

# INVESTING IN HEALTH FOR ECONOMIC DEVELOPMENT

**Executive Summary**

*Version for Consultation and Comments*

First edition 2004  
Universidad de las Américas, Puebla  
Santa Catarina Mártir, Cholula, 72820 Puebla, México  
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Printed in Mexico  
ISBN 968-6254-66-8

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# NOTE FOR READERS

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The Mexican Commission on Macroeconomics and Health was created on July 29th, 2002 by the initiative of the Minister of Health of Mexico, Julio Frenk. The Commission includes experts from academic institutions, the government, civil society and the private sector. Based on their professional experience, these experts have been able to analyze and reflect upon the link between health and economic development.

The current edition of the Commission's Report, entitled "Macroeconomics and Health: Investing in Health for Economic Development", is meant for dialogue with a broad range of actors, (which will take place between November 2004 and February 2005) with the purpose of creating a consensus in terms of goals, process and outcomes. This Executive Summary presents a synthesis of the Commission's analysis, conclusions and recommendations. Those who wish to make comments via e-mail can send them to [ipdmail5@mail.udlap.mx](mailto:ipdmail5@mail.udlap.mx).

In order to keep the document short, this Executive Summary does not include the list of background papers or references. They can, however, be found in the complete Report also available at the following web page: <http://ipd.udlap.mx/>

It is my sincere hope, that the reader will find this Executive Summary of interest and utility.

Nora Lustig  
President of the Mexican Commission on Macroeconomics and Health

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# PREFACE

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The Commission on Macroeconomics and Health (CMH) was created in January 2000 as an initiative launched by the World Health Organization (WHO) and chaired by the economist Jeffrey Sachs. This Commission's Report was published on December 20th, 2001.

The CMH's main objective was to identify the importance of improving health standards and to calculate additional resources as well as necessary actions on a national and international level in order to promote economic development. Its attention was focused on the countries that are unable to advance on their own and for which international aid is essential. In the case of middle-income countries, the CMH stated the following:

*In most middle-income countries, average health spending per person is already adequate to ensure universal coverage for essential interventions. Yet such coverage does not reach many of the poor. Exclusion is often concentrated by region (e.g., rural western China and rural northeast Brazil), or among ethnic and racial minorities. For whatever reason, public-sector spending on health does not attend sufficiently to the needs of the poor. Moreover, since many middle-income countries provide inadequate financial protection for large portions of their population, catastrophic medical expenses impoverish many households. In view of the adverse consequences of ill health on overall economic development and poverty reduction, we strongly urge the middle-income countries to undertake fiscal and organizational reforms to ensure universal coverage for priority health interventions.<sup>6</sup> We also believe that the World Bank and the regional development banks, through nonconcessional financing, can help these countries to make a multi-year transition to universal coverage for essential health services.<sup>1</sup>*

Additionally, the CMH suggested the creation of similar commissions on a national level. On the basis of this recommendation, the Minister of Health of Mexico, Dr. Julio Frenk established the Mexican Commission on Macroeconomics and Health

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<sup>1</sup>Macroeconomics and Health: Investing in health for economic development, Report of the Commission on Macroeconomics and Health, WHO 2001.

(MCMH) on July 29th, 2002. The thirty-member Commission includes experts from academic institutions, the government, civil society and the private sector. Due to their professional experience, these experts have been able to analyze and reflect upon the link between health and economic development.

The Commission's mandate consists of 1) analyzing the relationship between investing in health and the economic development of Mexico; 2) evaluating the extent to which advances have been made in health indicators in our country, the characteristics of Mexico's investment in health (specifically, the level, distribution and the share dedicated to public goods) and the system of social protection against adverse health shocks; and 3) proposing actions and initiatives, specifically in the realm of public policy, in order to reap benefits for economic development and poverty reduction.

Unlike other more frequent studies, the Commission's emphasis is on health as one of the fundamental determinants of economic growth and poverty reduction. The positive impact that health has on growth and poverty reduction occurs through a number of mechanisms, such as through a reduction of production losses due to fewer worker illnesses, the increased productivity of adults as a result of better nutrition, lower absenteeism rates and improved learning among school children. This relationship also allows for the use of resources that had been totally or partially inaccessible due to illnesses. Finally, it allows for an alternative use of financial resources that might normally be destined for the treatment of ill health.

One of the assumptions of this Report is that development and per capita income levels in Mexico are high enough to potentially ensure proper health levels for the entire population. Mexico is a relatively rich country compared to countries in Africa, Asia and other parts of Latin America. Nevertheless, there are areas in the country where health indicators are similar to those found in much poorer countries.

For reasons that will not be included in this Report, the situation in terms of health is one of stark contrast between regions and socioeconomic groups. Given this, the main objective of public policies related to health in the coming years must be that all regions and socioeconomic groups in Mexico achieve socially acceptable (and financially feasible) health indicators. This way, policies can contribute to poverty reduction and create more dynamic and sustainable economic growth. In Mexico, as in other middle-income countries with high inequality, the Millennium Development Goals must explicitly include the reduction of the large gaps in health indicators between poor and nonpoor regions of the country.

Through a relatively modest financial effort and, more importantly, through the effective use of existing resources, Mexico could improve the situation of less-developed regions and groups. According to World Bank estimates, for countries in developing or middle-income countries with institutions of an acceptable quality, a 10% increase in public health expenditures as a proportion of the Gross Domestic



Product (GDP) would be associated with a 7% decrease in the maternal mortality rate, a 0.69% decrease in child mortality rate, and a 4.14% decrease in low weight for children under five years of age.<sup>2</sup> Also, it is interesting to note that setting more ambitious targets in infant mortality rates such as moving up the deadline and achieving the Millennium Development Goals<sup>3</sup> in 2010 instead of 2015 would mean avoiding more than 18,000 infant deaths in 2010.<sup>4</sup> Additionally, the impoverishment of numerous Mexican families due to the excessive health expenses they are now facing could be avoided through adequate social protection. These particular achievements, in addition to their unquestionable intrinsic value, would lead to a more just and sustainable development.

Without a doubt, the potential benefits for Mexico of investing in health could be very significant. However, we are aware that documenting arguments and identifying strategies is necessary but not sufficient for achieving the desired results. A series of actions and efforts by society is also needed to reach shared goals. Moreover, we need to build a social consensus that will make political will subordinate to a superseding objective: the economic and social development of Mexico.

This Report is addressed to civil servants and governments at federal, state and municipal levels responsible for ensuring access to health services for Mexico's population. It is also for non-governmental society organizations dedicated to promoting and ensuring improved health for population, as well as the private sector and academic institutions to ensure that they can take an active role in the promotion of health, health education and the development of knowledge. With the active participation of all sectors, it should be possible in a not too distant future for Mexico to become a global model of advancement in health and health care.

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<sup>2</sup>World Bank (2004), p.56. Those countries having an index equal to 3.5 of the "Country Policy and Institutional Assessment Index" are those that would obtain these benefits on average.

<sup>3</sup>The Millennium Development Goals were adopted by 189 countries in the UN Summit in 2000.

<sup>4</sup>Estimates were made by the Economic Analysis Unit of the Ministry of Health.

**November 2004**

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# ACKNOWLEDGEMENTS

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The Members of the Commission wish to thank Julio Frenk, Health Minister, for his unwavering support for this Commission's work. The President of MCMH, Nora Lustig, would like to thank group coordinators Stefano Bertozzi, Carlos Cruz, Luis de la Calle, Amy Glover, Luis Felipe López-Calva, David Mayer, Carlos Noriega, and John Scott as well as and the members of these groups for their extraordinary work in preparing the supporting documents and for their suggestions, recommendations, and contributions for this Report. Likewise, special thanks must be given to external readers George Alleyne, Julio Boltvinik, Jose Angel Cordoba, Carlos Jarque, Julio Portales, and Manuel Ruiz for their very useful comments and suggestions.

The Commissioners also thank the Economic Analysis Unit of the Ministry of Health for the technical and logistical support given throughout MCMH's work and for their invaluable contribution in the preparation of the Report. In particular, we would like to thank Eduardo Gonzalez (Executive Secretary of the Commission) and Corina Santangelo as well as Mariana Barraza, Hector Peña, Erick Peñaloza, Angel Campos, Gaelia Amezcua, Guillermo Lopez, and Raul Porras. We would also like to thank the following members from the Institute of Public Policy and Development Studies of Universidad de las Americas, Puebla for their help in elaborating this Report and Executive Summary: Samuel Freije, Yara Fosado, Roberto Velez, Maria Fernanda Madrid and Elia Carrasco, as well as Roque Flores, Kristiano Raccanello and Miguel Reyes for their support in the final stages. Finally, we would like to thank Rachel Sills and Margie Hord for the translation of this Executive Summary and Leonel del Angel and Rocio Corona from the Department of Publications of Universidad de las Américas, Puebla.

Last but not least, the Commissioners give their thanks to The National Council of Science and Technology (Consejo Nacional de Ciencia y Tecnologia, CONACYT) for the financial support of the Commission's research projects, without which this Report would not have been possible.

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# INTRODUCTION

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*“Which of the following phrases best describes what well-being is? Twenty-three percent answered, ‘to have food’; 15.9% answered ‘to be healthy’. What are the two things you would most like to achieve in ten years? Twenty-seven percent answered, ‘to be healthy’; 16.1% answered ‘to have a job’”.*<sup>5</sup>

*“The results of the analysis of the direct relationship between health and growth in Mexico, from 1970-1995, using life expectancy and the mortality rates for different age groups as health indicators, show that health is a causal factor responsible for approximately one third of the long-term economic growth in Mexico.”*<sup>6</sup>

*“...In countries with a 10% increase in public health expenditures as a proportion of GDP in developing or middle income countries that have adequate institutions would be associated with a 7% decrease in the maternal mortality rate, a 0.69% decrease in child mortality rate, and a 4.14% decrease in low weight for children under five.”*<sup>7</sup>

Being healthy, meaning a complete state of physical, mental and social well-being including the absence of illnesses, is one of the goals most valued by human beings. Thus, the most common analysis related to health is an understanding of factors that determine good health for its intrinsic value. It is unquestionable that avoiding or alleviating illnesses, and developing and maintaining our physical and mental abilities are something that on an individual and social level are considered an essential part of human welfare. Yet

several decades ago, and especially quite recently the contribution of health to the generation economic growth has been emphasized.<sup>8</sup>

Good health plays a substantial role in economic growth. A long-term study for England carried out by Robert Fogel, a Nobel Prize winner in Economics, clearly demonstrates this. Studies on the role that health plays in growth from more than a century of history in currently developed countries confirm this as well.<sup>9</sup>

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<sup>5</sup>Dieterlen, Paulette “Comentarios a los cuestionarios Qué dicen los pobres y Voces de los pobres”, Cuadernos de Desarrollo Humano, 18, septiembre 2004, Secretaría de Desarrollo Social, México, p. 15.

<sup>6</sup>Mayer-Foulkes, David “The Long-Term Impact of Health on Economic Growth in Mexico, 1950-1995”, Journal of International Development, 2001, 13(1), pp. 123-126.

<sup>7</sup>World Bank (2004). Those countries having an index equal to 3.5 of the “Country Policy and Institutional Assessment Index” are those that would obtain these benefits on average.

<sup>8</sup>See Commission on Macroeconomics and Health (2001).

<sup>9</sup>World Bank (2003).

In Latin America, it has also been confirmed that life expectancy has an important correlation with income. In Mexico, a similar assertion can be made. A better understanding of the magnitude of this relationship and the mechanisms under which it operates would allow the design and implementation of more efficient policies for the sake of improving population's health and economic development in general. This is one of the main topics analyzed in this Commission's Report.

Taking into account the instrumental and intrinsic value of health, we also ask what health goals should be chosen for Mexico? As we will see, this question can be answered using different criteria. Given the importance that the international community has given them, one of the criteria used in this Report is the Millennium Development Goals.<sup>10</sup> In terms of health, the Millennium Development Goals propose reductions in relative terms (for example, a 75% reduction of the maternal mortality rate) without knowing if the absolute level of the starting point (in 1990) corresponds to a country with a level of development similar to that of Mexico. On the other hand, targets for the national average are not satisfactory for countries that have large gaps in social indicators. For example, the poorest municipality in Chiapas (a state with per capita income of \$3,600 dollars in purchasing power parity) has an infant mortality rate of 66.9 per thousand live births, which is similar to that of much poorer countries, such as Sudan (which has per capita income of 1,800 dollars in purchasing power parity), whereas the Benito Juárez district in Mexico City, with a rate of 17.2, has a level comparable to that of Western Europe and Israel.<sup>11</sup> Substantially improving levels of health in the poorest regions of Mexico will increase the population's well-being and contribute to long-term economic growth

and poverty reduction. Similarly, demographical and epidemiological profiles characterizing the Mexican population also compel the review of the state of health related to other illnesses of growing importance in medium-income countries like chronic-degenerative diseases such as diabetes mellitus. Paradoxically, the increased frequency with which many of these illnesses appear is a consequence of advances in healthcare, as shown by increased life expectancy and the reduction of infant mortality.

