0	15.5	7.4	122.4	1.6
Poverty rate in households with zero out-of-pocket health expenditure	39.6	11.2	12.5	0.7	35.3	2.9	10.8	0.0	28.8	3.1	14.4	9.3
Percentage of households that become "impoverished" after meeting out-of-pocket health expenses	1.6	2.0	0.8	0.0	1.8	0.1	0.9	0.0	1.5	0.5	0.0	0.3

Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series,* No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished, on the basis of income and expenditure surveys conducted by selected countries.

Note: See table V.1 for the periods in which the surveys were conducted. "With insurance" refers to households in which all of its members have some type of medical insurance; "Without insurance" refers to households in which none of the members have any type of insurance.
Three dots (...) indicate that data are not available or are not separately reported.

Figure V.1

LATIN AMERICA (SELECTED COUNTRIES): INCIDENCE OF OUT-OF-POCKET HEALTH EXPENDITURE ON HOUSEHOLD PAYMENT CAPACITY

(Percentages)
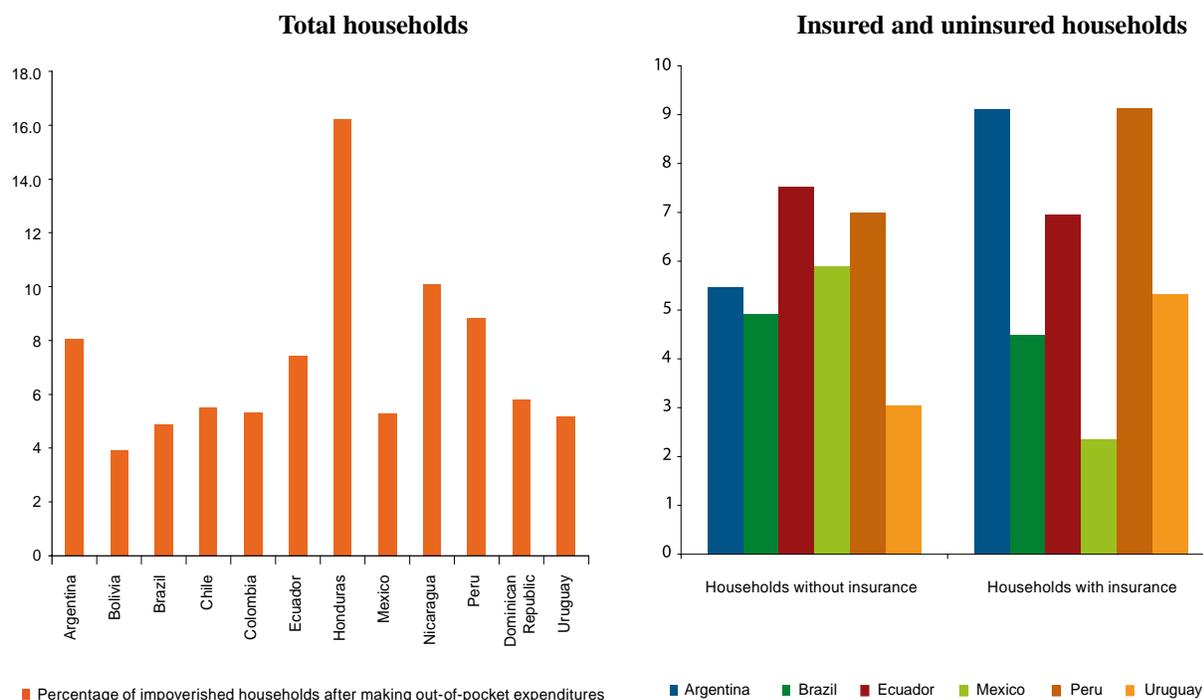
Total households

Insured and uninsured households

Percentage of impoverished households after making out-of-pocket expenditures

Argentina   Brazil   Ecuador   Mexico   Peru   Uruguay

Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series,* No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished, on the basis of income and expenditure surveys conducted in selected countries.

Note: See table V.1 for the periods in which the surveys were conducted.

In terms of the "impoverishment" caused by the magnitude of the expenditure, the percentage of households is very low in Brazil, Mexico, and Uruguay; in Bolivia it amounts to just 0.6%; in Chile, Colombia and Mexico it approaches 1%; in Peru and the Dominican Republic it is around 1.5%; while Argentina records the highest value at 1.9%. Nonetheless, rates in Nicaragua are higher (2.5%) and levels in Honduras are also very substantial (almost 5%) (see figure V.2).

Figure V.2
**LATIN AMERICA (SELECTED COUNTRIES): HOUSEHOLDS THAT BECOME IMPOVERISHED
AFTER ABSORBING OUT-OF-POCKET HEALTH EXPENSES**
*(Percentages)*
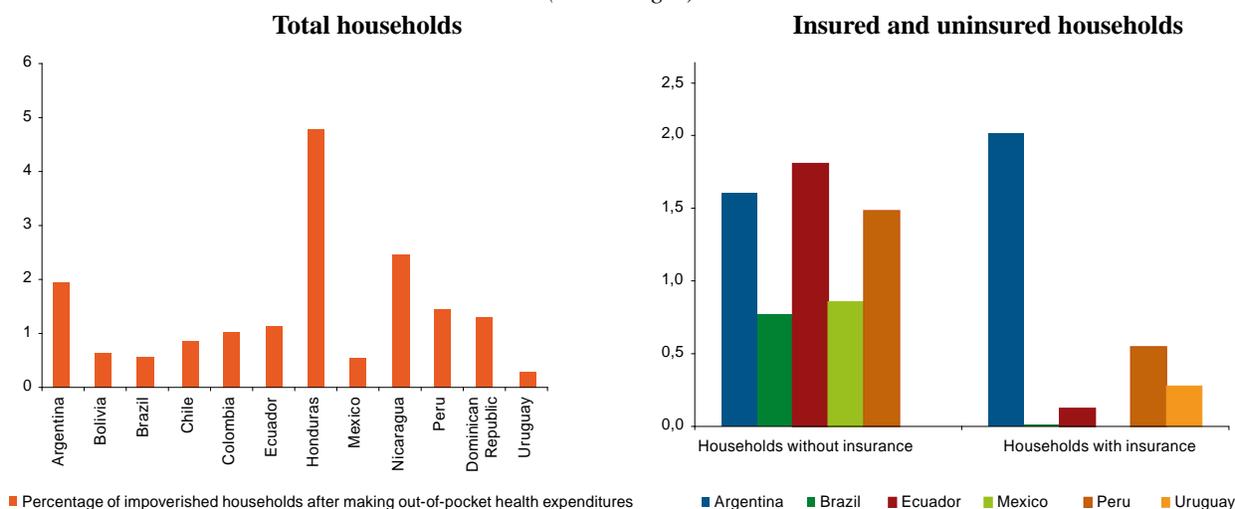
Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series*, No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished, on the basis of income and expenditure surveys conducted in selected countries.

Note: See table V.1 for the periods in which the surveys were conducted.

In other words, in several countries the proportion of households that become impoverished when facing health expenses is not that high. Nonetheless, the negative effects are severe in Honduras: the percentage of households that have become impoverished is almost five times that of the country with the lowest figure. It is also worth repeating that both income and health expenditure are measured for the month in which the survey is conducted, so they do not reflect the permanent burden or average out-of-pocket health expenditure. Thus, as will be seen below, families may have unusually high or low health expenses in that particular month owing to fortuitous or more structural events.

Private health insurance policies and prepayment plans are important private health expenditure mechanisms and pose a major public policy challenge in terms of regulations to ensure the effective functioning of the corresponding markets, and to address inequalities in access to health systems. Apparently, the size of private health insurance markets and prepayment plans are determined by the public health system, the scope of population coverage, the services covered by social health insurance, and policies that regulate the functioning of the markets in question (PAHO, 2007a).

A number of findings show how the burden of out-of-pocket health expenditure can reflect not only the coverage of public health systems and prices on the corresponding markets, but also insurance systems. In Argentina and Uruguay the State provides medical services directly to the lowest-income groups, and the coverage provided by the social security system is relatively broad. But in these countries, it is precisely households with full coverage that bear the heaviest burden of out-of-pocket health expenses[7] and face higher rates of "impoverishment", when the cost of their medical coverage is certainly not less. In

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[7] This is also true if the average burden of out-of-pocket expenditure is calculated only considering households that report this type of expenditure.

Argentina, for example, households with full coverage spend one third of their monthly health expenditure on medical insurance, while in Uruguay the equivalent figure is 57%. In contrast, in Ecuador and Mexico, although health insurance coverage is less, the burden of out-of-pocket health expenses is not particularly high, and outlays for medical coverage are small. In Brazil, only a small proportion of households contract health insurance policies to complement the Single Health System (SUS), but some of those households pay considerable sums out of their own pocket for this purpose (Perticara, 2008a).[8]

3. CATASTROPHIC HEALTH EXPENDITURE AND MEDICATION EXPENSES

Honduras reports the largest proportion of households incurring catastrophic expenses, at 13.3%, followed by Nicaragua, at 5.3%. Using other definitions of the limit of payment capacity (30% or 20%), Honduras still has the highest incidence of catastrophic expenses (see figure V.3 and table V.2). In Argentina, about 3% of households incur such expenses, followed by Peru, with 2.4%, and by Chile, Mexico and Ecuador with roughly 2% (see figure V.3 and table V.2). Using other thresholds (30% or 20%), the incidence of catastrophic expenses is also high in Argentina, which is affected by the expenditure of households that have insurance coverage (see figure V.4).

Figure V.3
LATIN AMERICA (SELECTED COUNTRIES): CUMULATIVE DISTRIBUTION OF HOUSEHOLDS BY BURDEN OF OUT-OF-POCKET HEALTH EXPENDITURE
*(Percentages)*
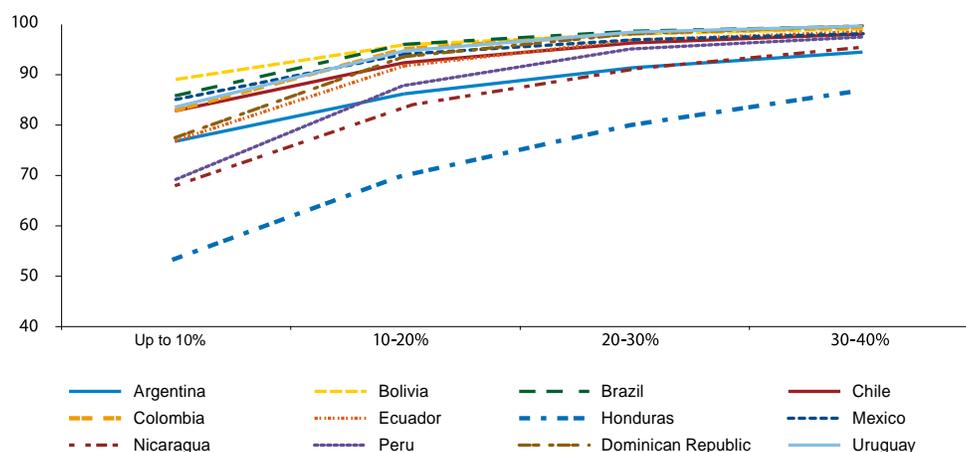
Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series,* No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished, on the basis of income and expenditure surveys conducted in selected countries.

Note: See the periods in which the surveys undertaken in table V.1.

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[8] According to ECLAC (2006), based on Medici (2001), in this country over 50% of total health expenditure (which includes insurance payments) is made by households because, although 40% of the population uses the SUS exclusively, 44% complement it with private insurance policies.

Figure V.4

**ARGENTINA: CUMULATIVE DISTRIBUTION OF HOUSEHOLDS, BY BURDEN OF OUT-OF-POCKET
HEALTH EXPENDITURE ON PAYMENT CAPACITY, WHETHER OR NOT AFFILIATED
TO MEDICAL INSURANCE**

(Percentages)
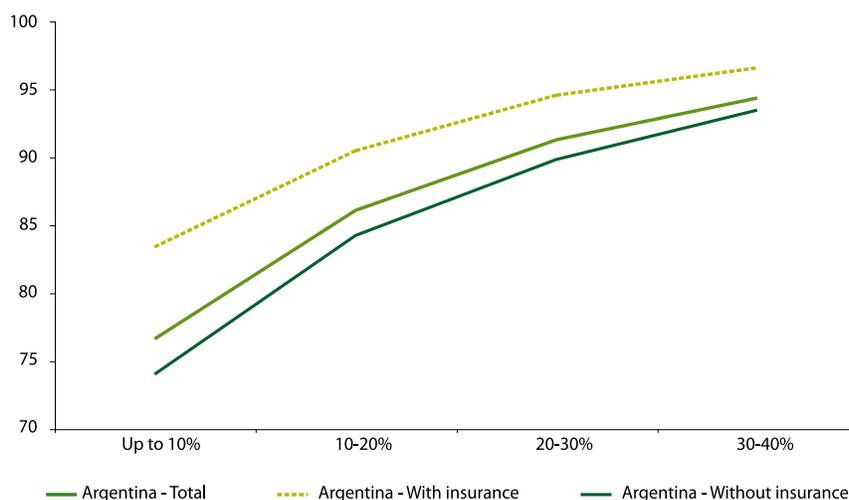
Having said that, which groups face catastrophic expenses? Low-income households with relatively high health expenses, or high-income households that face very expensive health events?

Table V.3 shows the percentage distribution of households for different expenditure levels in 12 countries. It also shows average per capita income, out-of-pocket health expenditure and expenditure on medical insurance among households facing different levels of this burden. Catastrophic expenditure seems to be more closely associated with high out-of-pocket expenses than with a lack of payment capacity. In Brazil, Chile, Colombia and Mexico, a household with a high burden can pay over 10 times what an average household spends. In Bolivia, a high burden household (40% or more) may spend 16 times more than an average household. In the Dominican Republic, in contrast, the high burden is more indicative of low payment capacity than high levels of out-of-pocket health expenses.