Decisions regarding the allocation of public funds in the health sector and health-related areas must consider their intrinsic and instrumental value of health. Health is an asset, a component of what economists define as "human capital". Here we show that in Mexico, investment in health has marked deficiencies (in the amount as well as its allocation) that limit the potential impact that improvements in health can have on economic development.

If we agree that our objectives should encompass promoting growth, reducing poverty, achieving the Millennium Development Goals, reducing the gaps in health outcomes and facing new health challenges, this Report asks the question: are we investing well in health? Similarly, does Mexico have adequate social safety nets to deal with health shocks? What should the characteristics of a universal health insurance be and how should it be financed? Finally, what public goods should we invest in to maximize the benefits of better health levels? These questions, among others, are posed in this Report. As we shall see, investing financial resources in health more wisely can increase levels of growth in the long run, reduce poverty and contribute to the general well-being of the population.

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<sup>10</sup> The Millennium Development Goals, approved by 189 countries in the UN's Millennium Summit in 2000, commit rich and poor countries to fight against poverty and hunger, gender bias, the deterioration of the environment, and the lack of access to education, medical attention, potable water and health. They include a series of specific goals and indicators, to be evaluated in 2015.

<sup>11</sup> CONAPO (2001).

It is important to mention at the outset that this Report does not include an analysis of certain important topics such as the way in which health services are organized and provided.<sup>12</sup> An analysis of how to administer more services at a better cost and the way in which human and material infrastructure are used to produce goods and health services (also referred to as technical efficiency) will also be omitted. Nor will this Report discuss environmental policies that must be put into place to guarantee sustainable health levels or the most effective way of changing household habits to improve health and nutrition. Likewise, the impact of demographic and epidemiological changes on public finances and old-age poverty will not be included. Finally, a discussion of the role of pharmaceutical innovations and their relationship to other factors is also outside the scope of this Report.<sup>13</sup>

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<sup>12</sup>Some of the topics mentioned below are analyzed in Review of the Mexican Health-Care System, A preliminary work document for discussion, No. 511418, OCDE (2004).

<sup>13</sup>For example, relationships among demographic transition in Mexico, its changing epidemiological profile and pharmaceutical innovation, the cost structure of health-care institutions as compared to other therapeutic alternatives (pharmaceutical economics), the increasing use of interchangeable generic medicines, systems of copayment/reimbursement, the incidence impact of financial structure on medicine distribution systems, and global cost distribution perspectives as regards research and development of medications.

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# I. HEALTH AND ECONOMIC GROWTH

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In order to explain the relationship between health and economic growth, it is necessary to understand the concept of health in a broad sense.<sup>14</sup> Health is not only the absence of illnesses; it is also the ability of people to develop to their potential during their entire lives. In that sense, health is an asset individuals possess, which has intrinsic value (being healthy is a very important source of well-being) as well as instrumental value. In instrumental terms, health impacts economic growth in a number of ways. For example, it reduces production losses due to worker illness, it increases the productivity of adult as a result of better nutrition, and it lowers absenteeism rates and improves learning among school children. Health also allows for the use of natural resources that used to be totally or partially inaccessible due to illnesses. Finally, it permits the different use of financial resources that might normally be destined for the treatment of ill health.

In sum, health affects economic growth directly through labor productivity and the economic burden of illnesses, for example. Health also indirectly impacts economic growth since aspects such as child health affect the future income of people through the impact health has on education. This indirect impact is easier to understand if it is observed on a family level. When a family is healthy, both the mother and the father can

hold a job, earn money which allows them to feed, protect and send their children to school. Healthy and well-nourished children will perform better in school and a better performance in school will positively impact their future income. If parents ensure that their children have a high probability of reaching adulthood, in general they will have fewer children and they will be able to invest more in health and education for each of them. Additionally, the loss of health affects the poor to a greater extent since the main, and at times, only asset they have is their body. When they become ill they have fewer alternative solutions and suffer greater consequences

The results of historical studies suggest a very strong relationship between health and economic growth. Robert W. Fogel finds that between one third and one half of England's economic growth in the past 200 years is due to improvements in the population's food consumption. The existence of an impact of health on economic growth with similar magnitudes has been verified for different time periods and countries, including Latin America and Mexico, as described below.

Cross-country macroeconomic studies suggest that health positively affects growth. For example, an

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<sup>14</sup>Commission on Macroeconomics and Health (2001).

increase in life expectancy from 50 to 70 years (a 40% increase) would raise the growth rate by 1.4 percentage points per year<sup>15</sup>. A 10% decrease in malaria is associated with an increased annual growth of 0.3%<sup>16</sup> and malnutrition causes a decrease in the annual GDP per capita growth worldwide of between 0.23 and 4.7%<sup>17</sup>. For Latin America and the Caribbean, health, measured as the probability of surviving to the next age group, has a strong long-term relationship with growth.<sup>18</sup>

Using life expectancy and mortality rates as health indicators for different age groups, an estimate of the direct relationship between health and growth in Mexico from 1970-1995 indicates that health is responsible for approximately one third of long-term economic growth.<sup>19</sup>

There are also several microeconomic studies that find a direct impact of adult health on productivity and income

though the correlation is weaker than that found in comparative or historical study findings at national or regional levels. Nevertheless, when the indirect impact of health on income through its positive effect on education is analyzed, a very sizeable relationship is found. Children from poor households reach adulthood with chronic health problems that affect their cognitive abilities and cause them to miss a considerable number of school days; both imply that their future ability to generate income will be hampered. In general, results show that health during early childhood determines health conditions and educational performance as adolescents, which in turn affect health conditions and income as adults (see Figure 1). It has been found, for example, that taller children complete more grades than shorter children<sup>20</sup>, that the effects of childhood malnutrition on child causes late school enrollment<sup>21</sup>, and nutrition and that childhood health in general are important determinants of academic achievement<sup>22</sup>.

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<sup>15</sup>Barro (1996).

<sup>16</sup>Gallup and Sachs (2000).

<sup>17</sup>Arcand (2001).

<sup>18</sup>Mayer (2001b).

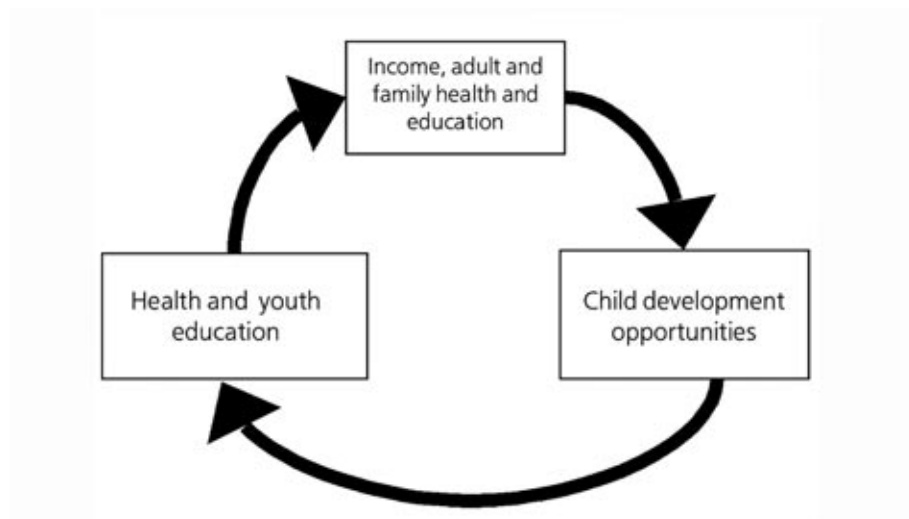
<sup>19</sup>Mayer (2001a).

<sup>20</sup>Moock and Leslie (1986).

<sup>21</sup>Glewwe and Jacoby (1995).

<sup>22</sup>Glewwe, Jacoby and King (2001); Paxson and Schady (2004).



**Figura1***Intergenerational Cycle of Human Capital Formation*

Source: Mayer (2004).

Several international multilateral organizations have studied the effects of health and malnutrition on education. In general, results show that school performance is negatively affected by micronutrient deficiencies and by the presence of protein-energy malnutrition, as well as by vision and hearing problems.<sup>23</sup> At the same time, hunger leads to a lack of attention. The impact of health on educational performance is not seen only in deficiencies in the consumption of nutrients. Early childhood development is a critical element for the cognitive, emotional and physical

progress of individuals.<sup>24</sup> Moreover, proper childhood development depends to a large extent on adequate prenatal care for the mother, that childbirths take place under adequate medical supervision, and that suitable and proper preventive and curative medical attention be provided during childhood. Mental health problems such as Attention-Deficit/Hyperactivity Disorder (AD/HD) can also considerably affect performance in school. For all these reasons, an agenda focused on early-childhood intervention must be laid out to take action.<sup>25</sup>

<sup>23</sup>For example, iodine deficiencies are associated with reduced intelligence, psychomotor deficiency, mental and neurological damage, and cretinism. Iron-deficiency anemia is associated with poor results in mental and motor development tests. Anemia affects 1,300 million people in the world, of whom 210 million are school-age children. Vitamin A deficiencies are associated with visual problems and other ailments.

<sup>24</sup>Paxon and Schady (2004).

<sup>25</sup>In Mexico, one of the programs that attempts to cover some of these elements is Oportunidades (formerly Progreso); its characteristics and impact are described later on.

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## II. HEALTH AND POVERTY TRAPS

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Due to its direct and indirect impact, health is one of the important determinants of the incidence of poverty as well as its persistence over time, known as “poverty traps”. The latter occur because, as we saw in the previous section, child health and nutrition are important factors that determine an adult’s level of education. Education, in turn, has a strong impact on income, and parent income and education affect the health and nutrition of their children.

For a poverty trap to exist, several elements must be combined. The principal ones are 1) increasing returns on education (remuneration progressively increases for those who have higher education levels) and 2) a population that can clearly (and statistically) be divided in two groups, one with low human capital and another with high human capital. In Mexico there is evidence of a poverty trap.<sup>26</sup>

The main human capital for generating adult income in Mexico is education. It generates increasing returns that start to appear after junior high school in the case of women and higher education in the case of men

and which are inaccessible for most of the population.<sup>27</sup> Health also generates returns in the adult population’s income, although the structure and magnitude of their returns would not by themselves generate a poverty trap. Instead, child nutrition and health play a pivotal role in poverty traps, since they establish the foundations of human capital investment, in particular, education. Using height to measure nutrition, it has been confirmed that this has substantial and possibly increasing returns for arriving at successive stages of the school term. When early childhood development is deficient due to shortcomings in education, health and parental income, children’s educational achievements are poor and the poverty trap is reinforced.<sup>28</sup> Because the poverty trap is associated to the restrictions faced by poor households to accumulate human capital, it is also called a “human development trap”.

Based on the evidence of positive and increasing returns from education, positive effects of education on child health, the presence of two statistically distinct groups in the distribution of human capital and the lack of autonomous investment in education for the lower

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<sup>26</sup>Mayer (2004).

<sup>27</sup>Bourguignon, Ferreira and Lustig (2004).

<sup>28</sup>It bears mentioning that health care has returns of wellbeing and longevity above those represented by income, whose value is not included here. See findings of Paxson and Schady (2004) for Ecuador.

classes, there is sufficiently robust evidence for the presence of a low human development trap in Mexico. In this trap, child nutrition and health play a central role because they form the basis for life-long health and education. The importance of eliminating this human development trap in Mexico is evident because in 2002, 20.3% of the population lived was in extreme poverty, otherwise known as “food poverty”.<sup>29</sup>

Since there are increasing returns for education, and since nutrition and health offer high yields in educational achievements and future income at a relatively low cost, the foregoing conclusions show that there is an important and systematic degree of underinvestment in health and education.<sup>30</sup> This implies that market mechanisms for human capital investment are flawed.

Establishing which market mechanisms are failing is important, especially for public policies, but it requires further research. A list of possible market failures responsible for underinvestment in human capital includes:

1. Imperfect parenting, as in the case of absent parents or undernourished parents; their lack of health or knowledge.
2. Imperfect credit and insurance markets.
3. Uncertainty or a lack of information or foresight regarding the benefits of early childhood development.

4. Impatience or excessive risks due to poverty since although investment in human capital has the necessary returns, problems inherent to the poor, such as a lower life expectancy, imply they will not be willing to invest as much.
5. Unavailability of the necessary public goods for health and education. Examples would be the supply of drinking water, drainage, health services, and micronutrients; information, communication, and transport infrastructure.

Precisely due to the presence of poverty traps, it is likely that the beneficial effects of the structural reforms that have been carried out in Mexico since 1983 may not trickle down. Suppose, as is the consensus<sup>31</sup> that pro-market reforms lead to increases in production, technological changes and human capital returns. This leads, then, to greater incentives and more resources for human capital investment. Both in the present and in the future, this will benefit families with high income who are already providers of human capital. Less educated families will benefit less in the present, and if these benefits are not enough, their children will not be able to provide additional human capital in the future. Inequality will increase and the growth process – which could generate an accelerated growth toward a higher income level – will stop.

As observed before, increasing returns for education have been present in Mexico at least since 1984.<sup>32</sup> Nevertheless, though this structure of returns structure

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<sup>29</sup> “Food poverty” is defined as the proportion of families or persons whose income is less than the needed to cover the food necessities, corresponding to minimum requirements defined by INEGI-ECLAC. (<http://www.sedesol.gob.mx/subsecretarias/prospectiva/cuadernos/MediciónOK.pdf>), Sedesol (2003).

<sup>30</sup> In the language of economists, health care investment has very positive externalities.

<sup>31</sup> The returns for higher education have increased through various mechanisms induced by skill-based technological change and by trade and investment liberalization, promoted by pro-market reforms (De Ferranti et al, 2003, Chapter 3; Hanson y Harrison, 1995; Revenga, 1995; Tan y Batra, 1997; Cragg y Epelbaum, 1996; Robertson, 2000).

<sup>32</sup> Bourguignon, Ferreira and Lustig (2004).

should have lead to a greater investment in higher education, this did not occur. The North American Free Trade Agreement (NAFTA) did not produce the accelerated growth expected by traditional theories of growth and international trade. Some authors show growth was stopped in Mexico because of the lack of human capital and infrastructure and due to institutional failures.<sup>33</sup> Low human capital accumulation traps, together with institutional failures and the lack of some key public goods limited the benefits of the reforms.

If health is an asset, it is important to not only create incentives and implement policies to invest in health, but also to avoid, or at least minimize, its deterioration in adverse situations. These adverse situations can be systemic (for example, economic crises and natural disasters) or idiosyncratic (for example, illness, death, unemployment, or a bad harvest).<sup>34</sup> An economic crisis or a natural disaster can have repercussions for the growth potential of a country if, for example, the nutritional levels of young children diminish since these decreases produce irreversible effects on the cognitive ability of children which effects their productivity and income-earning capacity as adults.<sup>35</sup> There is evidence that during the crisis of the 1980's in Mexico, the indicators that were most sensitive to deteriorating income – mortality rates of infants and children as a result of malnutrition – began to rise in contrast to the systematic decreases witnessed a decade earlier.<sup>36</sup>

Poverty traps that are created by an adverse shock not only expose numerous people to a situation of poverty, but also exclude them from contributing productively (or as productively as possible) to the economy of the country. To avoid these consequences, it is important to have an adequate social protection framework that minimizes the impact on families from systemic shocks. It is important to point out that individual insurance does not safeguard against systemic shocks. When facing an economic crisis it is crucial for countries to have safety nets that prevent the deterioration of human capital and health. A special supplemental nutrition program for women, infants, and children, is an example.<sup>37</sup>

Acquiring insurance is one of the ways in which individuals use financial markets to protect themselves from possible adverse idiosyncratic events that can temporarily or permanently reduce their consumption level. Particularly in the case of health shocks, individuals can protect themselves by acquiring private medical insurance or accessing state sponsored insurance.<sup>38</sup> Nevertheless, personal and family access to formal private insurance mechanisms is limited by insufficient information as well as by practices in which certain private providers of insurance get the most profitable part of the market. And access to state sponsored insurance is often restricted to workers in the so called formal sectors of the economy.

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<sup>33</sup>Scott (2003a).

<sup>34</sup>Lustig (2001).

<sup>35</sup>Paxon and Schady (2004) find that the economic crisis in Peru (1988-1992) implies that around 17,000 additional children died because of the crisis and that children under six years old were shorter than those of the same age before the crisis.

<sup>36</sup>Lustig (1995).

<sup>37</sup>IABD (2000).

<sup>38</sup>Insurance is a way of intertemporal saving. For example, the premium paid for a medical insurance can be seen as a form of saving, while the benefits received when requiring medical attention can be seen as a form of disaving. Public insurance mechanisms must be provided to counteract typical failures of the health insurance market like moral hazard and adverse selection. Moral hazard consists in that once individuals acquired and insurance they have incentives to modify their behavior, and consume health services in excess, thus the allocation of resources in the sector is not optimal. Adverse selection exists because insurance companies can not accurately incorporate the risk of each person in the estimation of premium, thus, it is very likely that the average risk for the group of insured people will be greater than that of the group of the population represented, since those having higher risks also have higher incentives for obtaining insurance. Given that the percentage of those who are ill is higher than expected in the group, insurance providers would increase their premiums and lower-risk individuals would definitely abandon the market.

When people cannot insure themselves in the formal market, they can resort to informal insurance mechanisms. Thus, when exposed to an adverse health shock, families can react by selling assets, using credit, finding additional sources of income which can include child labor, and/or decreasing the consumption of other goods and services. All these methods, depending on their magnitude, can trap a family already in poverty or impoverish a family that was not previously poor.

These mechanisms that protect against health risks are actions that reflect the self-protection of individuals, households or communities. Despite the fact that informal markets and self-insurance are used widely by poor households, there is evidence that they are not enough to protect the household against the effects of adverse events on well-being.<sup>39</sup> Credit constraints, including the lack of formal or informal insurance, reduce an individual's ability to smooth the intertemporal consumption of health producing goods.<sup>40</sup>

Low-income people who have no access to formal insurance mechanisms are exposed to a vicious cycle of illness and poverty. The money they must set aside to finance medical expenses frequently is a considerable burden, and the situation can become catastrophic. Based on existing literature, a family faces catastrophic expenses when it spends more than 30% of its total

“payment ability” to cover health costs.<sup>41</sup> When this occurs, families must adjust expenses for other goods, including perhaps money spent on the health (including nutrition) of young children. A catastrophic health shock could create a poverty trap for a large number of households.

As mentioned before, health has an intrinsic value (it produces well-being) and instrumental value (it is an important determinant of economic development). At the same time, low investment in the health of young children creates intergenerational poverty traps. For analogous reasons, the presence of systemic and idiosyncratic shocks that affect the health of young children due to the lack of safety nets, as well as a lack of access to insurance, can create intergenerational poverty traps. These traps result in slower growth for the country as a whole.

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In the previous sections we demonstrated the importance of health of economic growth and also showed the link between poor health (including nutrition) and poverty traps. The following four sections analyze the health status and the state of investment in health (levels and allocation) in Mexico as well as the characteristics (actual and desirable) of the medical insurance system and the availability of public goods that help improve health. The final section will include a summary of the main conclusions and recommendations.

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<sup>39</sup>Townsend (1994); Albarrán y Attanasio (2001); García Vedú (2000); Bando y López-Calva (2003) y Rubio y Soloaga (2003).

<sup>40</sup>See Deaton (1997), who analyses in detail some credit constraint consequences on the ability to smooth consumption through the life cycle. See also Gertler and Gruber (2001).

<sup>41</sup>Payment ability is defined as the surplus of the effective resources of a family, which is measured subtracting the subsistence expense, measured through food expenses or a poverty line, and the health expense financed by taxes, from the total family expense. Salud: México 2002, page 170.

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## III. WHAT HEALTH GOALS SHOULD BE CHOSEN FOR MEXICO?

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This question requires the definition of indicators and targets. In terms of indicators, the practical thing to do is to use those conventionally selected for international comparisons and then add others considered relevant at the national (and sub-national) level.

In terms of targets, one way of defining them is comparing Mexico (using adequate statistical methods) with countries (or regions) that have similar characteristics (in particular, income per capita). Another way is adopting the targets agreed upon through international consensus, as is the case of the Millennium Development Goals.<sup>42</sup> However, both approaches have their limitations. For example, in terms of the first method, what should the goal be for countries whose performance is above its comparison group? In terms of the Millennium Development Goals, there are several problems. These goals in terms of health were established in relative terms (for example, reducing the maternal mortality rate by 75% between 1990-2015). This has several limitations: how do we know that the starting point is the level that corresponds to a country with similar characteristics to Mexico? How can we compare the effort that needs to be put forth in terms of resources, for example, when the goal is the same for a country that starts from very

low levels and that of a country that starts from a more advanced position? It is well known that the cost of reducing the infant mortality rate is considerably lower at higher levels (where many deaths are associated with illnesses brought about due to lack of proper hygiene, for example) than at lower levels (where deaths are associated with degenerative illnesses).

Here we have chosen to present both approaches knowing that the final process of defining health goals for Mexico has to arise from a consensus between different levels of government, civil society and the private sector. It is exactly for this reason that MCMH recommends having a series of discussion sessions using the Commission Report and this Executive Summary as starting points.<sup>43</sup>

If we adopt the performance of Mexico as a unit of measurement compared (in econometric terms) with that of other countries, in the case of the infant mortality rate, the expected rate for Mexico in 1998 was found to be 22% lower than what was observed. This represented about 20,000 infant deaths in excess.<sup>44</sup> This result indicates that even though, as we will see later on, Mexico is accomplishing reductions in the infant mortality rate

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<sup>42</sup>The Millennium Development Goals were adopted in the United Nations Millennium Declaration signed by 189 countries which attended the United Nations Millennium Summit on September 2000.

<sup>43</sup>Both were published in November 2003.

<sup>44</sup>Gutierrez y Bertozzi (2003).

according to the Millennium Development Goals, the starting point is probably not adequate, given, that it is not the infant mortality rate that would correspond to a country with a level of development similar to that of Mexico.

In spite of these limitations, given that the performance of countries is being monitored at an international level using the Millennium Development Goals as guidelines, in what follows we shall analyze Mexico's performance.

The Millennium Development Goals commit rich and poor countries to fight against poverty and hunger, gender inequality, lack of access to education, medical care, drinking water, sanitation and environmental problems and they also include a series of specific goals and indicators which were agreed upon by the countries that signed the agreement, setting 2015 as a deadline to evaluate achievements.<sup>45</sup> It is important to mention that adopting goals is relevant because objectives, timing and specific evaluative indicators have been set for countries for the first time. Nevertheless, these objectives must be extended and widened in order to be consistent with Mexico's realities.

**Goal 1** includes among its targets a reduction of people suffering from hunger by 50% in order to eradicate extreme poverty and hunger. To monitor this, the United Nations (UN) has proposed the use of indicators related to health in a broad sense including nutrition, children under five who are underweight and the percentage of the population below minimum levels of dietary energy consumption.

Millennium Development Goals 4, 5, and 6 concentrate on a more focused definition of health, such as child and maternal health as well as HIV/AIDS, malaria, and other communicable diseases. **Goal 4** requires reducing mortality in children under five by two thirds between 1990 and 2015. In order to follow through with this goal, the UN selected three indicators: child and infant mortality rates and the proportion of children under 12 months immunized against measles. **Goal 5** asks for reducing the maternal mortality rate by three fourths in the same period. To monitor this goal, it has been proposed that the maternal mortality rate and the percentage of births attended by trained medical personnel be evaluated.

**Goal 6** aims to stop and begin to reverse the spread of HIV/AIDS and the incidence of malaria and other diseases by 2015. Monitoring the progress of the fight against HIV/AIDS is based on indicators such as HIV/AIDS prevalence among pregnant women aged 15 to 24 and the number of children orphaned because of HIV/AIDS. Regarding malaria and other diseases, indicators will include the mortality rate associated with malaria and the proportion of population in high risk areas using effective malaria prevention and treatment measures. It is also suggested that other indicators such as the mortality rate associated with tuberculosis and the proportion of tuberculosis cases detected and cured by the Directly Observed Treatment Strategy (DOTS) be evaluated.