Table V.3
LATIN AMERICA (SELECTED COUNTRIES): STRUCTURE AND LEVEL OF EXPENDITURE BY BURDEN OF OUT-OF-POCKET HEALTH EXPENSES
(Percentages)

	In percentages of the average		Distribution of the percentage of out-of-pocket health expenditure					Medical insurance expenditure as a percentage of total expenditure
	Per capita income	Out-of-pocket health expenditure (OPHE)	General consultations[a]	Specialties	Laboratory expenses	Hospitalization	Medications	
Argentina								
Without OPHE	87							4.9
Less than 10%	127	66	11.1	35.9	0.0	1.5	51.5	6.5
10%-19%	109	216	5.7	26.4	0.0	4.3	63.7	6.7
20% -29%	99	326	6.1	20.9	0.0	6.1	66.9	5.4
30%-39%	102	414	4.7	21.6	0.0	8.2	65.6	4.1
40% or more	76	572	2.6	15.6	0.0	11.2	70.6	3.3
Bolivia								
Without OPHE	91							0.0
Less than 10%	110	95	10.8	17.6	6.7	3.5	61.5	0.0
10%-19%	97	309	6.1	16.7	6.0	24.4	46.8	0.0
20%-29%	101	600	3.2	9.8	4.5	61.4	21.1	0.0
30%-39%	70	668	2.7	8.5	3.3	59.7	25.8	0.0
40% or more	77	1725	0.6	3.3	0.5	80.7	14.9	0.0
Brazil[b]								
Without OPHE	69							1.7
Less than 10%	115	86		31.3	3.3	1.8	63.6	4.5
10%-19%	73	228		32.4	4.9	6.8	55.9	4.5
20%-29%	73	337		29.7	6.9	9.0	54.4	3.1
30%-39%	78	476		27.5	6.0	18.7	47.8	4.3
40% or more	90	1318		14.9	3.0	60.0	22.1	2.6
Chile								
Without OPHE	81							1.1
Less than 10%	111	60	27.7	15.0	5.3	2.4	49.6	1.9
10%-19%	116	247	23.4	23.1	8.8	6.3	38.3	1.5
20%-29%	107	375	20.3	27.4	9.5	9.5	33.3	1.9
30%-39%	100	599	16.3	27.8	7.1	27.1	21.8	0.8
40% or more	107	1126	10.0	22.7	4.6	49.2	13.5	1.3
Colombia								
Without OPHE	86							1.0
Less than 10%	112	74	14.5	20.7	6.2	10.4	48.2	1.2
10%-19%	69	223	15.4	12.5	12.9	13.6	45.7	0.6
20%-29%	61	330	16.5	9.0	14.4	12.5	47.6	0.2
30%-39%	65	554	7.9	8.3	32.0	15.8	35.9	0.1
40% or more	71	1050	5.3	11.9	27.2	36.9	18.7	0.2
Ecuador								
Without OPHE	95							0.0
Less than 10%	104	64	12.3	27.6	10.1	9.5	40.5	0.1
10%-19%	89	188	6.9	19.9	8.1	23.5	41.6	0.0
20%-29%	92	287	4.7	13.6	6.4	35.5	39.9	0.1
30%-39%	83	342	4.1	12.9	6.1	40.5	36.4	0.0
40% or more	79	411	2.7	9.3	6.2	41.7	40.1	0.0

Table V.3 (concluded)

	In percentages of the average		Distribution of the percentage of out-of-pocket health expenditure					Medical insurance expenditure as a percentage of total expenditure
	Per capita income	Out-of-pocket health expenditure (OPHE)	General consultations[a]	Specialties	Laboratory expenses	Hospitalization	Medications	
Honduras								
Without OPHE	120							
Less than 10%	109	25	68.6				31.4	
10%-19%	105	92	76.4				23.6	
20%-29%	89	135	77.4				22.6	
30%-39%	79	193	82.0				18.0	
40% or more	59	374	87.9				12.1	
Mexico								
Without OPHE	90							0.1
Less than 10%	104	53	18.2	27.2	6.1	1.8	46.6	0.2
10%-19%	83	192	12.6	24.2	7.4	6.8	48.8	0.0
20%-29%	78	349	9.7	13.8	7.4	16.3	52.7	0.1
30%-39%	140	606	5.6	11.5	4.2	24.4	54.2	0.1
40% or more	184	1707	5.3	8.0	3.0	13.0	70.6	0.1
Nicaragua								
Without OPHE	104							
Less than 10%	121	46	29.6				70.4	
10%-19%	80	140	36.1				63.9	
20%-29%	65	202	30.4				69.6	
30%-39%	58	280	34.0				66.0	
40% or more	48	594	45.2				54.8	
Peru								
Without OPHE	83							0.0
Less than 10%	115	54	21.0	25.8	5.1	7.4	40.7	0.0
10%-19%	88	160	17.3	16.5	10.6	13.2	42.4	0.0
20%-29%	67	255	13.7	12.1	14.9	16.7	42.6	0.0
30%-39%	82	356	11.9	11.2	22.3	15.5	39.0	0.0
40% or more	52	505	8.7	5.1	29.6	22.5	34.1	0.0
Dominican Republic								
Without OPHE	89							0.5
Less than 10%	123	186	18.1	33.8	17.5	7.5	23.1	1.2
10%-19%	101	200	14.2	21.5	28.3	6.1	29.9	0.9
20%-29%	72	166	13.5	14.0	38.6	5.0	28.8	0.1
30%-39%	74	185	9.9	12.5	41.9	8.6	27.2	0.7
40% or more	80	217	8.2	18.6	30.2	6.8	36.2	0.0
Uruguay								
Without OPHE	71							13.2
Less than 10%	114	78	15.3	25.7	0.3	32.6	26.1	14.0
10%-19%	106	284	22.7	33.3	0.1	15.9	27.9	14.3
20%-29%	92	401	31.0	29.0	0.1	15.6	24.4	13.7
30% or more	75	561	22.6	26.6	0.2	24.8	25.9	12.5

Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series,* No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished, on the basis of income and expenditure surveys conducted in selected countries.

Note: See table V.1 for the periods in which the surveys were conducted.

[a] In Honduras and Nicaragua, out-of-pocket expenses on general consultations exclude medications; it was impossible to obtain a breakdown of the different items of health expenditure; and medication expenses could only be identified in medical expenses.

[b] The database for Brazil does not allow general consultations to be separated from specialist ones.

Table V.3 shows that catastrophic expenditure is associated more with hospitalization and medication expenses than with general and professional consultations. In all countries apart from Uruguay, the share of hospitalization expenses in total expenditure rises as the relevant burden increases. For example, in Brazil and Mexico, a household facing a burden of 40% or more may spend up to 60% or more on hospitalization expenses. In contrast, in Uruguay, the latter are also very high in households with a low burden, i.e., less than 10%.

Medication expenses account for a high proportion of out-of-pocket health expenditure in all countries (see figure V.5). They are relatively low in Honduras (just under 18%) and in Uruguay, where they vary around 25%, followed by Peru (40%) and Bolivia (over 40%). In Argentina, Brazil and Mexico, however, medicines absorb over 50% of total expenditure and in Nicaragua 60%.

Figure V.5
LATIN AMERICA (SELECTED COUNTRIES): OUT-OF-POCKET EXPENDITURE ON MEDICINES
(Percentages)
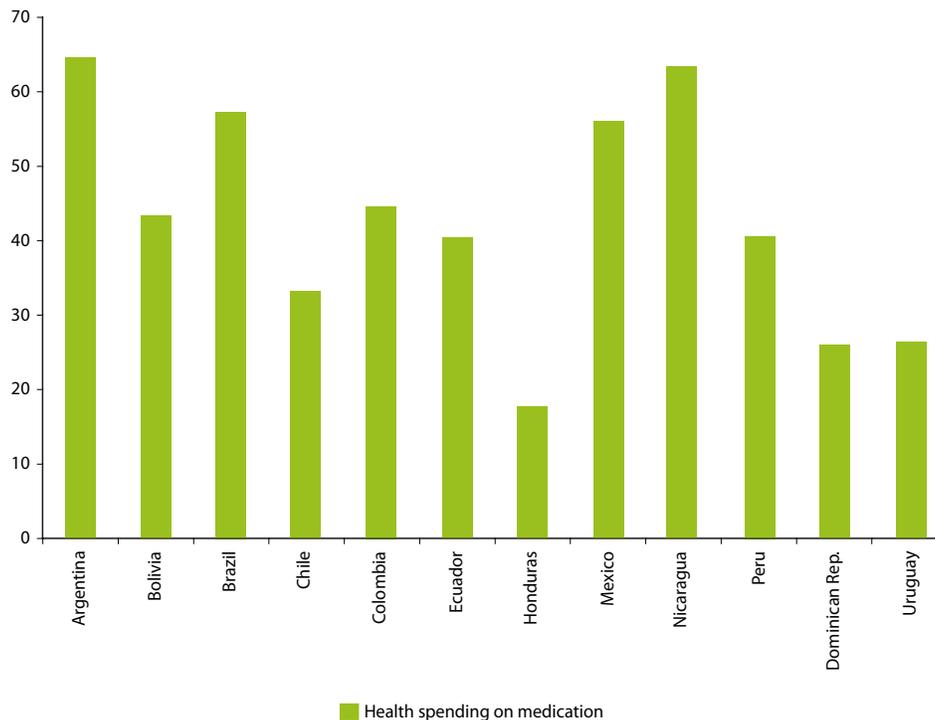
Health spending on medication

Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series,* No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished.

Note: See table V.1 for the periods in which the surveys were conducted.

In Argentina and Mexico, expenditure on medications by households facing catastrophic expenses accounts for over 70% of total out-of-pocket health expenditure. In contrast, in Brazil, Chile and Colombia, medicines absorb a smaller proportion of total out-of-pocket expenditure among households with catastrophic expenses (see table V.3).[9]

4. INEQUALITY AND REPRESSED HEALTH EXPENDITURE

As noted above, studies have traditionally ignored a key issue, namely the underlying reasons for a lack of out-of-pocket health expenses. Yet, except for Ecuador, a large percentage of households in the countries studied do not declare such expenses.

In the Dominican Republic, 52% of households do not declare out-of-pocket health expenses; the equivalent figure in Argentina is 50%, followed by Bolivia at almost 44%. In Chile, 37% of households report zero out-of-pocket expenses, while the proportion ranges between 20% and 30% in Brazil, Colombia, Mexico, Nicaragua and Uruguay. Although in Peru the figure is lower (13.6%), it is higher in households lacking medical coverage (25.4%).

Argentina is clearly a special case; although families tend to incur in high out-of-pocket health expenses averaging 16% of their payment capacity, over half of all households do not declare any out-of-pocket spending (see table V.2).

The underlying reasons for a lack of health expenditure cannot be determined a priori. Presumably, the "constraint" factor could be less in countries that have public health systems or collective insurance schemes (e.g., Argentina, Uruguay and Mexico),[10] and households with zero expenditure would not incur out-of-pocket expenses for the positive reasons mentioned above. But, in this regard, in three countries that have information on medical insurance policies,[11] the proportion of households with zero expenditure is relatively high among those lacking medical coverage. Thus, in Argentina, 62.7% of households without coverage reported zero expenditure, compared to 45.3% for households with full coverage. In Brazil and Uruguay, the proportion is also higher in the group without any insurance.

In Argentina, Bolivia, Brazil, Chile, Dominican Republic, Mexico, Peru and Uruguay, the proportion of households reporting zero health expenditure is substantially higher among low-income sectors (see table V.4). Moreover, a high proportion of households not declaring out-of-pocket health expenses are concentrated in the initial income quintiles (see table V.4). There are several reasons for this: firstly, in all countries the lowest-income population enjoys some level of coverage from social health insurance schemes, which usually do not require co-payments; otherwise they have cost-free access to a certain level of primary care. On the other hand, low-income households may face serious problems in paying for health services, no matter how much they need them, because "poverty" is also relatively high among households not declaring health expenses (see table V.2). So, while catastrophic expense is associated more with high out-of-pocket expenses than with low payment capacity, the constraint facing those with low payment capacity is basically expressed as an inability to make such expenditures, even without insurance coverage.

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[9]   In some cases the data on medication expenses may be somewhat vague, because the family's statement may depend on how hospitals cover or invoice medicines supplied during hospitalization episodes. In Chile, for example, the cost of medications in outpatient care is only covered by public and private systems for the pathologies covered by the System of Universal Access with Explicit Guarantees (AUGE). Nonetheless, all health plans cover medicines in cases of hospitalization to a greater or lesser extent in all countries (from 70% to 90%, with or without limit). In Argentina, the insurance provided by "obras sociales" and private insurance policies usually cover medications to the extent of 50% to 70%, but medications and disposable material during hospitalization are only partially covered.

[10] See Perticara (2008a), annex I.

[11] The exceptions are Ecuador and Mexico.

Table V.4
LATIN AMERICA (SELECTED COUNTRIES): PROPORTION OF HOUSEHOLDS DECLARING ZERO OUT-OF-POCKET HEALTH EXPENSES BY PER CAPITA INCOME QUINTILES
(Percentages)

	Argentina	Bolivia	Brazil	Chile	Colombia	Ecuador	Honduras	Mexico	Nicaragua	Peru	Dominican Republic	Uruguay
Percentage of households declaring zero out-of-pocket expenditure												
Quintile I	66	50	30	49	19	8	18	28	20	20	60	44
Quintile II	52	51	22	42	17	5	19	25	28	15	48	34
Quintile III	49	45	20	36	18	5	20	22	20	11	47	23
Quintile IV	44	37	15	33	16	5	22	23	24	10	42	19
Quintile V	39	37	12	23	15	6	24	19	24	12	39	15
Quintile I	26	23	30	27	23	29	18	24	18	30	26	33
Quintile II	21	23	22	23	20	17	19	21	24	22	20	25
Quintile III	20	20	20	20	21	18	20	19	17	16	20	17
Quintile IV	18	17	16	18	19	17	21	20	21	14	18	14
Quintile V	16	17	12	13	17	19	23	16	21	18	17	11

Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series,* No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished.

The situation is different in Honduras, however, where the proportion of households with zero expenditure is greater in the higher quintiles; and in Nicaragua where the second quintile and the two wealthiest quintiles contain larger proportions of households with zero expenses.

5. VARIABLES EXPLAINING THE DIFFERENT INCIDENCE OF OUT-OF-POCKET EXPENSES [12]

In view of the foregoing analysis, the following econometric exercise relates the distribution of out-of-pocket health expenses, or the burden of this expense, in Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Uruguay to variables such as the age of the head of household, his or her educational level, the household's health coverage, geographic area, income level, the employment status of the head of household and the presence of young children and older adults.

In five of the seven countries (the exceptions are Chile and Uruguay) this burden declines with income. The negative income effect is quantitatively more important in Argentina, Brazil and Colombia, less important in Mexico, and very low in Ecuador. In Uruguay, the burden initially rises with the income level— in second-decile households it is 10% higher than those of the first decile —but it remains relatively

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[12]   For the reasons outlined earlier on, only seven countries were included in the analysis performed with linear econometric models, selection control and quantile regressions as explained in annex III of Perticara (2008a). The results should not be interpreted causally, as some the explicative variables considered are potentially endogenous. Althoug the econometric models used do not have a theorical framework that defines the explicative variables to be included, those used are in keeping with the suggestions made in related studies (Prah Ruger and Kim, 2007; Xu, 2005; and others, 2003b). For further details, see the full analysis in Perticara (2008a).

constant until the fifth decile before starting to fall at the higher income levels: in the wealthiest decile it is 25% lower than in the poorest. In Chile, the burden grows with the income level up to the eighth decile and then falls for the wealthiest deciles (see figure V.6).