Finally, **Goal 7** focuses on environmental protection and includes access to drinking water and basic sanitation services among its goals, which have a fundamental

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<sup>45</sup>Besides the objectives previously mentioned, the Millennium Declaration also includes actions for reducing debt and increasing trade and technological transfer to poor countries, making countries with developed economies essential to the objectives. The Declaration gives special attention to those means required to reach Millennium Development Goals, which include, among other things, mobilizing resources of international organizations and those of the countries themselves, national and international alliances, and designing specific programs and policies. In addition, the objectives were part of the agenda in the Doha Round of multilateral trade talks, in November 2001. The problems of developing countries in the agreements of the World Trade Organization (WTO) were discussed during this meeting, emphasizing their needs in the areas of agriculture, subsidies, and investment measures. As a result, actions were agreed upon to improve trade conditions affecting developing countries. For more see <http://www.un.org/millenniumgoals/>.

impact on health. To monitor this goal, the use of indicators for the percentage of the population with a sustainable access to safe drinking water and running water has been proposed.

## **Mexico and the Millennium Development Goals**

Next, we will present a summary of the progress in Mexico towards the achievement of Millennium Development Goals related to health.<sup>46</sup>

### **Goal 1: Halve the proportion of people who suffer from hunger**

If we use the relationship in height according to age as an indicator of malnutrition, we will find that the decrease between 1998 and 1999 was about 22% less than what was required to fulfill the Millennium Development Goal, assuming a linear trend.<sup>47</sup> An indirect way of analyzing malnutrition is by examining changes in extreme poverty (officially called "food poverty") between 1992 and 2002. The definition means that individuals are considered extremely poor if their income is not enough to cover a basic food basket. The progress in this indicator is 10%, much lower than the required 44%, mainly due to the increase in poverty during the 1994-1995 crisis.<sup>48</sup>

### **Goal 4: Evolution of child and infant mortality indicators**

In terms of Millennium Development Goals, Mexico has shown a progress rate of 55.4%,<sup>49</sup> which is greater than that observed in four of the developed countries and satisfactory in terms of the Goals because it surpasses 44%. Likewise, in the last decade Mexico has had a significant improvement in vaccination rates, especially against measles. In 1990 only 75.3% of infants under 12 months had been vaccinated against this disease and in 2002 the number was at 96%.<sup>50</sup>

### **Goal 5: Maternal health**

The progress on maternal mortality rate is 32.7%<sup>51</sup>, lower than required. In terms of other indicators, the number of births attended by trained medical personnel should be 100%, but in Mexico it is only at 86%. Our country lags behind most Latin-American countries. Only seven (poorer) Latin-American countries are in worse situation than Mexico (Paraguay, Bolivia, Ecuador, Nicaragua, Peru, Honduras and Guatemala). Cuba, El Salvador and Dominican Republic, a group of countries with a lower income than Mexico, have percentages higher than 90%.<sup>52</sup>

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<sup>46</sup>It is important to note that for this purpose we assume a linear behavior (that is, in the future, behavior will be the same as that of the previous 12 or 13 years), which would probably not be the most appropriate. However, due to the lack of studies using more sophisticated methods, we will consider the following a general framework.

<sup>47</sup>Data were obtained from the United Nations Statistics Division (<http://millenniumindicators.un.org>).

<sup>48</sup>The required 44% reduction is the simple calculation of what should reduce the variable between 1990 and 2002 so that the goal can be reached 100% between 1990 and 2015 (that is, in a 15-year period).

<sup>49</sup>Our estimates based on data from the United Nations Statistics Division (<http://millenniumindicators.un.org>). See Chapter 2 of the Report of the Mexican Commission on Macroeconomics and Health, and Version for Consultation and Comments, 2004.

<sup>50</sup>Data were obtained from the United Nations Statistics Division (<http://millenniumindicators.un.org>).

<sup>51</sup>Our estimates based on data from the United Nations Statistics Division (<http://millenniumindicators.un.org>). See Chapter 2 of the Report of the Mexican Commission on Macroeconomics and Health, and Version for Consultation and Comments, 2004.

<sup>52</sup>Data were obtained from the United Nations Statistics Division (<http://millenniumindicators.un.org>).



Pregnancy-induced hypertension and hemorrhages are still responsible for a large number of maternal deaths. This indicates a persistence of problems with accessing appropriate health services and receiving adequate attention during pregnancy, delivery and puerperium in the rural and marginal sectors. The distribution between states also show stark contrasts, since the highest incidence is registered in the southern and central region of the country and six states have more than 50% of this type of deaths.

Births attended by trained medical personnel guarantee maternal and newborn health. These professionals can prevent, attend to or channel delivery and puerperium complications and help to reduce maternal and newborn morbidity and mortality.

#### **Goal 6: Combat HIV/AIDS, malaria and other serious diseases**

In terms of Goal 6, which consists of reducing the spread of HIV/AIDS and the incidence of malaria and other serious diseases, important progress has been made.

The rate of HIV/AIDS among the adult population in Mexico is one of the lowest in Latin America and the Caribbean in proportion to its population, but it has the second highest number of people living with the disease. According to the Inter-American Development Bank<sup>53</sup>, the goals and indicators used to follow the spread of HIV/AIDS are not appropriate for Latin America and the Caribbean. In Latin America and the Caribbean, HIV/AIDS primarily affects groups with high-risk practices.

For this reason, attaining this Millennium Development Goal should be measured by changes in the prevalence among these key populations: men who have sexual relations with other men (MSM), sex workers and intravenous drug users.

Regarding malaria, the situation in Mexico is substantially better than that of the rest of Latin America and Caribbean countries. In 2000, only eight cases occurred for every 100,000 inhabitants.<sup>54</sup>

In Latin America and the Caribbean, there were eight deaths caused by tuberculosis (TB) for every 100,000 inhabitants in 2002. In Mexico during that same year, only five deaths occurred for every 100,000 inhabitants. In the fight against TB, it has been found that the Directly Observed Treatment Strategy (DOTS) is the most effective way of treating the illness, reaching a recovery rate of up to 95%. The percentage of cases that are treated using DOTS has been considered an indicator of the progress in the fight against the illness. In Mexico, 83% of all cases of TB are treated with this procedure.

#### **Goal 7: Sustainable access to safe drinking water**

In terms of environmental conditions and sanitation, measured through access to drinking water, on average Mexico is very close to achieving the target suggested by the Millennium Development Goals. Nevertheless, compared to other Latin American countries, access levels are still lower than those observed in countries like Chile and Colombia.

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<sup>43</sup>IADB (2004).

<sup>44</sup>Data were obtained from the United Nations Statistics Division (<http://millenniumindicators.un.org>).

## Beyond the Millennium Development Goals

Mexico is classified as an “upper-middle income” country according to World Bank definitions, and as a country of “High Human Development”, according to United Nations Development Program (UNDP) classifications.<sup>55</sup> In fact, in terms of the Human Development Index (HDI), the country shows average health levels that are consistent with its level of income and its world position (number 55).

the United Nations Development Program<sup>56</sup>, there are disparate development levels in terms of the HDI. While in Mexico City and the state of Nuevo Leon the levels are similar to those in Europe, in the states of Chiapas and Oaxaca, for example, the levels are similar to those in countries that are considerably poorer than Mexico (see Table 1).

However, Mexico is a country with very high levels of economic inequality and large disparities in health indicators among regions. As can be seen in Table 1, according to

**Table 1**

*Human Development Index (HDI) for Different Regions of Mexico in 2002*

Position according to HDI	Region	Life Expectancy Index	Educational Index	GNP Index	HDI
1	Northeast	0.8501	0.8510	0.8004	0.8339
2	Central	0.8499	0.8373	0.7838	0.8237
3	Northwest	0.8491	0.8510	0.7649	0.8217
4	West	0.8392	0.8089	0.7092	0.7858
5	South	0.8098	0.7677	0.6642	0.7472

Northeastern Region=	Coahuila, Chihuahua, Durango, Nuevo León y Tamaulipas.
Central Region=	Hidalgo, México, Morelos, Puebla, Tlaxcala y Distrito Federal.
Northwestern Region=	Baja California, Baja California Sur, Sinaloa y Sonora.
Western Region=	Aguascalientes, Colima, Guanajuato, Jalisco, Michoacán, Nayarit, Querétaro, San Luis Potosí y Zacatecas.
Southern Region=	Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz y Yucatán.

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a. Regions correspond to those defined by the Plan Nacional de Desarrollo 2001-2006  
 b. promedios ponderados por los promedios de cada entidad

Source: Based on Table A1 of Statistic Appendix Table 3.3.2.2. HDI Mexico by regions, Informe sobre desarrollo humano Table 1.2, p. 26.  
 Note: Calculations based on data from the year 2000.

<sup>55</sup>According to the World Bank (2003), countries are classified as “low income” (less than 735 dollars per capita annually), “lower-middle income” (between 736 and 2,935 dollars per capita annually), “upper-middle income” (from 2,936 to 9,075 dollars per capita annually), and “high income” (9,076 dollars per capita annually or more). This classification was last updated in 2002. According to the United Nations Development Program (UNDP), countries with high human development are those whose HDI is higher than 0.80. Mexico has a HDI of 0.801, according to the Human Development Report, 2003.

<sup>56</sup>UNDP (2002).

Given the level of development in Mexico, it is important to go beyond what was established in the Millennium Development Goals in several ways: moving up time frames for specific targets, setting targets at a sub-national level, and including goals not originally considered in the Millennium Development Goals but which are of great importance for countries like Mexico; for example, goals related to chronic illnesses such as cardiovascular problems and diabetes.

### **Goals at a Sub-national Level**

Inequality in health indicators in Mexico is evident when using infant and maternal mortality rates and anthropometrical measures. A comparative analysis suggests that Mexico is a country with a high inequality in the most relevant health indicators. As mentioned above, if we take the infant mortality rate as an example, we will see that the poorest municipality of Chiapas has a level similar to much poorer countries like Sudan and Nepal, with a 66.9 rate for every thousand live births, while the Benito Juarez district of Mexico City, with a rate of 17.2, has levels comparable to those of Western Europe and Israel.<sup>57</sup>

The differences between states in coverage for births delivered under medical supervision are also considerable. Half of the states have a coverage greater than 90%, but there are states with a coverage lower than 60%. According to data from the 2002 National Health Survey, the percentage of births attended to in the 386 poorest municipalities is slightly above 36% whereas in the 247 richest municipalities, the coverage in medical clinics reaches nearly 94%. This means that the gap in these indicators is of almost 60 percentage

points. Some specific studies show even more alarming numbers: in the indigenous communities of certain states, the percentage of deliveries performed under medical supervision is less than 10%.

Maternal deaths are perhaps the clearest manifestation of coverage problems and quality of health services. In this sense, it is difficult to reduce the maternal mortality rates without achieving greater coverage and better quality services in order to reduce the dramatic gaps already mentioned.

Given the low levels of health found in some regions of the country, Mexico's goals should be established at the state and even, when possible, at the municipal level. These goals must arise from agreements between different levels of government and be shielded from political processes to avoid the disruption of the efforts that require continuity. The selection of goals at the state and municipal levels should be done as soon as possible so that required actions can be established to achieve them.<sup>58</sup> It is important to mention that the selection of goals for the most underdeveloped regions is methodologically equivalent to shortening the time periods for achieving national goals and to establishing a level of aversion to backwardness.

In general, when we think of substantially improving health indicators of poorer regions, a concern immediately arises related to costs. Although there is a high correlation between the level of income and health indicators in Mexico, this relationship is not always present in other countries or regions of the world. For example, the state of Kerala in India has a per capita income of around 300-400 dollars but it has better health indicators than other areas with the same

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<sup>57</sup>CONAPO (2001).

<sup>58</sup>See Chapter 2 of the full Report by The Mexican Commission on Macroeconomics and Health, Version for Consultation and Comments, 2004.

income and, at times, better ones than those of higher income countries. In 1992, the infant mortality rate was lower than that registered by countries like Mexico and Brazil and similar to Argentina and Uruguay. In addition, the life expectancy of 70 years is higher than the national average in India (59 years), and similar to that reported at this moment by some middle-income countries like Mexico and Brazil. Kerala's success in terms of health is due, among other things, to public action that promotes an equitable provision of education, health and other basic services; social participation that makes demands of the government; the existence of social capital that promotes the expansion of education and health services; and a per capita social expenditure greater than the average of other states with a uniform distribution between different income groups.<sup>59</sup>

It is important to mention, however, that although many resources are not required to reduce infant mortality, this is not the case for adult chronic illnesses. In Mexico, as in other countries with similar incomes, chronic diseases have increasingly been a cause of death. Among these diseases, diabetes mellitus and hypertension are the most representative. Diabetes mellitus has shown a large increase in the last decades. At the end of the 70s it was the fourth leading cause of death in our country and it is now considered the first, causing 12% of all deaths in the country. The mortality rate from this disease is higher for women than for men, being 60.2 and 50.8 respectively, per 100,000 inhabitants. It is important to point out, however, that these types of diseases pose a challenge in terms of defining specific indicators and goals. Chronic diseases of this nature are associated with changes in

income levels and in the demographical structure, so the evaluation of a feasible and relevant goal is no small task.<sup>60</sup>

One of the main actions that can be useful in the treatment and control of this disease is controlling the factors that cause it, the most important one over excess weight.<sup>61</sup> Inadequate nutritional habits and lack of physical activity are the first steps in becoming obese or developing diabetes mellitus, hypertension and other diseases.