Figure V.6
LATIN AMERICA (SELECTED COUNTRIES): BURDEN OF OUT-OF-POCKET HEALTH EXPENSES BY INCOME LEVELS
(Predictions of the linear model by family per capita income deciles, first decile = 1)
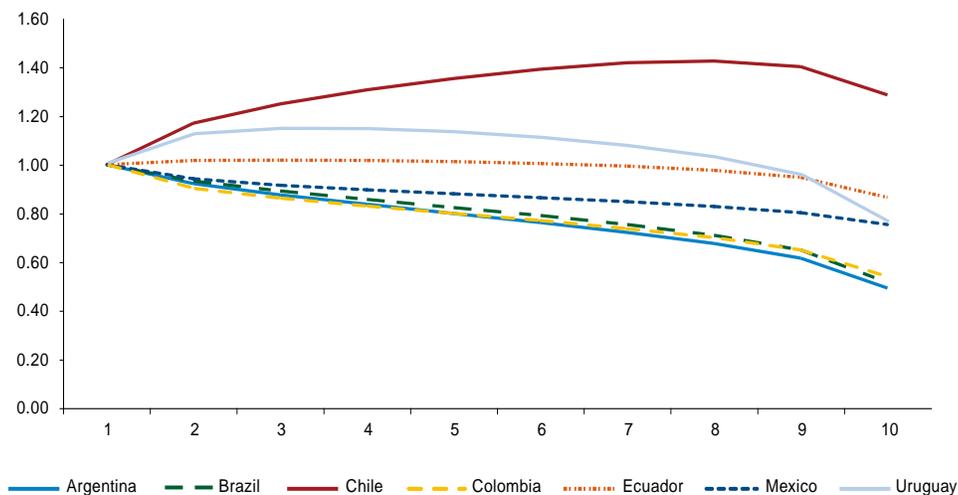
Source: M. Perticara, "Incidencia de los gastos de bolsillo en salud en siete países latinoamericanos", *Políticas sociales series,* No. 141 (LC/L.2879-P), Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008. United Nations publication, Sales No. S.08.II.G.18; and "Un análisis descriptivo de gastos de bolsillo en salud en Bolivia, Honduras, Nicaragua, Perú y República Dominicana", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), 2008, unpublished, on the basis of income and expenditure surveys conducted in selected countries.

Note: See table V.1 for the period in which the surveys were conducted.

The household's age structure also affects the incidence of out-of-pocket expenses (Perticara, 2008a). In Chile and Mexico, young children under five years of age give rise to clearly higher burdens (14% and 17%, respectively). In contrast, Argentine households with young children have an out-of-pocket expense that is 9% lower, possibly reflecting the fact that most social institutions have mother-child plans involving preferential or zero co-payments for regular services and medications for expectant mothers and young children.

Persons over 65 years of age also generate higher out-of-pocket expenses in all countries. Among families in Argentina, Brazil, Chile, Ecuador and Uruguay, where there is at least one older adult other than the head of the household, the burden of this category of expenditure is 45%-55% greater than in families without older adults. In Colombia and Mexico, households with older adults face a burden that is 30% higher. If the older adult is also the head of the household, in Argentina, Brazil, Chile, Ecuador and Mexico the burden is greater still: the incidence of out-of-pocket health expenses in households headed by an individual of over 65 years of age is 45%-60% greater than when the older adults are not heads of household. In other words, households whose heads are older than 65 generate a high out-of-pocket health expense burden. Countries in which this is substantially higher are Argentina, Chile and Ecuador (80%), followed by Brazil and Mexico (60%).

Catastrophic expenses, meanwhile, are clearly associated with hospitalization episodes, and their effects can be used to classify the seven countries in three groups. Chile and Mexico make up the first group: when households face hospitalization, the burden of out-of-pocket health expenses can increase by five- and sevenfold, respectively. The middle group consists of Argentina, Brazil, Colombia and Ecuador, where expenditure doubles or triples. Lastly, in Uruguay it increases by just 28%. In Brazil and Mexico, when urban or rural residency is taken into account, in the latter case the burden is 20%-30% higher.

With regard to insurance, the burden of these expenses among Argentine households in which only some members have medical insurance is 15% less than in those with no coverage. In Mexico, having some type of medical coverage substantially reduces expenses; those incurred by families in which some or all of their members have medical insurance are 25% or 10% lower than those that have no insurance. In Chilean and Colombian households it is lower among those with insurance.[13] In Brazil, on the other hand, insured households have a burden that is 14% greater. In the other countries this variable displays negative coefficients which are not statistically significant.

Lastly, the burden is clearly higher in cases where the head of household is unemployed: 35% in Argentina and 15%-20% in Brazil, Chile, Mexico and Uruguay. In terms of the factors that affect the likelihood of a household having out-of-pocket expenses (see Perticara, 2008a, table A.6), the higher the income the higher the probability of outlays, even taking account of the cost of medical coverage. The highest income elasticity is in Uruguay, where a 1% increase in income is associated with a 14 point rise in the probability of incurring expenses, whereas in Ecuador this variable does not have a statistically significant effect.

In Argentina, Brazil and Ecuador, households with partial medical insurance are more likely to incur out-of-pocket health expenses. The marginal effects range from 5% and 3.6% in Argentina and Ecuador, respectively, to 12% in Brazil. Argentine households whose members are all insured also report higher expenses than those without any type of insurance. In contrast, the expenses of Mexican households in this situation are 20% lower than those lacking insurance. In all countries, apart from Mexico, households without medical coverage do not seem more likely to incur out-of-pocket expenses.

6. THE UNEQUAL DISTRIBUTION OF OUT-OF-POCKET HEALTH EXPENDITURE

Different household characteristics give rise to different distributions of the burden of out-of-pocket expenses, which are analysed in terms of seven variables: income, age of the head of household, presence of small children, presence of older adults, zone of residence, employment status of the head of household and the occurrence of hospitalization events.

Irrespective of household characteristics, the highest incidence of out-of-pocket expenses occurs in Argentina. In all countries, three characteristics substantially increase the burden of such expenses: head of household of 65 years old, hospitalization events and the presence of an older adult. When the older adult is not the head of the household, the effect on expenditure is less than when the older adult is the head, possibly because the ratio between out-of-pocket expenditure and payment capacity is even higher in the second case, as it undermines income generation capacity and at the same time increases out-of-pocket health expenses.[14]

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[13] As explained in section 1, expenditures on health insurance do not constitute out-of-pocket health expenditures, but a form of indirect health spending.

[14] The numerator of the indicator increases, at the same time as the denominator decreases.

Hospitalization episodes give rise to particularly high ratios between expenditure and payment capacity in Argentina, Chile and Mexico: expenses can be between two and 12 times higher than in households not affected by this type of situation.

The burden is particularly unequal in Chile (see Perticara 2008a, table A.15). For example, the ratio between expense and payment capacity in the most vulnerable 5% of households (percentile 95) is 200 times higher than in the wealthiest 5% (percentile 5). In Mexico, the ratio is 127 to 1, and in Colombia 114 to 1. In Uruguay, the incidence of out-of-pocket expenses is less, even for households facing hospitalization episodes, and the dispersion of the burden is also very low (see figure V.7).

Figure V.7
**LATIN AMERICA (SELECTED COUNTRIES): PERCENTILES OF THE BURDEN
OF OUT-OF-POCKET EXPENSES**
(Predictions for the baseline category, regressions by quintiles, in percentages)
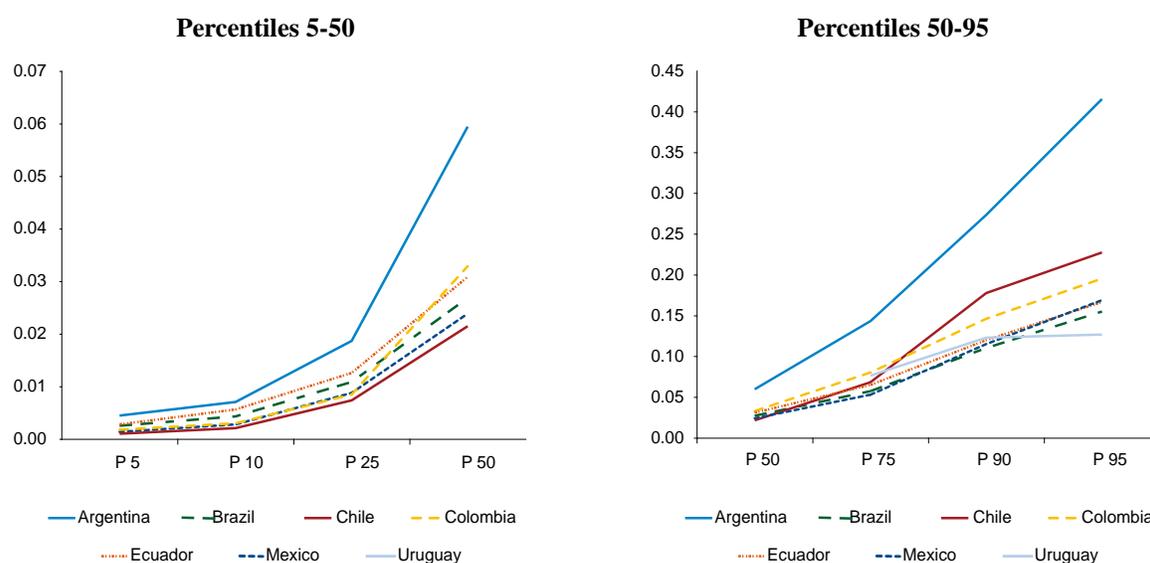
Note: See table V.1 for the periods in which the surveys were conducted. The baseline category consists of households with no medical coverage of any kind (when the information is available), whose heads of household are younger than 30, lack education and are employed, in urban zones, without children under five, without older adults, with average incomes, which do not experience hospitalization events, and in which the household does not have medical insurance expenses.

According to the linear model, the presence of small children raised the level of average expenditure. Percentile analysis shows that, on average, households with small children spend more in relation to their payment capacity for outpatient services, medical appointments, and low-cost medicines but do not necessarily face catastrophic events.

By zone of residence, the mean burden in rural households is higher in Mexico and Brazil. In Brazil, geographic zone has a slightly larger impact on the first percentiles, from 5% to 10%; in contrast, in Mexico the difference between rural and urban households increases in the higher percentiles and reaches 30% in percentile 90-95 (Perticara, 2008a).

CHAPTER VI

**FINANCING OF THE MILLENNIUM DEVELOPMENT GOALS ON HEALTH
IN LATIN AMERICA AND THE CARIBBEAN**

This chapter firstly analyses general trends in non-contributory social public expenditure on health in the region as an overall financial framework that conditions progress towards the Millennium Development Goals on health.[1] The advances and constraints affecting such expenditure broadly reflect the resource endowment available in the health sector at the different levels of government and the relative priority given to it. Regional trends are illustrative since those of individual countries vary, reflecting different volumes of spending and government levels that are not necessarily comparable. As low-income population groups often depend on the public sector as the only provider of health coverage, it is relevant to analyse non-contributory public health expenditure.

Secondly, to backstop arguments contained in this report, the funding that would be needed to implement a spectrum of preventive and curative health interventions to reach some of the Millennium Development Goals on health in Latin America and the Caribbean is taken into account. The results were obtained from a costs projection model. Detailed calculations using this model cover a group of 10 countries in the region, each of which displays very different health indicators and progress through time. The results are then extrapolated for the region as a whole.

1. TRENDS IN PUBLIC EXPENDITURE ON HEALTH

Owing to high unemployment rates and the size of the informal sector, the region has not succeeded in turning its labour markets into universal, dynamic gateways to social protection (ILO, 2005); therefore employment and social protection based exclusively on contributory systems have lost their capacity for social integration and safeguarding against risks. Although the situation is particularly complex in the rural and informal sectors of the various economies, formal urban and high-productivity jobs do not fully guarantee contributory social protection either. Moreover, given the lack of public policies on society's care needs, the sex-gender system which tends to delegate unpaid domestic chores to women (children, older adults and the sick) makes it hard for women to enter the labour market, often rendering them dependent on their spouses to gain access to contributory social protection services. Hence the solidarity financing of social protection needs to be addressed comprehensively, i.e., both within and outside the labour market, and additional mechanisms need to be put in place (ECLAC, 2006 and 2007a).

Tax policy can affect a country's income distribution in two ways. First and foremost, public expenditure on human capital can improve the primary income distribution, i.e., income obtained from the labour market before deducting taxes and transfers. Secondly, progressive taxes can alter the secondary income distribution, particularly through taxes on income and assets. Given that both the level of the tax burden and the composition of the main taxes generally have distributive effects, it is notable that the tax

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[1] See details of the sources and levels of government considered in analysing social spending on health in the table is contained in the statistical appendix to this chapter and in ECLAC (2007a), chapter II. Given their aggregation, the figures do not cover resources of programmes related to the Millennium Development Goals which are executed in other unidentified government levels. Note also that official information on social spending by functions includes the primary function of each organization, for which reason health expenses made through programs dependent on social security institutions are generally not included in the health function.

burden is low in the region, except in Brazil (Serra and Afonso, 2007), and personal income tax has played only a small role. While efforts have been made to strengthen value-added tax (VAT), in contrast income taxes in general, and personal income taxes in particular, have been weakened (Gómez Sabaini, 2006).

Although public social spending on health is clearly not free from tax constraints, efforts made by the region's countries to increase it have generated a relatively sustained expansion; since 1990, it has risen by just over one third, from US$ 104 to US$ 141 per capita at 2000 prices (see figure VI.1).

Figure VI.1
LATIN AMERICA AND THE CARIBBEAN (21 COUNTRIES): PER CAPITA NON-CONTRIBUTORY PUBLIC EXPENDITURE ON HEALTH, 1990-1991 TO 2004-2005
(In dollars at 2000 prices) [a]
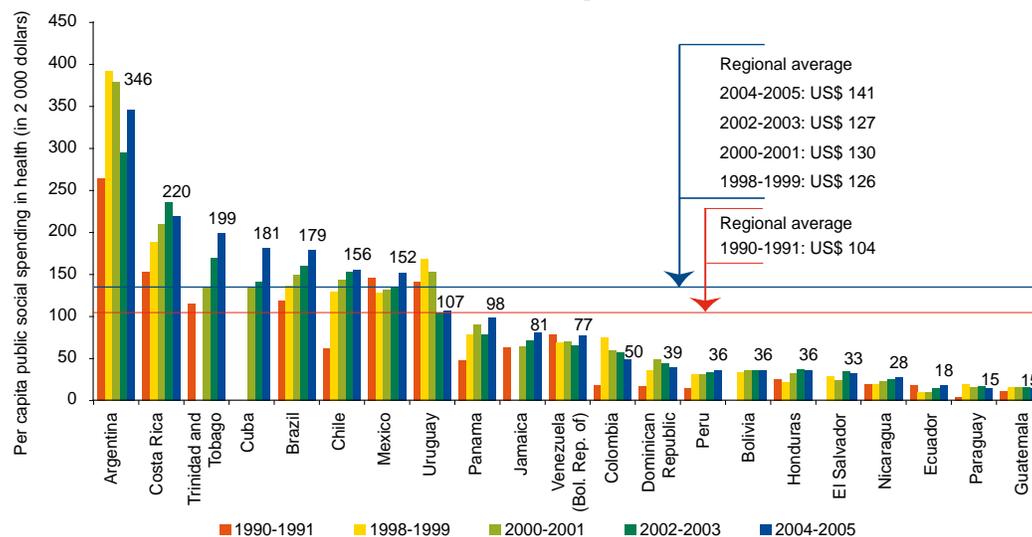
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Commission's social expenditure database.

[a]   Owing to changes in the base year for GDP (1997), information in dollars has only been available since 2000. The regional average does not include Cuba.

Nonetheless, the level and trend of this category vary significantly from one country to another. In 2004 and 2005, seven countries — including large ones such as Argentina, Brazil and Mexico — were above the regional average. Secondly, in some cases public health budgets increased exceptionally, doubling and even tripling in 15 years (Chile, Colombia, Dominican Republic, Panama, Paraguay and Peru).[2] Changes have also occurred in the mode of expenditure execution, which could be related to decentralization processes. In Ecuador, Mexico, Uruguay and the Bolivarian Republic of Venezuela, the central government budget in this area either decreased or remained constant during the period.

With regard to the macroeconomic priority of these expenses, their relation to the trend of GDP in a setting of slow but sustained economic growth shows that the efforts being made to increase health spending are insufficient at the regional level. In the periods 1990-1991 and 2004-2005, this expenditure grew only very slightly as a percentage of GDP, or else decreased, in eight out of 21 countries: Argentina, Costa Rica, Ecuador, Guatemala, Mexico, the Bolivarian Republic of Venezuela, Trinidad and Tobago and Uruguay (see figure VI.2).

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[2]   With the exception of Colombia, the figures refer to central government or to budgetary central government.

Figure VI.2
LATIN AMERICA AND THE CARIBBEAN (21 COUNTRIES): NON-CONTRIBUTORY PUBLIC EXPENDITURE ON HEALTH AS A PERCENTAGE OF GDP, 1990-1991 TO 2004-2005
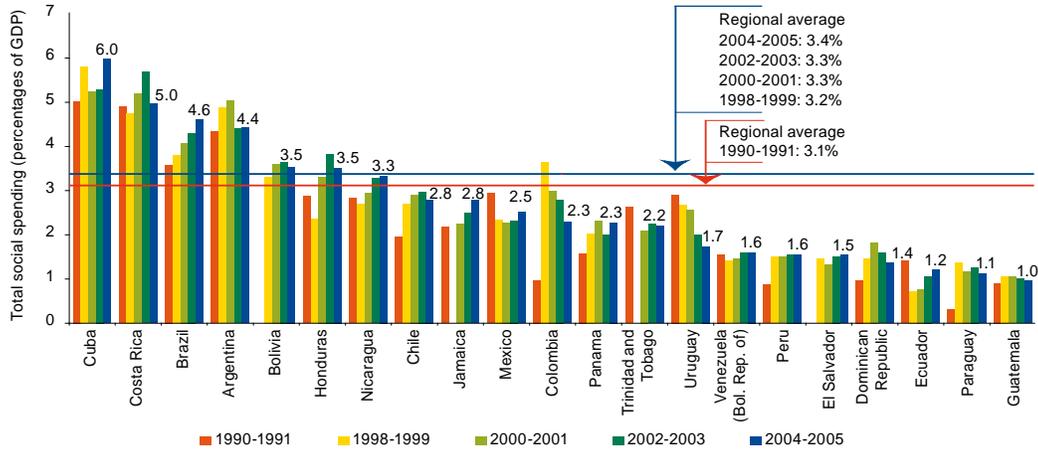
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Commission's social expenditure database.

Although public social spending in the region has increased significantly, rising from 12.9% to 15.9% of GDP between 1990-1991 and 2004-2005, the health sector has grown relatively more slowly, expanding by just 0.3% of regional GDP (see figure VI.3).

Figure VI.3
LATIN AMERICA AND THE CARIBBEAN (21 COUNTRIES): TREND OF NON-CONTRIBUTORY PUBLIC SOCIAL SPENDING AS A PERCENTAGE OF GDP BY SECTORS, 1990-1991 TO 2004-2005
(Percentages)
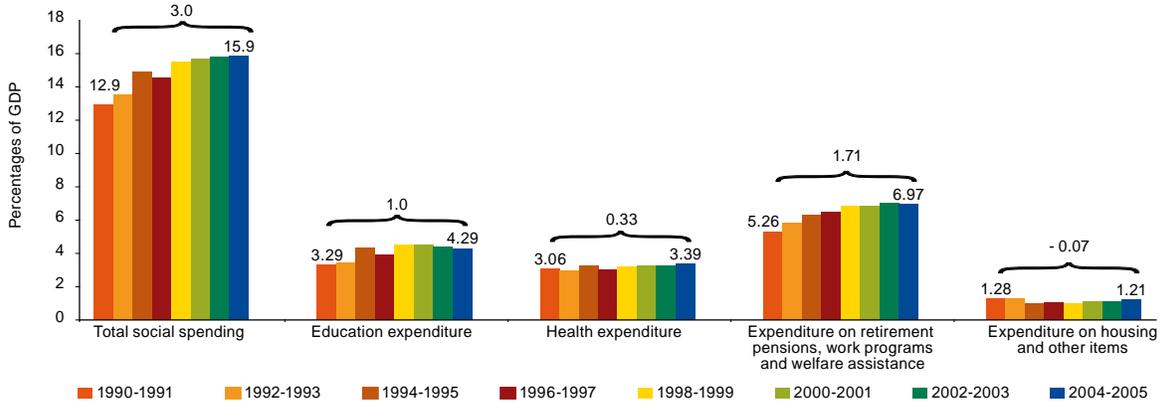
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Commission's social expenditure database.
a   Weighted average of the countries.

This suggests a lower fiscal priority given to public spending on health as compared to other social sectors such as education, social assistance and, particularly, social security (see figure VI.3). In the course of a decade and a half, this category grew moderately, from 11.1% to 13.0% of the total public expenditure

budget in the region's countries. Nonetheless, its weight among the social sectors declined slightly, slipping from 23.7% of public social spending in 2004-2005 to 21.4% in early 1990.

It is therefore unsurprising that health expenditure at the levels of government analysed behaves in a highly procyclical pattern. In the periods 1994-1998 and 2001-2003, it was highly sensitive to the economic crises occurring in a number of countries. As can be seen, the business cycle has a somewhat lagged effect. In general, adjustments occur in the following year: rather than causing major adjustments in current expenditure execution, they seem to have a greater effect on the subsequent annual public health budget (see figure VI.4).

Figure VI.4
LATIN AMERICA (20 COUNTRIES): ANNUAL VARIATION OF GDP AND NON-CONTRIBUTORY PUBLIC EXPENDITURE ON HEALTH, 1991-2006
(Percentages)
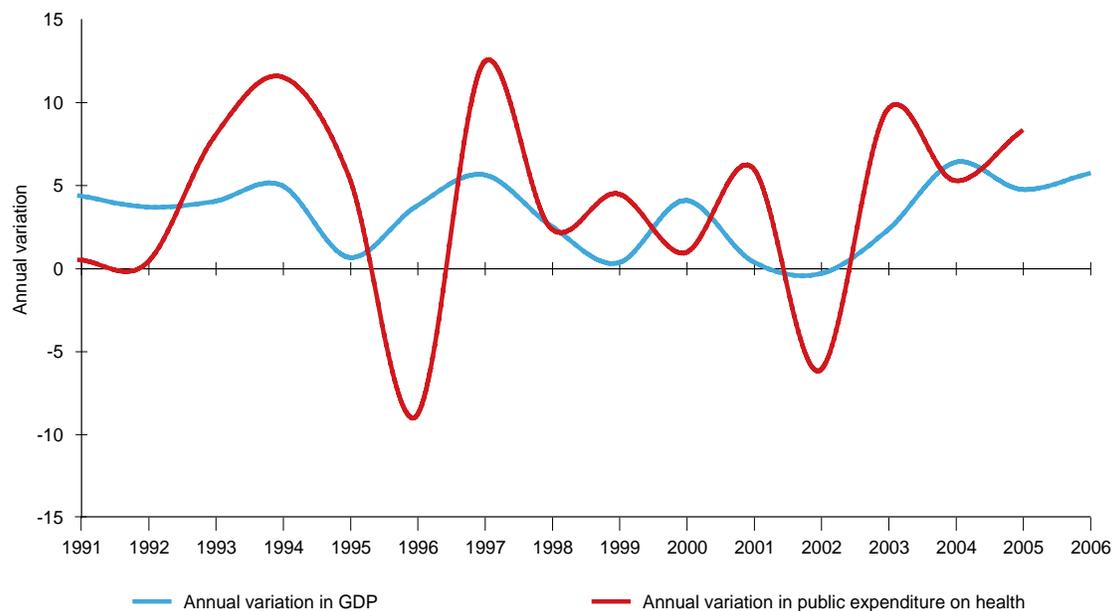
| Annual variation in GDP | Annual variation in public expenditure on health |

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of the Commission's social expenditure database.

The findings of national studies show that the poorest sectors of the population have also been favoured in countries with the highest public expenditure on health. This expenditure is slightly progressive, i.e., with respect to primary income from the labour market, it favours the lower-income sectors. Lower-income sectors benefit more from primary and outpatient care, which suggests greater coverage and often cost-free access to this type of service. In contrast, hospital services are more regressive, since the higher-income groups tend to use them more. The higher costs of the infrastructure, equipment and specialized staff required, cause them to be located preferentially in areas of heavier population concentration, or else the services they provide depend on co-payments in certain countries (see figure VI.5).

Figure VI.5

LATIN AMERICA AND THE CARIBBEAN (16 COUNTRIES): [a] **DISTRIBUTION OF NON-CONTRIBUTORY PUBLIC EXPENDITURE ON HEALTH AND PRIMARY AND HOSPITAL HEALTH CARE** [b] **BY PRIMARY INCOME QUINTILES, 1997-2004**

(Percentages)
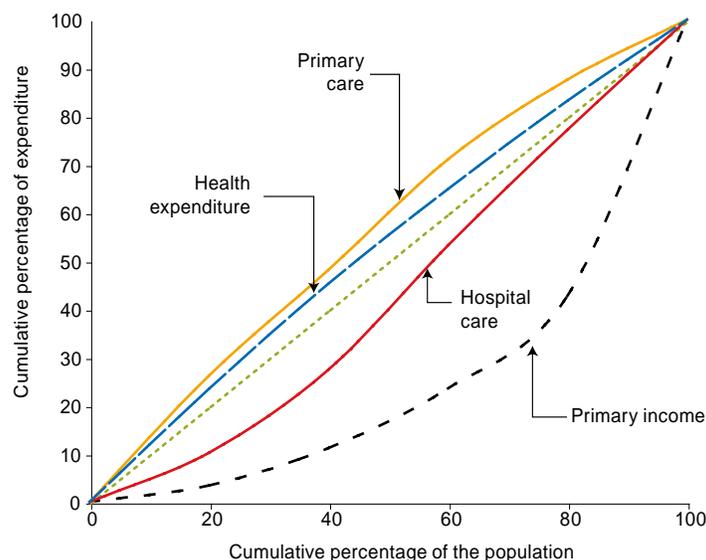
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of national studies.

[a] Average weighted by the percentage of health expenditure in each country's primary income.

[b] Simple average of four countries.

This greatly restricts timely access to these services for the poorest population groups living far from the main urban centres; and it thus becomes harder to make headway in improving minimal health conditions among the Latin American and Caribbean population, as envisaged in the Millennium Development Goals. Moving towards these goals necessarily requires both a larger volume of resources and greater efforts to include poor population groups. The second section of this chapter will give details of measures needed to provide certain services of proven efficiency to bring down childhood mortality rates, improve maternal health, and combat malaria and tuberculosis.

2. ESTIMATION OF THE COSTS OF ATTAINING SELECTED MILLENNIUM DEVELOPMENT GOALS ON HEALTH IN THE REGION

Several years ago the WHO Commission on Macroeconomics and Health (CMH) attempted to cost the Millennium Development Goals targets on health for a group of 83 developing countries (six of which from the Latin American and Caribbean region) in order to estimate the scale of the additional financing needed to expand coverage and improve the quality of the priority services required to achieve the Goals in this domain (Sachs, 2001). That study is thus a key reference when addressing this subject. Apart from the CMH, other authors have also calculated the costs of attaining the Millennium Development Goals. Devarajan, Miller and Swanson (2002), for example, estimated that the additional funding required to achieve the three Millennium Development Goals on health for 2002 varied between US$ 25 billion and US$ 30 billion per year —a figure very close to that estimated by the CMH of US$ 22 billion for 2007, although the two studies used different methods.

To flesh out the arguments of this report, a model was developed to project the costs of achieving the Millennium Development Goals in health,[3] which was used to calculate the funding needed to implement a set of preventive and curative health measures that would make it possible to fulfil the aforementioned goals in Latin America and the Caribbean. These were selected on the basis of evidence on their specific effects (Bitrán, 2008).[4][5]

Given the scale of the effort and access to information, the following Millennium Development Goals on health are analysed: reducing the childhood mortality rate, improving maternal health and combating malaria and tuberculosis, in accordance with sector interventions in this area. Thus, no calculation is made of the costs of actions in the domain of the health determinants, which have been analysed throughout this report.

The model and results of the CMH estimation were closely analysed, as were other international studies on the feasibility of achieving the Millennium Development Goals on health,[6][7] including the UNICEF and the World Bank's Marginal Budgeting for Bottlenecks Model (MBB).

Ten of the region's countries displaying very different health indicators and degrees of progress were chosen. On average they are less poor than the six included in the CMH study. Listed in ascending order of per capita GDP in dollars at 2006 prices, they are Haiti, Bolivia, Dominican Republic, Honduras, Nicaragua, Ecuador, Jamaica, Guatemala, El Salvador and Peru. The work entailed obtaining information on economic and social development, health status, health financing, coverage levels of health interventions linked to the Millennium Development Goals, the cost of the corresponding interventions and cost-effectiveness. Based on these costs projections, an extrapolation for the region as a whole was done.

The model makes it possible to estimate the disability-adjusted life years (DALY)[8] which are lost in the countries as a result of disability, death or both.[9] Together with data on the cost-effectiveness of each of the health interventions considered, these results were used to obtain projections of the additional interventions needed to achieve the Millennium Development Goals. Based on data for current coverage, population and unit costs, the interventions needed to cover the increase in population are quantified, and the resulting coverage is calculated, in order to measure the additional production of

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[3]   This study will soon be published by ECLAC as part of the *Políticas sociales series.*

[4]   On the effectiveness of the interventions, see Escobar (2008).

[5]   To be consistent with the rest of the report, target 7 of Goal 6 (To have halted and started to reduce the propagation of HIV/AIDS by 2015), was excluded, since it is the subject of another United Nations study to be presented shortly at the respective international conference to be held this year.

[6]   The key models are: the model for costing the Millennium targets on health in Guatemala (PHRplus Project); UNICEF/World Bank, Marginal Budgeting for Bottlenecks (UNICEF/World Bank, 2007a); Child Health Cost Estimation Tool of WHO; Reproductive Health Costing Model of the United Nations Population Fund (UNFPA); Integrated Health Care Technology Package (IHTP) of WHO and the Medical Research Council (MRC); Strategies to Prevent Mother to Child Transmission of HIV (PMTCT) and HIV/AIDS Resource Allocation and the GOALS Model of the Constella Group; Planning, Costing and Budgeting Framework and CORE Plus of Management Sciences for Health; Comprehensive multi-year planning of WHO; Integrated Health Model of the United Nations Development Programme (UNDP); Planning and Budgeting tool for Tuberculosis Control, Resources Needs and Malaria Cost Estimation Tool of WHO. Many of them were available in Excel, and are not necessarily linked to documents, and manuals are provided in some cases. Consequently, bibliographic references are not available for all of them. For a full bibliography, see Bitrán and others (2008).