Mexico, like other middle-income countries, is going through an epidemiological transition since illnesses associated with underdevelopment persist while at the same time chronic diseases like cardiovascular problems, diabetes, neoplasm, hypertension, asthma and others are on the increase. This constitutes a phenomenon that is "doubly burdening" since authorities have to cope with both types of illnesses simultaneously. To face these deficiencies that have not been coped with and to treat illnesses associated with underdevelopment (malnutrition, infections, reproductive problems), the Instituto Nacional de Medicina Genómica was created as part of the National Institutes of Health system.<sup>62</sup>

In sum, regarding goals that Mexico must take on, it is important to go beyond the Millennium Development Goals in several dimensions: moving up the time frame for specific targets, establishing targets at the sub-national level to reduce the large existing gaps and including the fight against illnesses and diseases not considered in the Millennium Development Goals (such as hypertension and diabetes mellitus).

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<sup>59</sup>See Carr (2004), World Bank (2001), Dreze and Sen (2002), Heller (1997), Mencher (1986) and Nag (1989).

<sup>60</sup>For example, it is likely that the full capacity of the health system cannot do much in terms of decreasing the prevalence of diabetes given that its origins multifactorial and genetic factors and individual behavior intervene. However, it is clear that the health system must have a very important role in the extension of the patient's life and quality of life.

<sup>61</sup>The prevalence of excess weight and obesity had a dramatic increase in the 11 years between 1988 and 1999 according to the Encuesta Nacional de Nutrición. The prevalence of excess weight and obesity in 1988 was 24% and 9.4%, respectively. Therefore, the increases were 10.3 percentage points for excess weight (an increase of 41.3%) and 15 percentage points for obesity (an increase of 160%).

<sup>62</sup>Genomic medicine will bring with it a lowering of the cost of health care since postponing the onset of illness or keeping it from ever manifesting will mean less spending on medication and hospitalization and, more importantly, will give those affected a better quality of life. This is why diabetes, which affects more than 10 million Mexicans costing 300 million dollars a year, could reach a 25% savings by the year 2025.

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## IV. ARE WE INVESTING WELL IN HEALTH?

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Health investment includes spending on any activity whose main objective is the reestablishment, maintenance, improvement and protection of health in a country during a defined period of time. Investment in health occurs both outside and inside the “health system”.

Outside the health system, the most important investments are those related to food production, sanitation infrastructure, potable water and housing. With respect to food production, it is necessary to find mechanisms so that all the elements of the food pyramid are accessible to the general population and micronutrients along with basic foods are readily supplied. With respect to sanitation and potable water, lack of infrastructure is responsible for a large share of health problems, and improvements in this area are needed. Likewise, better housing will contribute to better health. Improving productivity and access to a sanitation infrastructure and housing is not only an indirect investment in health and human capital; by increasingly providing non-tradable goods, the economy is made more competitive. Studies on the impact of nutrition and early childhood development in general on cognitive abilities emphasize the importance of these aspects on health and human

capital accumulation.<sup>63</sup> Mechanisms to measure, study and promote cognitive abilities must be developed both inside and outside of the health system.

Inside the health system, activities include: health promotion and disease prevention; treatment of pathologies and reduction of premature deaths; providing care for people with chronic illnesses, deficiencies, disabilities, or health-related disabilities; chronic illness care; providing and administering public health; managing health programs; health insurance and other financing mechanisms and the administration of the health system.<sup>64</sup>

The situation of health financing in Mexico can be analyzed considering investment levels, the breakdown of its sources and the distribution of resources channeled into the health system.

Is Mexico investing well in health? When we say “well” what we mean is allocating, prioritizing and using sufficient health resources in an equitable fashion. Since 1990, the year in which the National and State Health Accounts System was put into place, it has been possible to identify and measure the flow of resources destined to the health system, taking into

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<sup>63</sup>Rubalcava and Teruel (2004), document written for the The Mexican Commission on Macroeconomics and Health; Lynn and Vanhanen (2002).

<sup>64</sup>Ministry of Health (2004a), OECD Health Data (2004) and Murray y Frenk (2000).

account its origin and the different funds, institutions or government levels to which these resources are channeled.<sup>65</sup> This has permitted the identification of a disequilibrium in financing matters which in turn allows us to see that health investment in Mexico is less than what is required or expected of a country with a level of development and needs like ours.<sup>66</sup> Likewise, it has been observed that resources are distributed among the population in an unequal manner. On the other hand, resources are not necessarily spent on the type of care (preventive versus curative) that yields the best results for the population as a whole.

The resources each country assigns to the different sectors of the economy can be an indicator of both their needs and their priorities. Thus, the amount of resources assigned to the health sector as a percentage of the Gross Domestic Product (GDP), can function as a tool to identify the importance and relative size of this sector in different countries, as well as to understand the priority each government and society allots to this sector. In this sense, Mexico is characterized by a consistent level of health expenditures as a percentage of GDP during the last twelve years, at levels lower than 6%, except the amounts reported in 2002 and 2003, which were equal to 6.1%.<sup>67</sup>

The investment made by Mexico in health in 2003 is lower than the Latin American average (6.3%) and is relatively low if compared with the investment level observed in 2001 in other countries with similar income levels, such as: Chile (7.0%), Costa Rica (7.2%), Brazil (7.6%), and Uruguay (10.9%), and with those recorded,

on average, by the Organization for Economic Cooperation and Development (OECD) countries. In Canada, for example, total expenditures on health reached 9.9% in 2003, and in the United States, these represented 14.6% of the GDP in 2002.<sup>68</sup>

The resources for investing in the health sector come from three sources: a) public resources, which comprise federal and state government budgets, b) social security contributions, and c) private expenses made directly by households, through prepayment or direct out-of-pocket payments.

Figure 2 shows that in Mexico, in 2001, participation of public resources represented 44.3% of total health expenditures, lower than what would be expected based on its degree of development, while Latin American countries with similar or even lower income levels than ours, such as Argentina and Nicaragua, have higher public spending shares (48.5 and 53.4%, respectively). As a share of GDP, public health expenditures in Mexico represented 2.8% in 2003.<sup>69</sup> In Western European countries, this percentage ranges from 5.9 to 11%; in Canada it reached 6.7%; and in the United States it represented 6.6% of GDP in 2002.<sup>70</sup>

Private prepayment and out-of-pocket payments represented 2.7% and 53.0%, respectively. This means that, in the case of Mexico, more than 90% of private health expenditures are out-of-pocket payments, which are characterized by being highly dispersed and subject to almost non-existent regulations. Only a small percentage of private health expenditures (3.3%) are

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<sup>65</sup> The financial analysis of the health systems is supported in the work performed on an international level regarding National Health Accounts. The consensus of different international organizations like WHO and the Organization for Economical Cooperation and Development (OECD) on the definition and measurement of health investment using criteria which allow comparison on an international level correspond with the definition of the health system limitations described later.

<sup>66</sup> In Mexico, the first publication on National Health Accounts in Mexico was by Cruz, C., Alvarez, F., Frenk, J. and Knaul, F. (1994).

<sup>67</sup> WHO (2004).

<sup>68</sup> WHO (2003), Canadian Institute for Health (2003) and OECD Health Data (2004).

<sup>69</sup> Ministry of Health (2004b).

<sup>70</sup> OECD Health Data (2004).

channeled through private medical insurance. Since social security expenses represent 29.4% of total health expenditures, the country is not taking advantage of the possibility of pooling risks and thereby contributing to more equitable financing and more efficient health investments.<sup>71</sup>

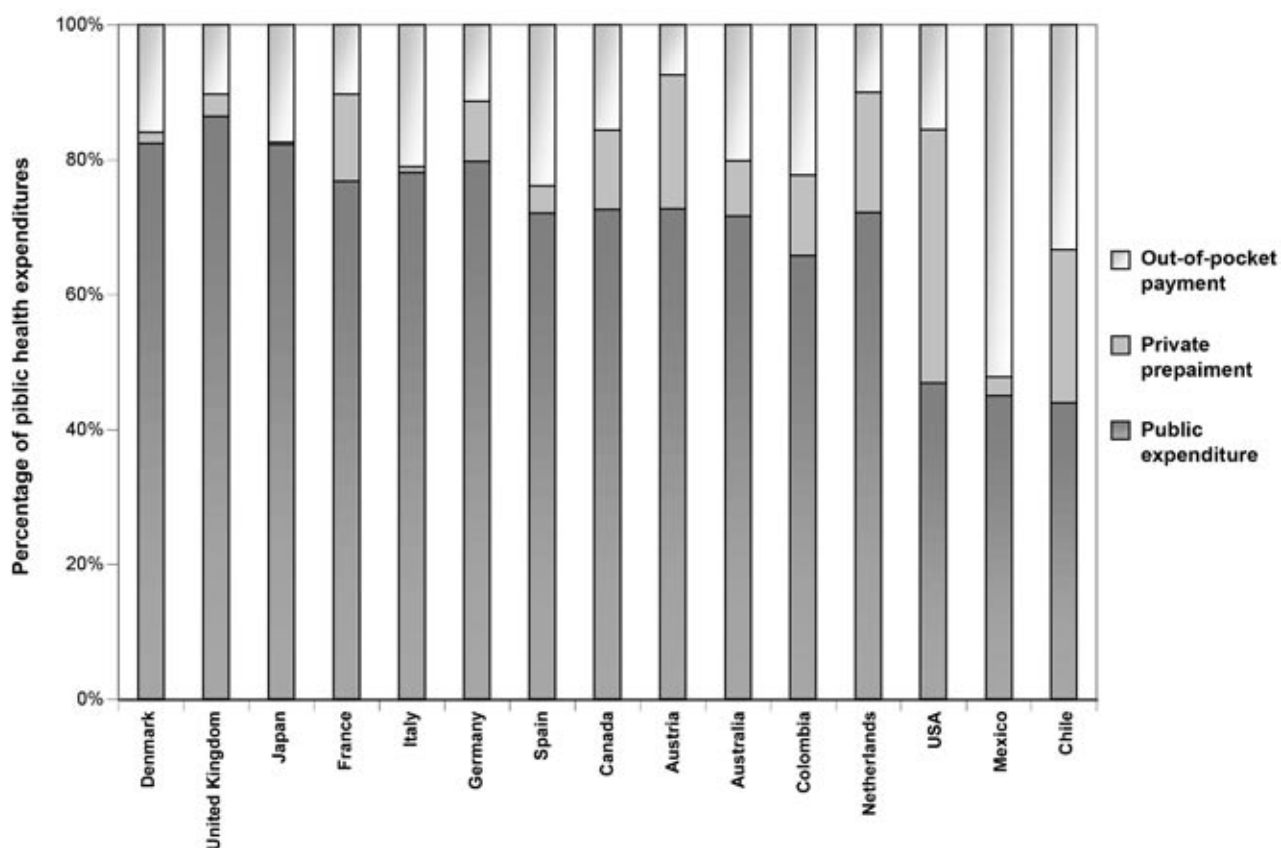
When public expenditures are insufficient, a population tends to turn to private expenditures in order to cover their medical care needs. Private financing of health services is not necessarily a negative characteristic of the health system; nevertheless, when this financing is

channeled mainly through out-of-pocket payments, as occurs in Mexico, and not by prepayment or insurance mechanisms, the resulting composition of private expenditures is not equitable; it exposes families to catastrophic expenses, and generally limits efficiency.

It is evident that, the breakdown of private expenditures is inequitable because out-of-pocket payments tend to be greater as a percentage of the total family income in the poorest homes. According to the national household income and expenditure survey (Encuesta Nacional de Ingreso y Gasto de los Hogares, ENIGH)

**Figure 2**

*Breakdown of Health Expenditure, 2001*



Source: World Health Organization, World Health Report, 2004. WHO: Geneva.

<sup>71</sup>Ministry of Health (2004b).