[7]   The results of a comparative study on the financing of the Goals on health, education and sanitation in the region's countries, using a computable general equilibrium model, will soon be published. This study considers three options for financing investment related to the Goals: the fiscal, external-aid and other domains (Vos, Sánchez and Kaldewei, 2008). This was a joint project of the World Bank, UNDP and the Department of Economic and Social Affairs of the United Nations. The Social Development Unit of the ECLAC subregional headquarters in Mexico, and ECLAC headquarters in Santiago participated in several national studies, and the unit also supported the methodological discussion. Other calculations of the costs of achieving the Millennium Development Goals have been made using general equilibrium models, such as those made for Peru by Castro and others (2006) and by Yamanda and Castro (2007), which analysed several Millennium Development Goals other than those relating to health, and incorporate the effects of interventions made in several social sectors such as the health benefits of greater school enrolment.

[8]   The report, which will be published in the ECLAC *Políticas sociales series* will include a CD containing the model and the figures in which it was based.

[9]   The term is a classic concept that was originally coined by the World Bank (1993).

interventions needed to achieve the chosen targets. Diagram VI.1 shows the input and output parameters of the model and describes the formulas used with the parameters. Two types of costs are estimated, both separately and jointly:

- Those facing countries to be able to maintain current coverage levels of interventions relating to the chosen targets Millennium Development Goals, taking account of natural population growth;

- The additional cost of increasing that coverage when necessary to be able to achieve the aforementioned targets by 2015.

Diagram VI.1

DESCRIPTION OF THE COSTS PROJECTION MODEL TO ACHIEVE HEALTH-RELATED MILLENNIUM DEVELOPMENT GOALS IN THE REGION, AND RELATED FORMULAS

Model inputs	Model outputs	Formula
Desired mortality rate reduction		
Population	DALYs to avoid	DALYs to avoid = (reduction in mortality rate) x (population)/(DALYs resulting from death)
DALYs lost as result of premature death		
Cost effectiveness of interventions (dollars per DALY)	Additional cost of avoiding DALYs (in dollars)	Additional cost = (DALY to avoid) x (cost-effectiveness)
Current coverage (percentages of the population)		
Population	Cost of maintaining current coverage (in dollars)	Maintenance cost = (coverage) x (population) x (unit cost)
Unit costs of interventions (dollars per unit)		
Unit costs of interventions (dollars per unit)	Production (units of each health intervention)	Production = (cost of maintenance + additional cost)/(unit cost)
Population	Coverage achieved (population percentages)	Coverage = (production)/(population)

Source: R. Bitrán, "Estimación del costo de alcanzar las objetivos del Milenio en salud en algunos países de América Latina y el Caribe. Primer informe", January 2008, unpublished.

Inputs included various parameters that characterize the situation of each country, resulting in estimates of the costs of achieving the Millennium Development Goals in the health domain mentioned above, both individually and as a group. To make the calculations through time, projections are made of the trend of the economy, health expenditure, health status and other variables. Parameters are defined such as annual growth of per capita GDP, using the historical average of the last 20 years in each country, the gross and net population growth rate (using data from the Latin American and Caribbean Demographic Centre (CELADE)-Population Division of ECLAC), and total health expenditure as a proportion of GDP for the period considered, which runs from 2007 to 2050, taking 2006 as the base year.[10] In relation to the unit costs of health interventions, data are incorporated from cost studies performed in various Latin American countries. Cost-effectiveness ratios were obtained from publications on the subject, mainly the multinational study entitled *Prioridades para el control de enfermedades en países en desarrollo* [priorities for disease control in developing countries].

As shown in table VI.1, the model is broken down for each Millennium Development Goals and for each health intervention by country; and the results are then extrapolated to the region as a whole. The extrapolation based on the average of the 10 countries of the sample to Latin America and the Caribbean as a whole uses per capita cost values. The per capita expenditure needed by the countries in the sample is expanded to the region's population to determine the expenditure needed to achieve its Millennium Development Goals. The extrapolation is considered valid given the diversity of the countries included in the sample, and considering certain parameters, e.g., the fact that the per capita GDP of the countries of the sample is practically the same as that of Latin American and Caribbean as a whole. All monetary values in the study are expressed in 2006 dollars.

Table VI.1
**LATIN AMERICA AND THE CARIBBEAN (EXTRAPOLATION): MAIN RESULTS
OF THE COSTS PROJECTION OF SELECTED HEALTH INTERVENTIONS
TO ACHIEVE SELECTED MILLENNIUM DEVELOPMENT GOALS**
(Millions of dollars at 2006 prices)

	Year	
	2007	**2015**
Expenditure to maintain current coverage	2 036	2 328
Additional expenditure to increase coverage	53	1 277
Total expenditure to attain the Millennium Development Goals	2 089	3 605
Per capita expenditure in Latin America and the Caribbean (in dollars)	3.76	6.48

Source: R. Bitrán and others, "Estimación del costo de alcanzar los objetivos del Milenio en salud en América Latina y el Caribe", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), March 2008, unpublished.

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[10] The model assumes that the percentage of GDP allocated to health by each country in 2006 remains constant in future years. This does not restrict the calculation of health expenditure, because these are estimated independently and then compared with the result if the aforementioned percentage were applied to GDP.

Lastly, the results were compared with the earlier estimates made by CMH. That calculation was taken as a reference since, following adjustments and despite their clear differences, both the method applied and the interventions used by the Commission and this model are comparable.[11] It was not compared with Devarajan and others (2002), despite the fact that, as noted above, the results are similar to those of the CMH because that study presents them in different ways for the different regions, thus complicating the comparison.

As can be seen, most expenditure in the various countries is used to maintain current coverage levels in the different health interventions. Only a relatively small proportion is explained by an increase in coverage to levels that would make it possible to achieve the Millennium Development Goals. Nonetheless, expenditure to maintain current coverage is increasing over time, as a result of natural population growth. The estimated total expenditure of the region to maintain current coverage of the health interventions used by the model amounts to US$ 2,036 million in 2007 and US$ 2,328 million in 2015. The additional expenditure needed to achieve the selected targets, in a scenario where additional resources are provided uniformly to all interventions, is US$ 53 million in 2007 and US$ 1,277 million in 2015 (see table VI.1).[12] The results obtained are consistent and compatible with the expenditure levels that the countries of the sample currently apply to the selected interventions, and with current progress in achieving the Millennium Development Goals. Table VI.2 shows the cost of achieving each of the aforementioned goals.

Table VI.2
LATIN AMERICA AND THE CARIBBEAN (EXTRAPOLATION): COSTS PROJECTION OF SELECTED HEALTH INTERVENTIONS TO ACHIEVE THE CHOSEN MILLENNIUM DEVELOPMENT GOALS
(Millions of dollars at 2006 prices)

	Year	
	2007	**2015**
Maternal mortality	1 374	1 644
Infant mortality	465	1 360
Tuberculosis	56	309
Malaria	194	292
Total	2 089	3 605

Source: R. Bitrán and others, "Estimación del costo de alcanzar los objetivos del Milenio en salud en América Latina y el Caribe", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), March 2008, unpublished.

Table VI.3, below, gives details of the results obtained by each country in the sample and for the extrapolation to the region.

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[11] A direct comparison cannot be made given the methodological differences between the two estimations. On the adjustments needed for the comparison, see Bitrán and others (2008). See the results of the comparison in table A-VI-5.

[12] All monetary values used in this study are expressed in 2006 dollars.

Table VI.3
**LATIN AMERICA AND THE CARIBBEAN (10 COUNTRIES) AND EXTRAPOLATION FOR THE
REGION: TOTAL EXPENDITURE REQUIRED TO INCREASE THE CURRENT COVERAGE
OF SELECTED HEALTH INTERVENTIONS TO A LEVEL THAT PERMITS
THE ACHIEVEMENT OF SELECTED MILLENNIUM DEVELOPMENT GOALS**
(Millions of dollars at 2006 prices)

Countries	Year	
	2007	**2015**
Bolivia	41.05	62.77
Ecuador	49.29	76.85
El Salvador	21.54	33.57
Guatemala	50.11	128.38
Haiti	25.39	71.85
Honduras	25.62	55.52
Jamaica	10.09	12.54
Nicaragua	28.80	46.98
Peru	97.69	127.13
Dominican Republic	44.54	64.56
Total 10 countries	394.14	680.16
Total Latin America and the Caribbean	2 088.93	3 604.90
Per capita Latin America and the Caribbean (in dollars)	3.76	6.48

Source: R. Bitrán and others, "Estimación del costo de alcanzar los objetivos del Milenio en salud en América Latina y el Caribe", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), March 2008, unpublished.

STATISTICAL APPENDIX

Table A-VI.1

LATIN AMERICA AND THE CARIBBEAN (21 COUNTRIES): PUBLIC SOCIAL SPENDING AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT

(Percentages)

Country	Period							
	1990-1991	1992-1993	1994-1995	1996-1997	1998-1999	2000-2001	2002-2003	2004-2005
Argentina	19.3	20.1	21.1	19.9	20.9	21.8	19.5	19.4
Bolivia [a]	…	…	12.4	14.6	16.2	18.0	19.4	18.6
Brazil	18.1	17.6	20.4	19.4	21.6	21.1	21.8	22.0
Chile	12.7	12.8	12.4	12.8	14.2	15.1	14.7	13.1
Colombia	6.6	7.9	11.5	15.2	13.7	13.2	13.7	13.4
Costa Rica	15.6	15.2	15.8	16.8	16.4	18.0	18.6	17.5
Cuba	27.6	32.8	28.5	25.0	24.3	22.2	24.7	28.7
Ecuador	7.4	8.0	6.1	5.6	4.9	4.9	5.5	6.3
El Salvador [b]	…	4.1	4.8	5.2	5.4	6.1	5.6	0.0
Guatemala	3.3	4.1	4.1	4.3	5.9	6.1	6.5	6.3
Honduras	7.5	7.6	6.6	6.6	7.4	10.0	11.3	11.6
Jamaica [c]	8.4	8.0	8.2	9.0	…	9.5	9.5	9.9
Mexico	6.5	8.1	8.9	8.5	9.2	9.7	10.2	10.2
Nicaragua	6.6	6.5	7.2	6.5	7.6	8.1	9.3	10.8
Panama	7.5	9.3	8.3	8.8	9.7	9.5	8.3	8.0
Paraguay	3.2	6.6	7.8	8.7	9.1	8.0	9.1	7.9
Peru [d]	3.9	5.1	6.5	6.9	7.4	8.3	9.5	8.9
Dominican Republic	4.3	5.9	6.7	6.9	7.1	7.7	7.6	7.1
Trinidad and Tobago [e]	6.9	7.3	6.6	6.4	…	9.1	9.7	9.4
Uruguay	16.8	18.9	20.2	21.3	22.0	22.2	20.8	17.7
Venezuela (Bol. Rep. of)	8.8	9.2	7.8	8.6	8.8	11.6	11.7	11.7
Latin America and the Caribbean [f]	9.7	10.8	11.1	11.3	11.8	12.4	12.7	12.6
Latin America and the Caribbean [g]	12.9	13.5	14.9	14.6	15.5	15.7	15.8	15.9

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Commission's social expenditure database.

[a] The figure reported for the biennium 1994-1995 corresponds to 1995.

[b] The figure reported for the biennium 1992-1993 corresponds to 1993.

[c] The figures reported for the biennium 1996-1997 correspond to 1996; those of 2004-2005 correspond to 2004.

[d] Figures prior to 2000 correspond to the budgetary central government.

[e] The figure reported for the biennium 1996-1997 corresponds to 1996.

[f] Simple average of the countries. Includes estimates in years and countries where information is lacking.

[g] Weighted average of the countries. Includes estimates in years and countries where information is lacking.

Table A-VI.2

LATIN AMERICA AND THE CARIBBEAN (21 COUNTRIES): NON-CONTRIBUTORY PER CAPITA PUBLIC SOCIAL SPENDING ON HEALTH

(In dollars at 2000 prices)

Country	Period							
	1990-1991	1992-1993	1994-1995	1996-1997	1998-1999	2000-2001	2002-2003	2004-2005
Argentina	264	321	363	356	393	378	295	347
Bolivia [a]	…	…	30	33	33	36	37	36
Brazil	119	87	150	138	137	150	160	180
Chile	62	82	97	113	130	144	153	156
Colombia	18	23	60	69	75	61	57	50
Costa Rica	153	154	168	171	189	210	236	220
Cuba [b]	…	…	…	…	…	135	141	182
Ecuador	18	21	11	12	10	10	15	19
El Salvador [c]	…	22	26	27	31	28	32	33
Guatemala	12	13	12	11	16	16	16	15
Honduras	26	27	24	22	22	32	38	37
Jamaica [d]	63	70	65	68	…	64	72	81
Mexico	147	172	118	111	129	132	135	153
Nicaragua	19	17	18	18	20	23	26	28
Panama	49	66	63	67	79	90	79	98
Paraguay	4	16	18	20	20	16	17	16
Peru [e]	15	15	25	29	31	32	34	37
Dominican Republic	17	24	25	30	36	50	44	40
Trinidad and Tobago [f]	115	119	99	101	…	136	170	199
Uruguay	142	160	196	151	169	153	105	107
Venezuela, (Bol. Rep. of)	79	89	56	59	70	71	66	77
Latin America and the Caribbean [g]	68	77	81	80	88	91	89	96
Latin America and the Caribbean [h]	105	105	122	117	125	129	127	141

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of information from the Commission's social expenditure database.

[a] The figure reported for the biennium 1994-1995 corresponds to 1995.

[b] Owing to variations in the GDP base, information on dollars has only been available since 2000 (see box II .6).

[c] The figure reported for the biennium 1992-1993 corresponds to 1993.

[d] The figures reported for the biennium 1996-1997 correspond to 1996; and the figures shown for 2004-2005 correspond to 2004.

[e] Figures prior to 2000 correspond to the budgetary central government.

[f] The figure reported for the biennium 1996-1997 corresponds to 1996.

[g] Simple average of the countries. Includes estimates for years and countries where information is lacking, and does not include Cuba.

[h] Weighted average of the countries. Includes estimates for years and countries where information is lacking, and does not include Cuba.

Table A-VI.3

LATIN AMERICA AND THE CARIBBEAN (21 COUNTRIES): NON-CONTRIBUTORY SOCIAL PUBLIC EXPENDITURE IN HEALTH AS A PERCENTAGE OF GROSS DOMESTIC PRODUCT

(Percentages)

Country	Period							
	1990-1991	1992-1993	1994-1995	1996-1997	1998-1999	2000-2001	2002-2003	2004-2005
Argentina	4.3	4.6	4.9	4.6	4.9	5.0	4.4	4.4
Bolivia [a]	…	…	3.1	3.3	3.3	3.6	3.7	3.5
Brazil	3.6	2.6	4.2	3.8	3.8	4.1	4.3	4.6
Chile	2.0	2.2	2.4	2.4	2.7	2.9	3.0	2.8
Colombia	1.0	1.2	2.9	3.2	3.7	3.0	2.8	2.3
Costa Rica	4.9	4.5	4.7	4.7	4.8	5.2	5.7	5.0
Cuba	5.0	6.6	5.6	5.3	5.8	5.2	5.3	6.0
Ecuador	1.4	1.6	0.8	0.9	0.7	0.8	1.1	1.2
El Salvador [b]	…	1.2	1.3	1.4	1.5	1.3	1.5	1.5
Guatemala	0.9	1.0	0.9	0.8	1.1	1.1	1.0	1.0
Honduras	2.9	2.8	2.6	2.3	2.4	3.3	3.8	3.5
Jamaica [c]	2.2	2.4	2.2	2.3	…	2.2	2.5	2.8
Mexico	2.9	3.4	2.3	2.2	2.3	2.3	2.3	2.5
Nicaragua	2.8	2.5	2.8	2.5	2.7	2.9	3.3	3.3
Panama	1.6	1.9	1.8	1.9	2.0	2.3	2.0	2.3
Paraguay	0.3	1.1	1.2	1.3	1.4	1.2	1.3	1.1
Peru [d]	0.9	0.9	1.3	1.4	1.5	1.5	1.6	1.6
Dominican Republic	1.0	1.3	1.2	1.4	1.5	1.8	1.6	1.4
Trinidad and Tobago [e]	2.6	2.8	2.2	2.0	…	2.1	2.3	2.2
Uruguay	2.9	3.0	3.4	2.5	2.7	2.6	2.0	1.7
Venezuela (Bol. Rep. of)	1.6	1.7	1.1	1.1	1.4	1.5	1.6	1.6
Latin America and the Caribbean [f]	2.3	2.6	2.6	2.4	2.6	2.7	2.7	2.7
Latin America and the Caribbean [g]	3.1	3.0	3.3	3.0	3.2	3.3	3.3	3.4

Source: Economic Commission for Latin American and Caribbean (ECLAC), on the basis of information from the Commission's social expenditure database.

[a] The figure reported for the biennium 1994-1995 corresponds to 1995.

[b] The figure reported for the biennium 1992-1993 corresponds to 1993.

[c] The figures reported for the biennium 1996-1997 correspond to 1996; and the figures shown for 2004-2005, to 2004.

[d] Figures prior to 2000 correspond to the budgetary central government.

[e] The figure reported for the biennium 1996-1997 corresponds to 1996.

[f] Simple average of the countries. Includes estimates in years and countries where information is lacking.

[g] Weighted average of the countries Includes estimates in years and countries where information is lacking.

Table A-VI.4
**LATIN AMERICA AND THE CARIBBEAN (18 COUNTRIES): HEALTH EXPENDITURE,
BREAKDOWN BY PRIMARY INCOME QUINTILE**
(Percentages)

		Income quintile					Total	Gini
		Quintile I	Quintile II	Quintile III	Quintile IV	Quintile V		
Latin America	**Health**	**24**	**22**	**20**	**18**	**17**	**100**	**-0.067**
Argentina 2003	Health	20	21	19	21	19	100	-0.010
	Public health care	35	27	18	13	7	100	-0.277
	Health insurance expenditure	8	17	21	27	28	100	0.202
	Social works - health care	7	16	20	27	30	100	0.228
	Ins.Nac.de Jubilados y Pensionados - health care	9	19	22	29	20	100	0.134
Bolivia 2002	Health	11	15	14	25	35	100	0.232
	Health savings institutes (Cajas de salud)	4	11	13	27	45	100	0.389
	Insurance policies and others	18	20	14	22	26	100	0.075
Brazil 1997	Health	16	20	22	23	19	100	0.036
Chile 2006	Health subsidies	55	33	18	3	-10	100	-0.633
Colombia 2003	Health	34	29	19	12	5	100	-0.295
	Subsidised regime	41	32	16	8	3	100	-0.395
	Supply subsidies	28	27	22	16	8	100	-0.203
	Contributory health regime	18	50	91	121	-180	100	…
Costa Rica 2004	Health	25	24	24	17	10	100	-0.150
Ecuador 1999	Health and nutrition (Ministry of Health)	19	23	23	24	11	100	-0.060
El Salvador 2002	Health	26	23	21	18	12	100	-0.132
	Primary care	29	23	21	17	10	100	-0.176
	Hospital care	20	23	22	19	16	100	-0.048
Guatemala 2000	Total health	17	18	23	25	17	100	0.028
	Hospitals	13	16	21	29	22	100	0.119
	Health centres	20	23	28	20	9	100	-0.100
	Health posts	40	22	27	6	5	100	-0.344
	Community centres	39	20	23	8	10	100	-0.280
Honduras 2004	Health	21	22	23	20	14	100	-0.066
Mexico 2002	Health	15	18	21	23	22	100	0.078
	Primary care	16	18	21	23	22	100	0.061
	Maternal care	10	19	23	31	18	100	0.107
	Hospitals	3	15	32	21	30	100	0.236
Nicaragua 2005	Health	21	22	22	20	16	100	-0.046
Panama 2003	Health	17	24	20	21	19	100	-0.002

Table A-VI.4 (concluded)

		Income quintile					Total	Gini
		Quintile I	Quintile II	Quintile III	Quintile IV	Quintile V		
Peru 2004	Total health	6	11	19	26	39	100	0.324
	Ministry of Health (MINSA)	11	19	26	24	20	100	0.089
	MINSA primary care	20	24	23	20	13	100	-0.068
	MINSA hospitals	5	15	29	27	24	100	0.205
	SIS [a]	17	27	25	22	9	100	-0.081
	ESSALUD [b]	1	5	15	30	49	100	0.482
	Armed forces	0	2	9	19	70	100	0.631
	Private care	4	8	14	25	49	100	0.424
Dominican Republic 1998	Preventive medicine: vaccinations	25	23	21	19	13	100	-0.107
	Preventive medicine: maternal hospital services	31	25	20	15	9	100	-0.216
	Preventive medicine: Papanicolau	26	24	21	19	10	100	-0.148
	Preventive medicine: early childhood	31	24	21	15	8	100	-0.225
	Curative medicine: hospital services	32	26	18	16	8	100	-0.232
	Curative medicine: hospital services (social insurance)	33	15	17	29	6	100	-0.160
	Curative medicine: military hospital	18	5	19	16	42	100	0.236
Uruguay 2003	Health	48	28	15	7	3	100	-0.438

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of household surveys.

[a] Ministry of Health comprehensive health insurance.

[b] Insurance for employed workers.

Table A-VI.5
THE COSTS OF ATTAINING SELECTED MILLENNIUM DEVELOPMENT GOALS IN LATIN AMERICA AND THE CARIBBEAN: COMPARISON BETWEEN CURRENT ESTIMATIONS AND CMH EXERCISES, AFTER RELEVANT ADJUSTMENTS

Estimation	Year			
	2007		2015	
	Annual cost per inhabitant (dollars)	Total cost (millions of dollars)	Annual cost per inhabitant (dollars)	Total cost (millions of dollars)
Current model	76.96	42 759	85.94	54 426
WHO Commission on Macroeconomics and Health	67.36	37 425	71.44	45 243

Source: R. Bitrán and others, "Estimación del costo de alcanzar los objetivos del Milenio en salud en América Latina y el Caribe", Santiago, Chile, Economic Commission for Latin America and the Caribbean (ECLAC), March 2008, unpublished.

CHAPTER VII

HEALTH SYSTEMS AND THE CHALLENGES POSED BY THE MILLENNIUM DEVELOPMENT GOALS: MAIN HEALTH POLICY GUIDELINES

> "The Development Goals contained in the United Nations Millennium Declaration,
> signed by our countries, have given us the chance to resume
> the path of formulating plans to address the population's social
> and health problems so as to enhance social cohesion.
> It is in this setting that eradicating poverty and overcoming inequality
> should be priority goals in our countries"
>
> *Iquique Consensus, IX Ibero-American Conference of Ministers of Health,*
> *Iquique (Chile), July 2007*

Health is at the core of economic and social rights. Insofar as society can guarantee all its members appropriate prevention and health care, it comes closer to achieving and upholding those rights. Effective enjoyment of this element of citizenship strengthens peoples' sense of belonging to society and thus enhances democratic social cohesion. The region's health reform agenda therefore should pursue a dual objective. Firstly, solidarity mechanisms need to be designed to provide equitable access to health services to the whole population, regardless of individual income or risk level; additional funding efforts are needed to achieve this, as already noted. Secondly, to optimize the response to the technological, demographic and epidemiological changes that are unfolding in the region, costs must be contained, and the scarce resources available more efficiently allocated (ECLAC, 2000, 2006 and 2007a).

In those terms, the Pan American Health Organization (PAHO), in its resolution of 19 September 2002, defines the extension of social protection in health as a guarantee provided by society, through different public authorities, to enable individuals or groups of individuals to satisfy their health needs and requirements through adequate access to the services of the health system or any subsystem that exists in the country, irrespective of their payment capacity.

The Millennium Development Goal indicators have made it possible to monitor the progress of public policies in specific fields by defining minimum standards of satisfaction in certain aspects of well-being, whose achievement involves ensuring efficient resource allocation and service provision. This has made it possible to identify situations of discrimination and exclusion, and to assess the efficiency of public policies. Hence their unquestionable value in terms of social inclusion.

The living conditions of the Latin American and Caribbean population have improved significantly over the last few decades. Greater access to health, supported by substantial investments in basic infrastructure, have brought drinking water and basic sanitation services to a large and growing proportion of the population. Life expectancy at birth has increased significantly in just 30 years, education levels have risen, and there have been notable reductions in infant and under-fives mortality and malnutrition. These positive trends show a convergence towards the corresponding indicators for countries of higher per capita incomes (figure VII.1).

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Figure VII.1
QUALITY-OF-LIFE INDICATORS: TRENDS TOWARDS CONVERGENCE BETWEEN LATIN AMERICA AND 15 OECD COUNTRIES

LIFE EXPECTANCY AT BIRTH
(Number of years)

INFANT MORTALITY RATE
(Number per 1,000 live births)

■ OECD (24 countries) ── Latin America and the Caribbean

TIMELY ACCESS TO PRIMARY AND SECONDARY EDUCATION
(Net enrolment rate)

ACCESS TO IMPROVED SOURCES OF DRINKING WATER AND SANITATION
(Percentages of the population)

■ OECD (24 countries) ── Latin America and the Caribbean
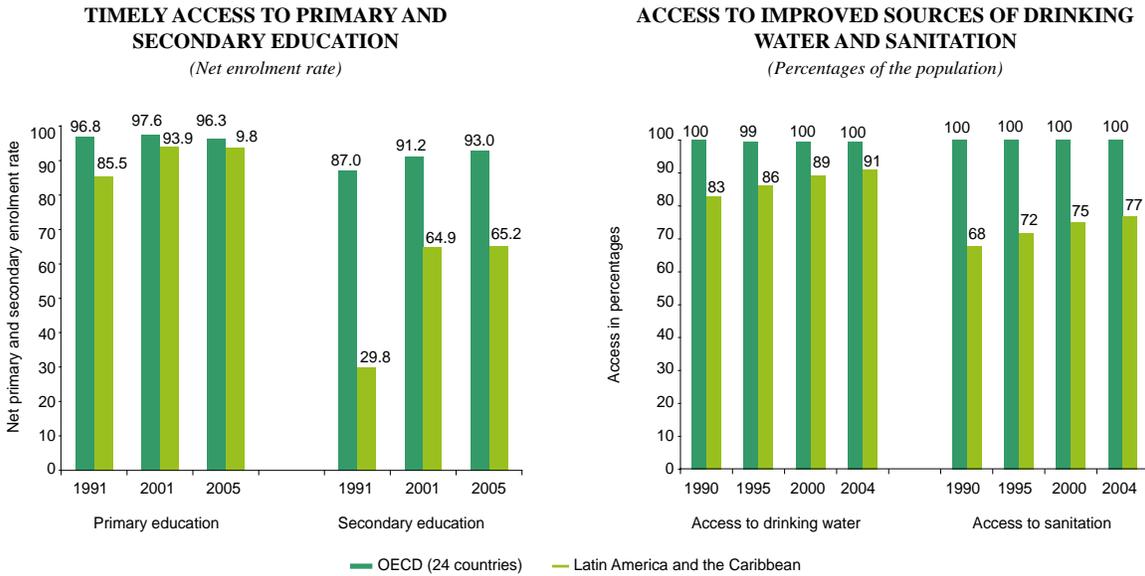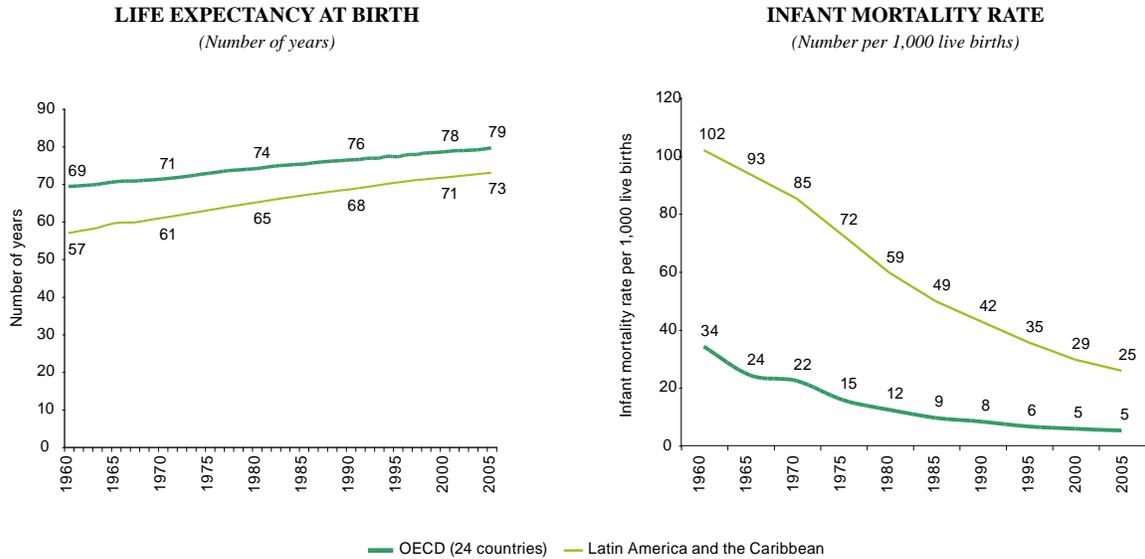
Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of World Bank, World Development Indicators (WDI) [online database].

Secondly, as noted above, the low level and volatility of economic growth, and the highly unequal income distribution have prevented a larger reduction in absolute poverty and exclusion. In the area of interest for this study, this has meant wider gaps and tighter constraints on achieving the Millennium Development Goals in the health domain, since better averages still conceal glaring inequities in health and related indicators.

A large proportion of the gaps in poverty and health stem from this inequality, which is the greatest of all regions of the world. When there is such an unequal socio-economic distribution of disease and mortality —and also in certain realms such as malnutrition— the problem needs to be attacked at its roots, i.e., acting on the respective socio-economic determinants. Otherwise, the complex causal web confronts health policies with tasks that clearly reach beyond sector boundaries and are impossible to resolve if addressed in isolation. This calls for synergy between the various policies welfare-related policies —education, housing, income— in a stable macroeconomic setting that promotes economic growth and a better distribution of the fruits of development. This is the mission of the WHO Commission on Social Determinants of Health (CSDH), mentioned above.

The situation in the region points out the imperative need to improve equity and expand social health protection. The glaring inequities that exist at the present time —in particular gender, race, ethnic and generational inequalities— make it impossible to uphold the right to development and health. They also reproduce poverty levels, restrict the benefits of economic development, erode social cohesion and put democratic processes at risk. The countries of the region must commit firmly to the imperatives of equity and solidarity and must adopt synergetic measures to reduce unequal access to services. This requires an expansion in the scope of social protection in health, improvements in the functioning of institutions for the benefit of all, and respect for the cultural diversity of the different groups in society (United Nations, 2005).