2002, although the average out-of-pocket payments per family are greater in absolute terms as income increases, the Mexican population in the lowest income decile spends, in direct payments, approximately 6.3% of its income on health care, while homes in the highest-income decile spend 2.6% of theirs.<sup>72</sup>

As has been mentioned, one of the main objectives of a modern health system is to promote equity through financing plans that protect all the population against catastrophic spending for health needs, and particularly against risks that could generate a poverty trap. Likewise, such a system would promote greater equality in access to opportunities to improve health conditions.<sup>73</sup> The Mexican system, however, has a number of deficiencies. A high proportion of the population (over 50 per cent) does not have any kind of insurance; out-of-pocket payments represent more than half of total health expenditures, as seen previously, and thus a high percentage of Mexican homes are at risk of incurring catastrophic expenses, thus impoverishing themselves in order to have access to the medical attention they require.

In a comparative study by the World Health Organization (WHO) in 2000, Mexico was ranked 144th among 189 countries. The most severe problem was that of lack of equity in financing mechanisms because more than half

of the population is excluded from the social security system and almost all of the private expenditures in the private sector are out-of-pocket payments (See Table 2). Additionally, the health system, measured by other indicators, was ranked in positions 55 and 64, clearly not acceptable for the ninth largest economy in the world.

By 2003, per capita public health expenditures in Mexico were 1,893 pesos. Nevertheless, differences among various population groups show considerable contrast. Public health expenditures per capita for the population covered by social security were 2,833 pesos, while the expenditures allotted to cover the uninsured population were less than half, 1,112 pesos.<sup>74</sup> Although a portion of this difference could be compensated for by higher tax payments from the insured population, mainly through contributions to social security, it is likely that another portion could be due to inequity in the allocation of net subsidies from taxes. More importantly, the uninsured population that receives medical attention in public clinics is not usually exempt from paying for such services. Equal distribution of net subsidies to health should be in terms of family income levels, and be neutral to affiliation to private insurance systems. However, it bears noticing that between 1996 and 2002, the most significant change has been the increase in health expenditures for the benefit of the

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<sup>72</sup>Estimations by the Ministry of Health's Economic Analysis Unit based on the National Survey of Household Income and Expenses (ENIGH) (2002).

<sup>73</sup>Greater equality in health care access includes 1) the horizontal dimension of access equity, that is, that those who have the same health needs should have the same access to services, and 2) the vertical dimension in which access varies among persons according to their different health needs.

<sup>74</sup>The expenditure for the non-insured population reflect federal resources assigned through branch 12 (health) of the Public Finances Department and branch 33 (states and municipalities) of the Social Expenses Department as well as resources given by state governments. Resources considered as "non-distributable" corresponding to the Central Units and other decentralized and organisms of the Health Ministry are excluded. Expenditures for insured population take into account federal tax payers for IMSS, ISSSTE (both social security organisms) and PEMEX. Ministry of Health (2004b). According to other sources, it is considered that the population protected by social security receives 1.6 pesos from tax resources for each peso non-insured persons receive. This is a significant difference considering that tax resources do not include taxes from IMSS and ISSSTE ascribed employee payrolls, nor the employer contributions in the case of IMSS. When the items mentioned before are included, the difference is much greater. For each peso spent on the non-insured population, 3.8 pesos are addressed to the population covered by IMSS or ISSSTE. See Arzoz y Knaul (2004).



uninsured population by more than 100% in real terms, increasing from one fifth to one third of federal health expenditures.

In Figure 3, noticeable contrasts between expenditures made in favor of the non-insured population, which is highly progressive (and pro-rural), and expenditures benefiting the insured population, which is highly regressive (and pro-urban), can be observed. The combined effect of the sum of both expenditures means that the distribution of total public health

expenditures is slightly regressive on a national level, although it becomes practically neutral if contributions of beneficiaries (workers and employers), in the case of the Mexican Institute of Social Security (Instituto Mexicano del Seguro Social, IMSS), are excluded and only federal government contributions through general taxes are considered.<sup>75</sup> However, the difference is still important, since the uninsured make up more than 55% of the population and receives less than 33% of total public health expenditures.

**Table 2**  
*Health System Performance Indicators for a Selection of Countries*

Country	Justice and Equity in financial contribution		Healthy life Expectancy (HLE) At birth		Health System Reaction Capacity*		Goals Met **		Efficient performance			
	Index	rank	years/ HLE	rank	Index	rank	Index	rank	of the system In relatin to HLE***		In general Of the health system****	
									Index	rank	Index	rank
Argentina	0.934	89	66.7	39	5.93	40	81.6	49	0.779	71	0.722	75
Brasil	0.623	189	59.1	111	4.81	130	68.9	125	0.767	78	0.573	125
Canada	0.974	17	72.0	12	6.98	7	91.7	7	0.849	35	0.881	30
Colombia	0.992	1	62.9	74	5.30	82	83.8	41	0.814	51	0.910	22
Costa Rica	0.948	64	66.7	40	5.39	68	82.5	45	0.882	25	0.849	36
Cuba	0.972	23	68.4	33	4.97	116	84.2	40	0.849	36	0.834	39
France	0.971	26	73.1	3	6.82	16	91.1	6	0.974	4	0.994	1
Guatemala	0.889	157	54.3	129	4.97	115	72.3	113	0.714	99	0.713	78
Japan	0.977	8	74.5	1	7.00	6	93.4	1	0.945	9	0.957	10
Mexico	0.903	144	65.0	55	5.66	53	81.1	51	0.789	63	0.755	61
United Kingdom	0.977	8	71.7	14	6.51	26	91.6	9	0.883	24	0.925	18
U.S.A.	0.954	54	70.0	24	8.10	1	91.1	15	0.774	72	0.838	37

Source: The World Health Report 2000. World Health Organization. Geneva, Switzerland, 2000.

Note: In ranking countries, the best rankign was taken in every case.

\* Measured by 7 performance indicators: dignity, autonomy and confidentiality, opportunity, amenities quality, access to support during intervention, elegibility, clinical orientation

\*\* measured by weighed components: health level 25%; health distribution 25%; response capacity 12.5%; response capacity distribution 12.5%; Justice and equity in contribution 25%.

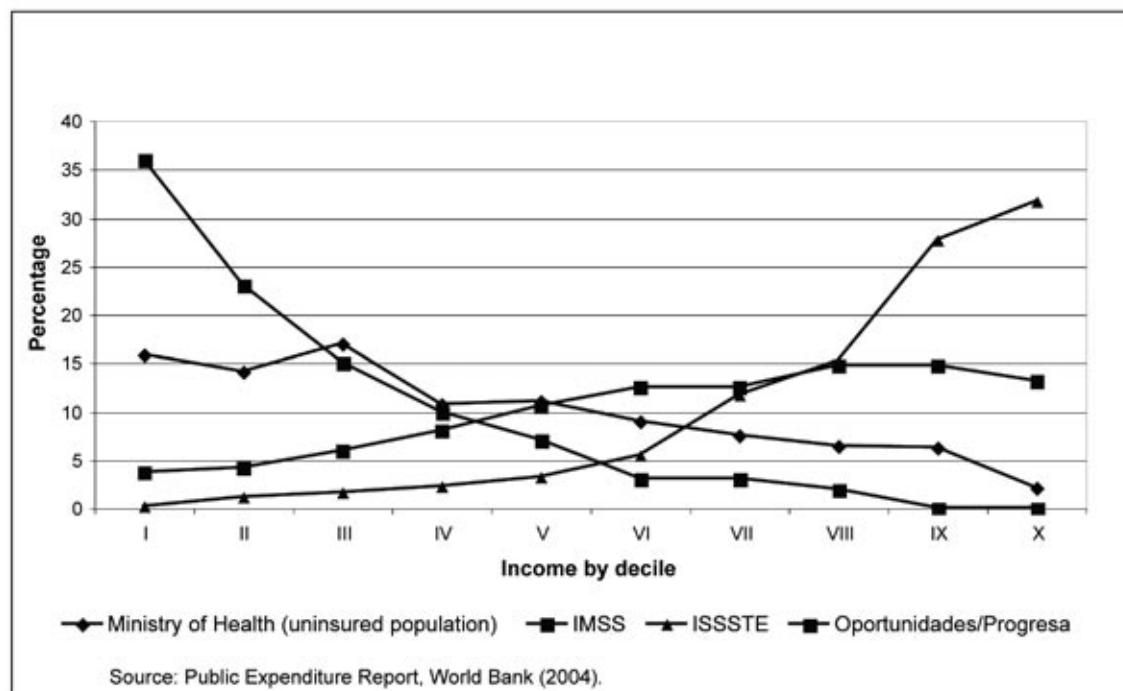
\*\*\* It measures how efficient is the health system, in translatin expenditures in relation to HLE that could be attained in a optimal system

\*\*\*\* It measures the the maximum possible level from a "Production Possibilities Frontier" linking goals from the health systmen and goals from other systems like the Education System

<sup>75</sup>Scott (2004).

**Figure 3**

*Distribution of Social Expenditure by Income Decile, 2002*



To appreciate the great segmentation of public expenditure instruments as regards health, Figure 4 shows in order of increasing inequality the concentration coefficients corresponding to these instruments. Those instruments having a lower (higher) coefficient than zero are progressive (regressive), and the greater the coefficient is in its absolute value, the more this is true. Besides health services, fiscal expenditures on account of the value added tax exemptions for medicine consumption, some nutritional support programs, and cash transfers of the anti-poverty Human Development Program Oportunidades<sup>76</sup> (partially allocated for health services) are included. This figure indicates that payments to ISSSTE (Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado) pensioners are the most regressive expenditures and transfers by Oportunidades the most progressive.

While there are marked differences in resource allocation among population groups, geographical inequities in resource allocation can also be observed, resulting from the historical distribution of federal funds to states based on the requirements determined by the supply of services. There is a 6 to 1 difference among states, without explaining this difference as it might relate to variations in health conditions or needs among states.<sup>77</sup> Per capita expenditure for the Federal District's insured population is six times greater than expenditure for the state of Mexico. Likewise, per capita expenditure for the uninsured population is four times greater in Baja California Sur than in Chiapas.<sup>78</sup>

Using the backwardness index prepared by National Population Council (Consejo Nacional de Población, CONAPO) for the analysis, we can observe that those

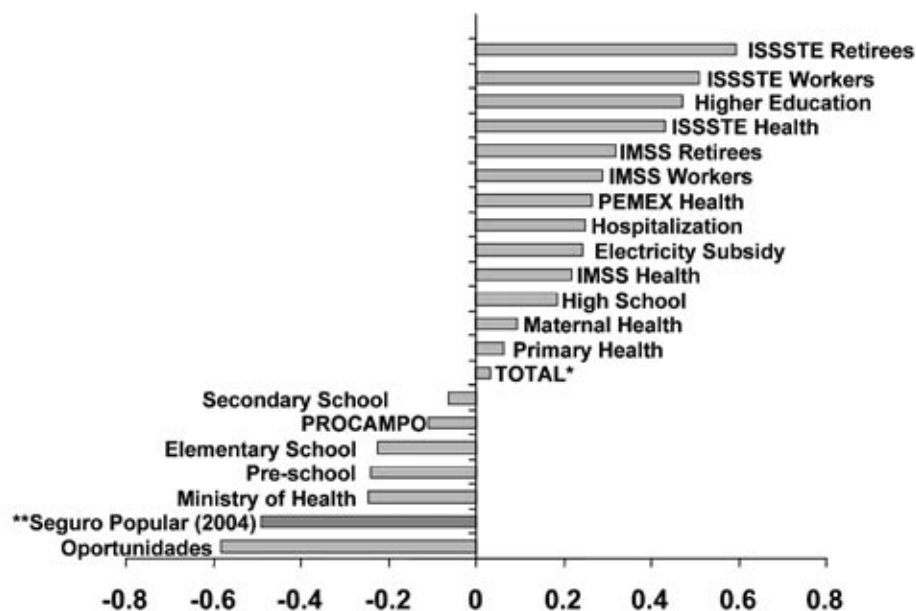
<sup>76</sup>This program was previously called Progresas.

<sup>77</sup>Ministry of Health (2004b).

<sup>78</sup>Ministry of Health (2004b).

**Figure 4**

*Concentration Coefficients of Public Expenditure on Health and Nutrition, 2000-2002*



Source: World Bank (2004) Public Expenditure Review, Vol. II.

\* Concentration coefficient of total public expenditure (education, health and nutrition).

\*\*The concentration coefficient that corresponds to *Seguro Popular* (-0.49) was estimated based on the policy holders distribution up to June 30th, 2004, obtained from the Results Report to the First Semester of Fiscal Year 2004.

states with a lower rate of backwardness are those receiving higher quantities of public resources and, at the same time, that their population has greater social security coverage.<sup>79</sup> In contrast, in the states presenting a higher rate of backwardness, fewer public resources are allotted to health and most of their population is not protected by social security.