In 2003, on the occasion of the 25th anniversary of the Declaration of Alma-Ata and at the request of its member countries, PAHO reviewed the values and principles which inspired the Declaration to formulating strategic and programme-based guidelines on primary health care, and renewing health systems with that development perspective. The resultant strategy was ratified by member states at the 46th Directing Council of 2005 in the Declaration of Montevideo.

According to PAHO, the new coordination of primary health care (PHC) within health systems involves "an overarching approach to the organization and operation of health systems that makes the right to the highest attainable level of health its main goal, while maximizing equity and solidarity. A PHC-based health system is composed of a core set of functional and structural elements that guarantee universal coverage and access to services that are acceptable to the population and that are equity-enhancing. It provides comprehensive, integrated, and appropriate care over time, emphasizes prevention and promotion, and assures first contact care. Families and communities are its basis for planning and action. A PHC-based health system requires a sound legal, institutional, and organizational foundation as well as adequate and sustainable human, financial, and technological resources. It employs optimal management practices at all levels to achieve quality, efficiency, and effectiveness and develops active mechanisms to maximize individual and collective participation in health. A PHC-based health system develops intersectorial actions to address other determinants of health and equity" (PAHO, 2007a).

The PAHO and its member states consider that a renewed strategy on primary health care is an essential condition for achieving international development goals —such as those contained in the United Nations Millennium Declaration— and addressing the fundamental determinants of health —such as those defined by CSDH of the World Health Organization (WHO)— and to codify health as a human right.

Health systems must be able to respond to the challenges posed by the Millennium Development Goals. Among other things, this requires implementing effective programmes in areas such as sexual and reproductive health and the control of infectious diseases, while also developing health and systems services that are essential to ensure that those programmes and related interventions benefit all citizens (PAHO, 2004). In the pursuit of equity, attention also needs to be given to the areas of management, finance, insurance and service provision (PAHO, 2002). Under equity criteria, the basic level of primary health care should be expanded by integrating vertical approaches and strengthening inter-sectoral collaboration and

social participation on health issues (PAHO, 2003). Box VII.1 summarizes several ongoing key primary health-care initiatives. Additional investments in public health programmes are needed, by combining a larger volume and more effective use of fiscal resources, an increase in social contributions, or both. To address the determinants of health as a multidimensional phenomenon, such programmes should also promote inter-sectoral and inter-agency policies.

Box VII.1
PROGRAMMES TO IMPROVE MATERNAL AND CHILD HEALTH CARE IN THE REGION

Programmes to deal with acute respiratory infections, using the short-stay hospitalization strategy

These programmes aim to reduce complications arising from respiratory infections and related mortality among the under-fives, through prevention measures, timely care and monitoring. Within this framework, countries such as Chile and Argentina have implemented the short-stay hospitalization strategy, which improves the care quality of the services provided, increases capacity for resolving cases at the primary care level and reduces hospitalization.

Mass deparasitization programmes

Intestinal parasitoses caused by geohelminths are considered a global public health problem in childhood, which increases anaemia and malnutrition. Parasites are transmitted by ingestion of earth contaminated with human faecal material carrying eggs or larvae. Through mass treatment of the population with appropriate medication and health education to promote environmental sanitation measures, Argentina implemented the National Mass Deparasitization Programme in areas containing urbanizations without basic health services, to sustainably reduce the prevalence of this parasitosis among the 2-14 year-old population.

Reproductive health programmes

Mexico, Peru, Cuba, Chile, Uruguay and Argentina, among other countries, have implemented specific programmes to improve universal access to reproductive health services and responsible parenthood, and to reduce undesired pregnancies and sexually transmitted infections. In Argentina, contraceptive methods are provided cost free on demand through health services in the public subsector, while social security covers 100% of costs under the Obligatory Medical Programme (PMO).

Programmes to reduce vertical HIV transmission

In Argentina, Brazil, Uruguay and other countries, the detection of HIV in pregnant women is strengthened through timely treatment and protection measures during pregnancy and childbirth, to avoid contagion of the virus in newborn babies, including provision or coverage of medications by the State. The scope of these programmes depends greatly on the type of coverage and quality of care during pregnancy.

Comprehensive care programmes for expectant mothers and children in their first few years of life

This includes programmes such as Nacer Argentina and Chile crece contigo, each with its own characteristics, which aim to provide comprehensive care for the health of pregnant women and young children.

Source: United Nations Children's Fund (UNICEF), on the basis of information from the relevant countries.

Nonetheless, the comprehensive nature of the policies should not dilute the crucial role played by health systems, strictly defined, in reducing the major disparities in access to the relevant services. For those purposes, the segmented nature of these systems —which reflects discrimination patterns prevailing in their societies and poses a major obstacle to achieving the Millennium Development Goals— needs to be overcome (PAHO/WHO/SIDA, 2003, p. 98). Moreover, their fragmentation complicates cost-effective interventions and efficient resource use including adequate referral and counter-referral mechanisms. People who are not affiliated to contributory systems, lack payment capacity, or both, generally rely on services

provided by the public sector as the only source of coverage; and, to a very small extent, on certain services provided by non-profit organizations. To fulfil the Millennium targets public policies need to focus on this population group in particular.

Among other aspects, fragmentation reflects relations between the contributory and non-contributory financing of health services, i.e., between the social security and public systems, whose logic varies from country to country, as shown in table VII.1.

Table VII.1
LATIN AMERICA AND THE CARIBBEAN: INTERACTION BETWEEN PUBLIC FUNDING AND SOCIAL SECURITY CONTRIBUTIONS IN THE HEALTH SECTOR

Type 1	Type 2	Type 3
Financing: general revenues, integrated systems based on non-contributory financing	Financing: integration of general revenues and social security contributions	Financing: little or no integration of general revenues and social security contributions
Services delivery by public and private providers is heterogeneous	In all cases there is some degree of explicit separation of the financing and service delivery functions. The level of financing integration also varies	The structure of public services is heterogeneous. Different types of linkages exist between the public and private sectors
Public and private service provision: Bahamas, Barbados, Belize, Brazil, Dominica, Grenade, Guyana, Haiti,[a] Jamaica, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Venezuela (Bolivarian Republic of)[b] Service provision through the public system only: Cuba	*Type 2A:* Integrated, maintaining contributory financing and uniform services coverage delivered via social security: Costa Rica *Type 2B:* Integrated, with coverage differentiated by contributory and non-contributory financing: Antigua and Barbuda,[c] Colombia, Dominican Republic *Type 2C:* Dual model with partial integration: Chile	Argentina, Bolivia, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay

Source: Economic Commission for Latin America and the Caribbean (ECLAC), Shaping the Future of Social Protection: Financing, Access and Solidarity (LC/G.2294 (SES.31/3)), Santiago, Chile, 2006.

Note: In all countries, except Cuba, there is also a private subsector that provides health services.

[a] In Haiti there is practically no social security, and the provision and financing of health services are undertaken basically by the public sector and non-governmental organizations (NGOs).

[b] The reforms of the last few years have fostered greater participation and coverage in the public system.

[c] Health reforms both in Antigua and Barbuda and in the Dominican Republic are in transition towards a greater integration of financing.

Given the magnitude and composition of health expenditure in the various countries and its distribution among the population, both of which were analysed in the previous chapter and alluded to in the discussion of household out-of-pocket expenses, current expenditure and investments on health need to be increased and made more redistributive. Synergy needs to be found with public policies affecting the determinants of health in domains such as nutrition or adequate access to basic infrastructure. Several basic approaches in the case of nutrition programmes have already been summarized in this document.

The various health-sector reform strategies that have been applied in the region, over the last two decades at least, reflect each country's heterogeneity and different starting point. The specifics of each health system and its institutional setting thus generate different constraints and priorities that need to be taken into account in the reform process. Nonetheless, beyond national characteristics, the design and execution of all health-sector reforms, along with public policies for social protection in this domain, need

to take into account several criteria. Firstly, the growing importance of nontransmissible diseases, along with population ageing, raise the need to find ways to cover more expensive and complex pathologies. Secondly, social exclusion and inequity in health services call for policies and instruments to move towards universal coverages. Thirdly, the technological changes that affect the health sector, together with steadily rising costs and projected growth in demand and funding requirements make efficiency improvements and cost containment key elements of health reforms and policies (ECLAC, 2006; PAHO, 2007a).

Strengthening and expanding health insurance will thus require integrated financing of systems to achieve higher levels of solidarity. Insurance systems should avoid risk-based selection and move towards assured equitable coverage. Secondly, efficiency needs to be improved by containing costs, using suitable procurement mechanisms and regulation. Thirdly, effective expansion of health services to cover the entire population requires public-health policies aimed, among other things, at expanding the scope of primary health care and effective coordination of decentralised services, including compensation for intra-regional differences. Although contributory and non-contributory health-care financing take different forms and are interrelated in a variety of ways in Latin American and Caribbean countries, greater integration between social security and the public system can increase their synergies and thus have positive effects in terms of solidarity financing and equity. Furthermore, their articulation can have a positive effect on efficiency by permitting a fuller utilization of installed capacity and rationalization of resource use through the improved management and administration of those subsystems (ECLAC, 2006).

Nonetheless, tax revenues are scarce in most countries of the region, and funds obtained from social security contributions are a major funding source for health services. The primary goal, therefore, is to achieve an equitable health system funded on a solidarity basis. To reduce the inequities that tend to be associated with segmented schemes and delink access to adequate services from health risks and individual payment capacity, it is essential to move towards an integration of the public health systems and social security. Priority should be given to a clearly defined set of explicit and guaranteed universal services, which would grow in line with each country's financing possibilities. Policies for expanding primary health care and adequately coordinating decentralised services should aim at enhancing health-service coverage and access (ECLAC, 2006).

Further consideration should be given to the extent to which health reforms can contribute to attaining the Millennium Development Goals in the health area. Clearly, this can only be done in a tentative fashion because, firstly, there is little analysis and information on the health effects of reform processes and, secondly, methodological difficulties make it hard to attribute a net health outcome to specific interventions, clearly separating this from other aspects involved which also have significant repercussions and depend on social determinants (Acuña, 2008, p. 126). This context makes it possible to understand a number of paradoxes, such as the fact that in Chile infant mortality indicators have improved and are outstanding in the region, but other specific inequalities persist and have even worsened, such as the differential infant mortality rate depending on the mother's level of schooling (Ministry of Health of Chile, 2006).

Among the key reform factors that could provide a favourable framework for achieving the Millennium Development Goals, progress on universalizing health coverage needs to be considered. The emblematic cases in the region are, firstly, Brazil, where a single health system has been set up using fiscal resources and therefore is non-contributory. Secondly, Colombia took a major step forward through a law introducing competition both in insurance and in service provision, and, learning from the Chilean experience, established a fund and other solidarity financing mechanisms to support two regimes: one contributory and the other subsidised.

At the other extreme are the most backward countries in terms of health system development, e.g. Peru, Bolivia and several Central American countries, which have focused on removing access barriers to services for the uninsured, particularly for primary health care. The latter countries can claim several achievements in the last few decades, such as the reduction in maternal mortality in Honduras (Rodríguez, 2007).

There are also examples of progress on insurance and service provision through a modification of current systems; in Chile a set of guaranteed services was introduced, some of which related to the prevention of infant and maternal mortality. This is one of the most advanced experiences in the world, precisely because it has established coverage guarantees, financial protection, timeliness and access, specifying in much greater detail than in other parts of the world the scope, obligations, subjects with these rights and guaranteed or protection mechanisms, and also because the range of services include some high-cost procedures. Meanwhile, the Popular Health Insurance scheme in Mexico includes funding guarantees without changing the segmentation of the insurance, while adding internal resources channelled in a highly complex way. It involves institutional amendments aimed at strengthening public health centres, and changes the public-private mix by allowing participation of a larger number of private suppliers. One of its challenges will be to regulate the quality of services provided, specifically in view of that mix and the great complexity of the financing system (Sojo, 2006).

Unfortunately, as noted by PAHO, public health has sometimes been neglected in the reform processes implemented by the various countries. This is important in relation to the Millennium Goals because, as already analyzed, several of the health measures included depend specifically on public health, especially at the primary care level (PAHO, 2000).

For example, experience shows that in reforms involving a separation of functions or a change in the attributions of health organisations, the responsibilities and resources assigned to inmunization schemes need to be clearly defined. PAHO detected early on that immunisation coverage in Colombia had deteriorated since 1997, particularly in departments where living conditions are poorer and in rural areas, a trend that has been confirmed in several later studies. The most recent research shows that national coverage rates for certain inoculations have been restored since 2001. The deterioration has been blamed on the combined effect of the decentralisation process and application of the 1993 health reform. In this regard, Glassman (cited by Flórez and others, 2007) states that "despite the benefits of the reform, its implementation and the decentralisation process have revealed gaps and/or duplications in jurisdictions between the different agents, with negative repercussions on service provision and coverage levels." The Colombian State took steps to increase inmunization coverage by regulating processes and defining responsibilities. A recent study by Flórez and others (2007) confirms the deterioration and subsequent recovery of the coverage of full immunisation schemes, which slipped from 77.9% in 1990 to 71% in 1995 and 66% in 2000. In 2005 the rate rose to above 70%, but it has not yet recovered the levels achieved 15 years ago (78%). In spite of the persistence of inequities in rural areas and among the poorest groups, the broader coverage achieved in the last five years has been accompanied by greater regional equity. In other words, while the changes may have not been complete, they have already had some positive effects.

From another point of view, to prevent out-of-pocket expenses precluding access to necessary health services, the coverage effectively provided needs to be improved and universalized, working both to expand insurance systems for universal and mandatory coverage and to strengthen the public health system. This concern is echoed in the Iquique Consensus approved at the IX Ibero-American Conference of Health Ministers held in Iquique in July 2007. This argued that social exclusion was clearly reflected in the lack of access to medicines and strategic inputs among wide ranging population groups; and, secondly, the increase in their prices makes it hard for Governments to guarantee access to these goods, and entails greater direct expense for individuals. Hence, the resolution rejects measures and actions of any nature,

origin, or both, that obstruct the population's access to medicines and foods that are essential for saving lives and preserving health, particularly among children and adolescents.