There is evidence that confirms that the allocation of investments in health is not managed efficiently in Mexico. That is existing resources are not allocated

to those items that generate the highest return. For example, only 29% of the population used at least one preventive health service in 2000 as reported by ENSA for that year. Almost all children under five years old receive vaccination services, but only one in five gets checkups of growth and development. During the same year, less than one third of the adult population over forty received preventive services for some chronic-degenerative illnesses, such as high blood pressure or diabetes mellitus.<sup>80</sup>

<sup>79</sup>Education, housing infrastructure and location and household salaries of the employed population are included in this index.

<sup>80</sup>The available data do not allow us to identify whether preventive services are not used due to lack of access, lack of information or due to monetary and non-monetary costs of receiving medical attention. Nevertheless, coverage seems to be considerably greater in preventive services like vaccinations against infectious diseases than in the case of chronic-degenerative diseases.

Investing in health can yield noticeable returns. Estimates based on the World Bank Country Policy and Institutional Assessment index<sup>81</sup> (CPIA) indicate that, as policies and institutions improve, the elasticity of health indicators – including maternal and infant mortality – in the presence of increases in public health expenditures as a proportion of the GDP increases in absolute value. This means that, at the margin, government expenditures on health care have greater impact on those countries having a higher level of “good governance”. According to the World Bank, countries with an institutional quality index equal to the mean (3.5 on a scale of 1 to 5) could expect on the average that a 10% increase in public health expenditures as a proportion of the GDP would be associated with a 7% decrease in the maternal mortality rate, a 0.69% decrease in mortality of children under five, and a 4.14% decrease in low weight for children under five.<sup>82</sup>

The same World Bank study found that, in the case of Latin America and the Caribbean, even supposing an institutional quality index that is higher than the mean, the required investment in health care as a proportion of the GDP to comply with the Millennium Development Goal for maternal mortality would not be feasible due to its magnitude. In these cases a well-targeted use of additional resources is essential.

All the above adds to the idea that public expenditures have potential as a policy tool to tip the balance in favor of fairer health financing, more equitable access to health services and greater efficiency in investment allocation in the sector.

## **The Human Development Program Oportunidades**

Although in Mexico there are several anti-poverty government programs that include health components, the most important in terms of resources and coverage is the Programa de Desarrollo Humano Oportunidades (which from now on will be referred to as Oportunidades). Besides, it is one of the few programs that have been subject to a rigorous impact evaluation, including its impact on health indicators.

In contrast to the most common types of health interventions, which concentrate on improving the environment and/or increasing the supply of health services and public goods, Oportunidades is a program which emphasizes the demand side; that is, it aims to induce changes in behavior in homes through economic incentives. The strategy on the demand side involved a new generation of programs against poverty, which try to promote the investment in the human capital of children and youth as a way of breaking the poverty trap discussed earlier.<sup>83</sup>

Oportunidades is a conditional cash transfer program. The government directly transfers money in cash to the family on the condition that family members use health services, mothers attend information sessions on nutrition and hygiene, and children attend school. This program not only increases incomes temporarily, but also encourages improvement in the future productivity and wages of the children benefited. Its main objective is to address market failures in human capital development faced by poor households. Currently,

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<sup>81</sup> World Bank (2004). The value of 3.5 corresponds to the CPIA average considered for the analyzed group of developing and industrialized countries to which the index's maximum value of 5.0 was assigned.

<sup>82</sup> These elasticities assume that the breakdown of expenditures for programs remains equal; that is, expense increases are simply equivalent to a proportional increase in the group of existing programs and interventions, and they say nothing about the impact that would be obtained if increases in public expenditures were used differently, for example, through greater financing of programs with a specific focus.

<sup>83</sup> In this conceptual framework of so-called Conditional Cash Transfer programs, Oportunidades has been used in Mexico since 1997 (before 2001 it was called Progresá). It was the second of its kind in Latin America and the first to be implemented on a large scale. The first program of this type was “Bolsa Escola” in Brazil.

Oportunidades reaches about 5 million families in more than 7,500 locations in the country, in rural and urban zones, with a budget of over 25 billion pesos. This represents over 100% of those families considered to be under the food poverty line in 2002.<sup>84</sup>

Evaluations of Oportunidades show that child nutrition and health have improved. Children under three who participated in the program increased their attendance at growth monitoring check-ups between 30 and 60%. The program has also improved the use of basic health services. Beneficiaries between 0 and 5 years of age registered an incidence of illness 12% lower than that of children who did not participate in the program.<sup>85</sup> Moreover, data suggest that the program had a significant impact on an increase in child growth and reduced the probability of inadequate child growth (height per age) for children between 12 and 36 months old.<sup>86</sup>

Estimates have been made indicating that being included in Oportunidades is associated with an 11% decrease in maternal mortality and 2% decline in infant mortality.<sup>87</sup> In the case of maternal mortality, the effect of Oportunidades is stronger in medium and very highly

marginalized municipalities, and in the case of infant mortality, in very highly marginalized municipalities. Additionally, in the case of infant mortality, the program's effect is higher in very highly marginalized municipalities.

After only one year of operation, average food consumption in Oportunidades homes was 11% higher, compared to homes that did not participate in the program. This increase is due mainly to greater expenses in fruit, vegetables, and animal products. Average caloric intake in homes increased 7.8%.<sup>88</sup>

Oportunidades has also improved adult health. In the 18- to 50-year-old beneficiary adult group, a significant decrease has been observed in the number of days on which they had difficulty performing their daily activities due to health problems, as well as a significant increase in the number of kilometers they can walk without getting tired. Specifically, individuals in program locations have difficulty performing their daily activities because of illness on 19% fewer days, compared to individuals from locations that are not incorporated into the program, in addition to being able to walk 7.5% more before feeling tired.<sup>89</sup>

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<sup>84</sup>SEDESOL (2003).

<sup>85</sup>Gertler (2000).

<sup>86</sup>Behrman y Hoddinott (2000).

<sup>87</sup>Hernández et al. (2002).

<sup>88</sup>Hernández et al. (2002).

<sup>89</sup>In addition to Oportunidades, there is Liconsa's Programa de Abasto Social de Leche, which distributes subsidized milk with micronutrients in marginal urban and rural areas, as well as the Programa de Apoyo Alimentario, recently introduced by the federal government. The latter aims to improve the food intake of people living in highly marginalized rural localities of fewer than 2,500 inhabitants and who do not receive either Oportunidades or Liconsa assistance. The program operates in the 31 states, in areas where there are no other federal food programs SEDESOL (2004).

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## V. SOCIAL PROTECTION FOR EVERYONE?

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Those who face illness when there is no mechanism allowing protection from health risks also face the possibility of falling into a poverty trap. This situation does not affect all the population in the same way. Most are likely to incur catastrophic health expenses or fall into a poverty trap as the family's income level decreases.

From what has been presented in previous sections, it is clear that in order to strengthen the beneficial relationship between health care and economic development, it is necessary to establish mechanisms that solve the problems of lower-income population groups in the face of adverse health shocks. These mechanisms should not only improve the average level of health but also reduce the marked lags in health levels in certain areas. There are several mechanisms that can be used to deal with each one of these points: among others, financial actions to compensate those expenses incurred by a population in order to pay for medical attention. Nevertheless, in order to comply simultaneously with the goals of equity and efficiency, the most appropriate option is that of adopting an insurance plan for the population.

The advantages of insurance compared to other finance mechanisms lie in breaking away from accessing services by paying for attention on an individual level, and establishing access according to the expected

cost. Likewise, insurance can become an instrument for establishing a network of subsidies favoring certain income groups or those facing greater health risks. It is important to notice that the total amount of the subsidy, besides answering efficiency considerations, will have to respond to criteria of a more normative nature, where society's disposition to the transfer of resources among different population sectors is defined.

### **Adverse Idiosyncratic Risks**

Health insurance as a means of social protection allows a population's expenses to be covered mainly in regard to idiosyncratic risks; that is, those limited to individuals or families, and health problems requiring medical attention. Nevertheless, there are other risks that affect communities; and where the causes of health-related problems, or the actions needed to respond to them, are associated with the existence of public goods including actions which generate externalities. In this case, it is necessary to have another type of mechanism for protection. Thus, the analysis of alternatives for the health system to comply with the goal of protecting the population against adverse risks must consider two aspects: one addressed to avoiding or reducing adverse idiosyncratic risks and the other addressed to avoiding adverse systemic shocks.<sup>90</sup>

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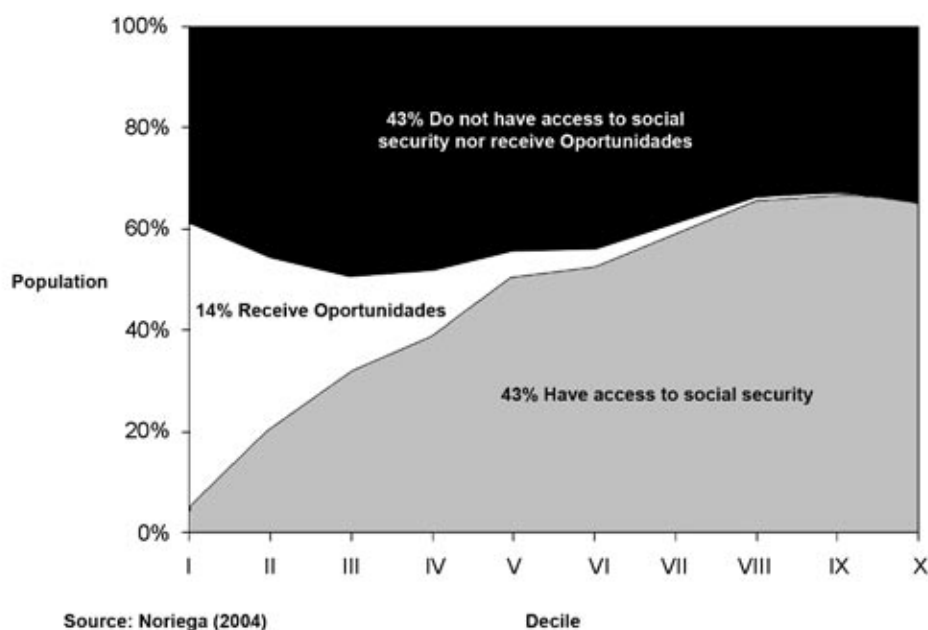
<sup>90</sup>For a more detailed analysis of the conceptual framework in which this difference as well as alternatives for avoiding, lessening or facing different types of risk in the context of social protection, see IDB (2000) and Holzmann and Jorgensen (2000).

From a purely economic perspective, insurance can be seen as the other side of the coin of human capital investment. Insurance prevents the deterioration of human capital in the face of adverse health shocks that individuals or families are confronted with.

As has been mentioned, the lack of access to health insurance that protect the population against adverse risks is a factor that contributes to poverty and thus limits the contribution of health to economic development. In Mexico, society's lack of health protection is reflected in significant out-of-pocket payments as a source of financing for the health system and in its regressive impact (as mentioned in the previous section). Another consequence is that public health insurance offered through social security leaves more than 50% of the population unprotected, as observed in Figure 5.

The need to increase health insurance coverage is based partly on distribution by population groups as shown in figure 5, where it can be observed that those located in the lower income distribution deciles are precisely those who are excluded from the services offered by social security. Nevertheless, it is important to consider that, in order to extend insurance coverage, actions addressed to protecting not only the poorest are required, because more than 50% of the uninsured population are distributed among the ten income distribution deciles. On the other hand, the form adopted by the insurance plan should avoid generating incentives for the population to stop contributing to existing insurance systems and join others where their payment would be lower.

**Figure 5.**  
*Coverage of “Oportunidades” and Access to Social Security, Mexico*



In terms of equity, the importance of having universal insurance lies in the fact that in Mexico the probability of reporting a poor or very poor state of health is considered to be more than 14.2 percentage points higher for those included in the 50% of the population that is considered to suffer extreme poverty, compared to the higher-income population.<sup>91</sup>

The health system has public insurance programs and plans for those without access to social security, which aim precisely to protect the most vulnerable population from adverse health risks. For example, the IMSS Oportunidades program, which covers more than 90 per cent of those who belong to the first income decile, that is, the poorest in terms of income, gives some degree of health protection to this population. Likewise, as discussed above, through Oportunidades, basic health services are offered to the country's poorest population registered in the program.

Another option is the IMSS Seguro de Salud para la Familia, an alternative where non-wage workers can have access to the medical services granted by IMSS. Nevertheless, in both programs only basic health service is offered, leaving users unprotected from certain events.