In chapter V, it was noted that higher out-of-pocket expenses affect insured population groups, such as in Argentina, as well as households with very low levels of insurance, such as in Honduras; and both involve serious consequences for the structure of family expenditure. On the other hand, a large number of people in the region are not in a position to afford health services, even when they need them, because of their low incomes. To improve equity, it is essential to promote policies aimed at reducing the burden of out-of-pocket expenses and providing broader coverage. Several strategies in the region have attempted to do this. Some are indirect and tend to reduce expenditure through preventive means, whereas direct policies aim to reduce the level of expenditure after the fact. In this regard, measures involved in the primary care strategy need to be consolidated, giving them an inter-sectoral and comprehensive orientation with regard to the determinants of health. Their effects are seen in terms of major progress on universalisation of immunisation to the point where certain diseases have been eradicated. Examples of programmes in the region which aim to strengthen the strategy, include the Community Doctors programme in Argentina, the Family Health programme in Brazil, and the Neighbourhood Mission in the Bolivarian Republic of Venezuela. Secondly, there are also policies to enhance expenditure efficiency by curtailing costs. An example is the prescription of generic medicines in countries such as Argentina and Brazil, which has made it possible to reduce out-of-pocket expenses on medicines by giving patients the chance to choose on the basis of pharmacy prices and thus counteract the interference exerted in this area by the medications industry through permanent publicity and pressure on doctors to prescribe certain commercial brands. In Costa Rica, social security has traditionally used generic products and has made high-volume purchases that have helped to lower the cost of medications. The Remediar Plan in Argentina, which consists of centralising Health Ministry procurements and subsequently distributing them to public primary-care institutions, has made it possible to provide essential medicines to cover outpatient pathologies cost free to population groups not covered by social schemes, and to expand access to treatment for the poorest individuals. In Chile, one of the goals of the System of Universal Access with Explicit Guarantees (AUGE) is to reduce expenditure on catastrophic diseases in households affiliated to the two insurance subsystems, by regulating adverse selection while guaranteeing coverage.

The situation in Latin America and the Caribbean in terms of health needs and deprivations is highly diverse and, in some cases, worrying. Whereas, at the aggregate level, the region is rapidly catching up the developed countries in terms of the growing incidence of nontransmissible diseases, there are still many diseases characteristic of a lower development level, such as transmissible and maternal-infant diseases. This epidemiological lag is more accentuated among lower-income countries which display more glaring inequalities in health, and pose a twin challenge for the relevant systems. Although it is essential to increase investment in public health and make the service more effective in reducing the high levels of transmissible and maternal-infant diseases, the growing importance of non-transmissible diseases imposes a high cost even if resources are used efficiently, which gives rise to competition on resource allocation. Owing to population ageing, the burden of nontransmissible diseases will rise unceasingly through time, so there is likely to be increasing demand for more expensive health services. The need to bridge the epidemiological gap, demographic transition processes, and progress on coverage, is raising pressure for increased funding. Hence, any health policy should attempt to make coverage expansion and equal access compatible with cost reduction and efficient resource allocation (ECLAC, 2006).

The need to change the allocation, distribution, and training of human resources, increase the magnitude of public expenditure and review its allocation, and alter the geographic distribution of the health services and infrastructure network, has been recognized (United Nations, 2005). In 2006, the WHO analysed a variety of health outcomes in terms of the Millennium Development Goals, according to the

availability of health-specialized human resources (WHO, 2006). The conclusion clearly shows the positive repercussions on the health status of populations that have a supply of human resources, particularly in terms of maternal-infant mortality. To guarantee a minimum coverage level for basic interventions, this report proposed a density of human resources for health —which include doctors, nurses, and midwives— of between 20 and 25 per 10,000 inhabitants. Although this figure is not specific, it represents a benchmark for measuring the relative magnitude of current deficiencies. For its part, the relation between human resources in health and the health situation is mediated by the organization of health services and by the optimal combination of aptitudes and personnel in a given context (Macinko and others, 2006). Box VII.2 describes recent agreements on this subject.

Box VII.2

FIVE CRITICAL CHALLENGES AND 20 REGIONAL GOALS ON HUMAN RESOURCES FOR HEALTH TO ACHIEVE THE MILLENNIUM DEVELOPMENT GOALS ON HEALTH, AGREED UPON BY THE 27ᵗʰ PAN-AMERICAN HEALTH CONFERENCE HELD IN OCTOBER 2007

Challenge 1: Define long-range policies and plans to better adapt the workforce so it will be prepared to meet expected changes in the health systems and to better develop the institutional capacity for defining these policies and revising them periodically:

Goals

(1) All countries of the region will have achieved a human resources density ratio level of 25 per 10,000.

(2) The regional and subregional proportions of primary health care physicians will exceed 40% of the total medical workforce.

(3) All countries will have developed primary health care teams with a broad range of competencies that will systematically include community health workers to improve access, reach out to vulnerable groups, and mobilize community networks.

(4) The ratio of qualified nurses to physicians will reach at least 1:1 in all countries of the region.

(5) All countries of the region will have established a unit of human resources for health responsible for the development of human resources policies and plans, the definition of strategic directions and the negotiation with other sectors, levels of government, and stakeholders.

Challenge 2: Place the right people in the right places by deploying the appropriate personnel into the right positions and into the most suitable areas of the countries:

Goals

(6) The gap in the distribution of health personnel between urban and rural areas will have been reduced by half in 2015.

(7) At least 70% of the primary health care workers will have demonstrable public health and intercultural competencies.

(8) 70% of nurses, nursing auxiliaries and health technicians including community health workers, will have upgraded their skills and competencies appropriate to the complexities of their functions.

(9) 30% of health workers in primary health care settings will have been recruited from their own communities.

Box VII.2 (concluded)

Challenge 3: **Promote national and international initiatives for developing countries to retain their health workers and avoid personnel deficits:**

Goals

 (10) All countries of the region will have adopted a global code of practice or developed ethical norms on the international recruitment of health care workers.

 (11) All countries of the region will have a policy regarding self-sufficiency to meet its needs in human resources for health.

 (12) All subregions will have developed mechanisms for the recognition of foreign-trained professionals.

Challenge 4: **Generate labour relationships between the workers and the health organizations that promote healthy work environments and foster commitment to the institutional mission to guarantee quality health services for all the population:**

Goals

 (13) The proportion of precarious, unprotected employment for health service providers will have been reduced by half in all countries.

 (14) 80% of the countries of the region will have in place a policy of health and safety for health workers, including the support of programmes to reduce work-related diseases and injuries.

 (15) At least 60% of health services and programme managers will fulfil specific requirements for public health and management competencies, including ethics.

 (16) 100% of the countries of the region will have in place effective negotiation mechanisms and legislation to prevent, mitigate or resolve labour conflicts and ensure essential services if they happen.

Challenge 5: **Develop mechanisms of cooperation between training institutions (universities and schools) and health service institutions so that it is possible to adapt the education of health workers to a universal and equitable model of providing quality care to meet the health needs of the entire population:**

Goals

 (17) 80% of schools of clinical health sciences will have reoriented their education towards primary health care and community health needs and adopted inter-professional training strategies.

 (18) 80% of schools of clinical health sciences will have adopted specific programmes to recruit and train students from underserved populations with, when appropriate, a special emphasis on indigenous, or first nation, communities.

 (19) Attrition rates in schools of nursing and medicine will not exceed 20%.

 (20) 70% of schools of clinical health sciences and public health will be accredited by a recognized accreditation body.

Source: Pan American Health Organization (PAHO), "La renovación de la atención primaria de la salud en las Américas", Washington, D.C., 2007.

Argentina, Bolivia, Ecuador, Mexico and Peru, have started to structure a maternal-child insurance policy as part of the services provided by public health insurance schemes. This reflects a strategy for targeting social programmes on overcoming the country's alarming levels of inequality. Although this type of insurance is focused on services for women and children, these are limited insofar as they are essentially concerned with maternity and ignore other basic components of sexual and reproductive health such as prevention of cancer, violence, fertility, and differentiated care for adolescents of both sexes. The experiences of Bolivia, Chile, Cuba and Honduras demonstrate the possibility of significantly reducing maternal mortality, and were adequately documented in the first interagency review of the Millennium Development Goals (United Nations, 2005, p. 167).

The progress made shows the importance of including these issues on the government agenda for achieving the Millennium Development Goals on health, which also benefits from the close relationship that exists between the goals themselves, e.g. the link between women's health and education and infant mortality. This sheds some light on the synergies that could be achieved between health programmes that historically have arisen independently and which operate separately, e.g. tuberculosis, HIV/AIDS, malaria and reproductive and maternal-infant health programmes. In this regard, the exercise of reproductive rights needs to be combined with professional obstetric care, professional care at childbirth, and the prevention and cure of certain diseases.

Without wishing to exempt public health systems from responsibilities relating to insurance, financing and service provision, guided by principles of universality and solidarity, the positive effects of certain civil society initiatives should also be recognized. Examples include experiences aimed at reducing infant and maternal mortality, as documented in box VII.3.

Box VII.3
COMMUNITY INITIATIVES THAT HAVE HAD AN INFLUENCE ON REDUCING INFANT AND MATERNAL MORTALITY

The contest entitled "Experiences in social innovation in Latin America and the Caribbean", organized by ECLAC with support from the W.K. Kellogg Foundation, identifies innovative social development initiatives that put forward ideas to improve health, education, nutrition, the environment, income-generating capacity, gender equity and enterprise social responsibility, among other areas. The aim is to disseminate these initiatives to help improve practices and policies for the benefit of the poorest population groups. The 2006-2007 cycle recorded a total of 806 innovative community initiatives from 20 Latin American and Caribbean countries, a figure that demonstrates the interest aroused by the programme in the region. One in every six of them aimed at improving the population's health. Two award-winning projects on maternal and infant health are outlined below.

(1)   The Four-Leaf Clover - Strategy to Reduce Maternal, Pre-Natal and Infant Morbidity and Mortality Rates (Brazil), winner of the first prize in the 2006-2007 contest

"Four-leaf Clover" is the name given to the strategy developed by the Secretary of Health and Social Action in Sobral, Ceará, Brazil, designed to reduce infant-maternal morbidity and mortality rates. The strategy is organized to provide medical attention to expectant mothers on four fronts or areas: pre-natal, labour, postpartum and neo-natal. These represent each of the four leaves of the clover.

The Four-Leaf Clover team is responsible for organizing the Committee for the Prevention of Maternal, Perinatal and Infant Mortality, acting as an interagency network, with participation from teaching institutions and municipal councils on health, the rights of the child and adolescents, and women's rights. The Committee investigates all maternal, foetal and infant deaths, to identify and analyse their determining factors. Deaths are classified in terms of the factors that could have been avoided, with a view to proposing intervention measures to improve the quality of maternal-infant care.

Maternal-infant care indicators are permanently monitored by evaluating information contained in the Mother-Child Health booklet and interviews with mothers who have recently given birth in maternity hospitals. High-risk cases that need monitoring by the Four-Leaf Clover scheme are also identified. The Four-Leaf Clove team includes a group of "social mothers" who makes home visits to expectant mothers reluctant to go to a medical

Box VII.3 (concluded)

centre for pre-natal care. During these visits, social mothers elaborate a basic care plan, not only for pregnant women but also for postpartum women and for children at risk (health or social risk). This plan is elaborated by the assigned family health team and family members.

Participation by "social mothers" is crucial for the success of the strategy. These are women from the same community whose function is to support mothers or children at risk who do not have family support. For this purpose they receive training as caregivers in homes or in hospital, aimed at promoting health, preventing complications and premature deliveries, support for breast-feeding, strengthening of self-esteem and family links, as well as improving personal care, maternity and paternity. Community participation, through a monthly contribution as "social godparents" to support women and children at risk, makes it possible to provide social support to these families. In addition, it highlights the actions of "social coordinators", who are volunteers participating in permanent actions of dissemination, social events and fund raising. In 2006, the project served 1,148 families at a cost of US$ 175 per year each. Since its inception in 2001, it has succeeded in increasing the rate of prenatal care and lowering the infant mortality rate in the locality from 29.7 to 16.2 per thousand live births in 2006.

(2)   The Lèt Agogo (Milk in abundance) programme - Haiti, winner of the first prize in the 2004-2005 contest

Lèt Agogo is a programme to support and develop household milk production in Haiti, an initiative of the Haitian non-governmental organization Veterimed, which aims to help improve living conditions among campesinos by providing technical support for their family units. Initially, Veterimed received external financial support (Oxfam, CORDAID, VSF) to organize the first experimental unit; and at the present time products are made in 10 small units distributed throughout the country. The other nine milk producers began with internally-generated funds from community groups and campesino associations. The project organizes small-scale milk producers to improve production conditions and income, and is based on a participatory diagnostic system which results in the creation of micro units for milk processing, and the creation of a producers association. Alongside this, they manage to legalize land ownership, working in conjunction with government institutions. They have also developed fodder production techniques and new livestock management schemes to improve water access.

All the dairy producers in the national network operate under supervision and advice from Veterimed, which is owner of the "Lèt Agogo" brand. The persons responsible have received training from the entity and there are now roughly 500 campesinos organized in associations supplying the different dairies in the network. Over the last 10 years, training has been provided to over 1,000 campesino veterinary agents. These have set up the Entévét network and, since 1999, most have received official recognition from the Ministry of Agriculture to provide immunization on farms. Technical services are strengthened at each dairy and health programmes are established.

Haiti imports over US$ 40 million of dairy products per year, which makes milk its second-largest food import. National output accounts for under 30% of consumption, and most commercial units in the domestic market have closed in the last decade. Thus, the Lèt Agogo project makes a significant contribution to the country's food and nutritional security because its units are practically the only firms that process and enhance locally produced milk. This initiative, which has made it possible for small-scale dairy producers to improve their production conditions, marketing and incomes, gained first prize in the contest.

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of Bank of Experiences [online] http://www.cepal.org/dds/innovacionsocial/e/proyectos.

In general, the region has improved the quality of policies, programmes and standards on sexual and reproductive health based on the concept of reproductive rights within human rights, on social and gender equity, and on the empowerment of women and adolescents. National programmes of adolescent health have been developed, and special units created to provide care in suitable establishments, together with the provision of promotion, prevention and treatment services which emphasize sexual health; and activities are undertaken that explicitly aim at preventing unplanned pregnancy and providing services for adolescent mothers. At the same time, human resource training has been strengthened in terms of care

practices, improvement of the quality of health services, supply of contraceptives to adolescents, among other initiatives through workshops that inform groups of young people about their reproductive and health rights. Nonetheless, it should be repeated that despite these multiple activities, greater political support is needed to ensure that reform processes in the health sector give priority to activities related to the sexual and reproductive rights and health of adolescents, given that it would be impossible to achieve the Millennium Development Goals on maternal health without investing resources and adopting effective measures targeting adolescents and young people (United Nations, 2005).

The relevance of the Millennium Development Goals has been widely recognized. The Iquique Consensus adopted by the Ninth Ibero-American Conference of Health Ministers, held in July 2007 in Iquique, Chile, stressed their importance for policies that promote social cohesion from the health standpoint, with a rights-based, multisector and intercultural perspective. This distinguishes health determinants, including aspects of gender and ethnicity, and recognizes, for these purposes, the principles and strategies of primary health care as a key element in successfully increasing social protection in this domain.

Nonetheless, the commitment assumed by governments in relation to the Millennium Development Goals in the region remains a challenge because there are few circumstances in which they have been fully integrated into their policies. This report notes the need to strengthen political will, not only at the national level, but also in the subregional and regional domains, in order to prioritize the public health agenda; this is vital for future progress. It is important to avoid complacency when individual targets for certain Millennium Development Goal indicators are attained because these indicators must be viewed within an interrelated context. For example, a given threshold for professional attendance at childbirth does not guarantee a reduction in maternal mortality, since this also depends on the effectiveness and quality of care provided by health services and other socio-economic and environmental factors.

In conclusion, it is worth stressing that the right to health entails strengthening democratic governance in a framework of social cohesion and human rights, based on the principle that no citizen should be excluded from the benefits of development or deprived of the right to health. Only in this way will it be possible for our region to achieve the universal aim expressed by the Millennium Development Goals on health.

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