On the other hand, the Seguro Popular de Salud incorporates a group of clearly-defined medical goods through a subsidized pre-payment plan which, by the end of 2003, financially protected 614 thousand families, of which 98.4% belong to the first poorest three population deciles. Financing for this insurance plan is three-part, as resources come from the federal and state governments and from the families benefited. Health services to individuals are distributed in a package

of essential services, on the one hand, and a package of high-cost services financed through a Protection Fund against Catastrophic Expenses, on the other.

## **Desirable Elements in a Medical Insurance Plan**

In the first place, it is desirable to have universal coverage which includes a single risk-sharing fund, which would eliminate problems derived from adverse selection and asymmetric information. In addition, explicit and implicit transfers would allow a unified system to reach the objectives of progressiveness and equity in terms of financing a national health system. These are fundamental aspects of the recommendation of having a universal coverage plan.

The wider the nucleus of the affiliated population, the more efficient risk sharing tends to be. This leads to the conclusion that having universal insurance coverage is appropriate, and that this service should be provided by the public sector. In this sense, basic medical attention would be guaranteed for the entire population.<sup>92</sup>

The second desirable element is that there be a single system, that is, one with an overall legal and regulatory framework that includes aspects such as tax collecting, risk sharing, and the payment for and provision of health services. This would bring together all those bodies involved in the sector and cover all citizens.

The third desirable element is that basic coverage be the responsibility of the government. As a result, private insurance plans would complement rather than substitute basic coverage.

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<sup>91</sup>The exercise used data from the Encuesta Nacional de Evaluación del Desempeño, ENED (National Performance Evaluation Survey) corresponding to the year 2002 and it was prepared by the Economical Analysis Unit of the Ministry of Health.

<sup>92</sup>In the logic of private markets, the objective of maximizing utilities would lead insurance companies to exclude the highest risk population (or, given the case, force them to cover a higher premium). Moreover, it is likely that the cost of giving medical attention would be higher and the level of health lower. It is a fact that the low income population presents greater vulnerability for health risks and a way of compensating for this is by offering subsidized access to health insurance mechanisms.



The fourth desirable element is that the functions of financing be separated from those of risk sharing and the provision of services. Under this type of plan, the private sector can play a significant role that can be strengthened under a universal insurance system by requiring greater flexibility in purchasing medical services from different providers. In order to promote this participation and to achieve greater coordination with the network of public service providers, clear rules and criteria are needed. Methods of paying service providers should be designed to avoid the unnecessary use of services and guarantee that minimum quality standards be met.

The fifth desirable element is that through a single plan an optimal combination of services be defined, that is, the most cost-effective plan from the perspective of society.

The current health care system does not yet comply with the desirable conditions of an insurance plan, although it does have some voluntary insurance initiatives which enable gradual progress towards the desired model. Universal coverage would require the currently uninsured population to have access to a

formal insurance plan with financing that is primarily of public origin. This would represent an important advance towards risk consolidation or aggregation for the uninsured population. Channeling a good part of out-of-pocket payments through a formal pre-payment plan would represent a significant improvement, minimizing the health care risks to which families are currently exposed.

On the other hand, the existence of a risk-sharing financing fund is possible, even with the health care system fragmented into several institutions, but it is necessary to establish clear mechanisms of portability of benefits among the different insurance systems that make up the social protection system for health risks.<sup>93</sup>

Medical insurance having the described desirable elements would be able to have a greater effect on health indicators and as a result contribute to compliance with the Millennium Development Goals in two ways: on the one hand, access to insurance for the low-income population would be subsidized and, on the other, services would be provided based on the population's needs through an explicit health care package.

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<sup>93</sup>It is worth noting that the current IMSS system could establish a system of universal coverage if regulations were ideal and the market perfect. Although the challenge of public policies is to achieve universal coverage, an analysis of characteristics of the labor market and its regulations is necessary, to avoid running the risk of fragmenting the social security systems and generating perverse incentives.

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## VI. PUBLIC GOODS FOR HEALTH

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Besides protection aimed at counteracting individual risks, it is also necessary to consider protection against adverse health risks that affect groups of individuals. Examples of this type of systemic risks would be the appearance of an epidemic of some transmissible disease. In such cases, one of the available forms of health assistance would be to vaccinate the population. Now, the nature and extent of aggregated health risks requires solutions that go beyond individual health insurance. The frequent occurrence of externalities with regard to such risks underscores the need to have efficient, equitable mechanisms for the financing and provision of public goods. From the economic point of view, the difference between public and private goods is the fact that public goods are non-rival and non-exclusive. That is, if a public good is provided, no one can be excluded, and the marginal cost of supplying the good to an additional consumer is zero, no matter what the level of production. A good is not exclusive when it is impossible to prevent people from using it.<sup>94</sup> A classic example of a public good is fireworks. Once they are set off, nobody can be kept from watching, and having one additional person in the crowd does not increase the cost of the display. In the area of health services, an example of a public good would be a campaign to foster proper eating habits.

Because of the nature of public goods, it is not clear who will pay for them, nor how much, and consequently there is no incentive to privately supply those goods. The main problem with public goods is that, although they provide goods for everyone, nobody has incentives on an individual level to pay for them on a level comparable to the received benefit. In order to solve the problem of insufficient public goods, a coordinating mechanism is necessary among the members of the society, usually through government action.

In practice, there is confusion about the nature of public goods. They are generally associated with the good provided by the state without considering their characteristics in terms of rivalry and exclusiveness. For example, the individual consumption of polio vaccinations is a private good, even though the government provides them. The marginal cost of applying the vaccination to one more person is higher than zero, which creates rivalry and exclusivity can arise as a result of price or its location. The private good of vaccination is often confused with the public good of a polio elimination campaign, which does not pose problems of rivalry or exclusiveness since everyone benefits from the elimination of the disease without additional costs being incurred.

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<sup>94</sup> There are four types of exclusiveness: economic (through prices), geographical, administrative (when one chooses to ignore a given segment of the population), and exclusiveness caused by indirect costs.

Public goods play a very important role in the relationship between health and growth, because they represent social, institutional, legal, technological, physical, and economic infrastructure that result in a modern health system. Public goods in the health sector impact growth through different transmission mechanisms, some more direct than others. Among these we can mention the following:

- i. Increase in labor productivity.
- ii. Savings in health expenditures and increased productivity in the sector.
- iii. An increase in the attractiveness of investment in human resources, an increment in worker longevity, and a lower depreciation rate for human capital investments.
- iv. Promotion of technological innovation.
- v. Improved environment for investment.
- vi. Market expansion.
- vii. Infrastructure for the handicapped.

It is also important to consider that in many cases public goods that improve health involve not only the health sector, but they can also result from other types of policies or measures we could qualify as health-related.

One of the main challenges in the creation of public goods is the administrative coordination of the governments involved. For example, to guarantee a system that provides drinking water and drainage, we must ensure the cooperation on a federal, state, and municipal level.

It is essential to understand the strategies required when structuring public policies to produce public goods. For example, usually it is better that research to discover new treatments be done by the laboratory that is most likely to discover a new treatment rather than to invest in the duplication of otherwise known as the best-shot method.<sup>95</sup> In the case of epidemiological surveillance, the summation strategy, or the participation of all involved parties is required to reach the objective. In order to eradicate a disease, the so-called “weakest link strategy” works best, as those areas with the greatest difficulties need to be helped in order to achieve success. Table 3 shows an inventory of public goods for health.

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<sup>95</sup>See Hirshleifer (1983).

**Table 3.**  
*Inventory of Public Goods in Health*

<b>Public Health</b>	<b>Information and knowledge</b>	<b>Protection against health risks</b>
Existence of infrastructure for the handicapped	Information campaigns that promote good health	Immunization campaigns
Control of transmissible diseases	Knowledge of new treatments	Public preventive measures prior to disasters
Mechanisms for distributing micronutrients in foods (salt with iodine, flour with iron, water with fluorine)	Discovery and dissemination of research or commercial report results	Disaster prevention: Safety in the home
Reduction of pollution levels	Discovery and dissemination of basic and applied research results	Disaster prevention: Accidents
System to offer assistance during disasters	Mechanisms to insure the quality of health services	The regulation of consumption of medicine, food and beverages
System to insure that water is drinkable	Dissemination of information resulting from the health technology evaluation program	Health and safety in the workplace
System for treating residual water	The standardization of information	Quality in safety and health services
	Protection of intellectual property rights	Epidemiological monitoring

**Table 4.***Mechanisms for the Creation of Public Goods*

<b>Public policies</b>	<b>Knowledge</b>	<b>Medical intervention</b>	<b>Infrastructure</b>
<ul style="list-style-type: none"> <li>• Institutions</li> <li>• Policies and laws</li> <li>• Standards</li> <li>• Coordination between government offices</li> </ul>	<ul style="list-style-type: none"> <li>• Research</li> <li>• Product development</li> <li>• Education and training</li> <li>• Good practice and dissemination</li> </ul>	<ul style="list-style-type: none"> <li>• Prevention</li> <li>• Diagnosis</li> <li>• Treatment</li> <li>• Rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>• Databases</li> <li>• Computer systems</li> <li>• Physical infrastructure</li> </ul>

There are different mechanisms that can be used to create public goods: regulations, investing in knowledge and infrastructure, and medical intervention. (See Table 4). If we take, for example, the reduction of pollution levels listed as a public good in Table 3, it is clear that, in order to “produce” this public good, public policies (laws and the institutions regulating them) are necessary. These are, in effect, an investment in knowledge in order to develop equipment that pollutes less and to prevent pollution, as well as an investment in infrastructure which promotes a healthier environment.

Information as a means of improving health and preventing disease is a public good. National campaigns against smoking, for example, provide information about health risks. Information is non rival and non-exclusive nor exclusive good, and it can generate strong positive externalities. Another example would be a campaign to promote good nutrition, whose objective

is to prevent diseases and fight against already existing problems like obesity, and which results in savings in the area of health expenditures and improvements in quality of life for the population in general, and not only for the individual.

In Mexico, poor nutrition is partially responsible for new health problems such as diabetes mellitus and hypertension.<sup>96</sup> The Mexican Congress recognized this problem when it made a modification to the Ley General de la Salud (General Health Law) and put the Ministry of Health in charge of standardizing educational programs and activities to encourage good nutrition habits.<sup>97</sup> The creation of educational campaigns would help to comply with this function. In fact, an official Mexican standard (Norma oficial Mexicana, NOM) is currently being proposed, whose objective is to establish criteria for public information with regard to nutrition that would, offering correct,

<sup>96</sup>Low- and medium-income countries in Latin America have rates of obesity as high or even higher than those of some developed countries (Filozof et al., 2001). In Mexico, ENN 1999 found that one out of every five school-age children is obese. Obesity is more common in the northern region (25.6%) and in Mexico City (26.6%), and girls display greater tendency than boys (Hernández et al., 2002). The phenomenon is similar among adults and, according to the statistics of the Organization of Economic Cooperation and Development, OECD, by the year 2000, 24% of the Mexican population was considered obese (19% of men and 29% of women).

<sup>97</sup>A modification to Article 115 fraction II of the Ley General de la Salud (General Health Law) was published in the Diario Oficial on April 29, 2004, indicating the following: The Ministry of Health will be in charge of: ...II. Standardizing the development of education programs and activities in matters of nutrition, with the aim of promoting proper nutrition habits, preferably in the most vulnerable social groups... ”

scientifically based nutritional information.<sup>98</sup> Poor nutrition has many other consequences, too many to quantify, including effects on the cognitive capacity of the population.<sup>99</sup>

An information campaign focused on good nutritional habits would help to counteract the impact of soft drink and processed food advertising. The key to success in this type of educational information campaign lies in its design. It is important to ensure the widest possible coverage of the campaign in order to minimize exclusion and look for creative ways to reach the most isolated populations. One way to avoid the problem of exclusivity in such campaigns is to study the situation in each state in order to adopt the most appropriate means of distribution.

Protecting intellectual property rights (which are public goods) promotes research that results in knowledge as well as medicines. Medicines are private goods, and there is tension between protecting intellectual property rights and creating a temporary monopoly that results in prices that are higher than they would be in a competitive situation. Since knowledge plays such an important role in the health sector, both in prolonging life and in improving its quality, and in the medicines to cure illnesses, it is fundamental that the government weigh these two factors carefully. As is the case with many other issues, optimal regulation will turn out to be that which maximizes the amount of knowledge used in the market. Mexico has been able to optimize the balance between these goals through a decree that reforms the Health Input Regulation (Reglamento

de Insumos para la Salud) and the Industrial Property Law Regulation (Reglamento de la Ley de la Propiedad Industrial).<sup>100</sup> This measure strengthens the protection of intellectual property rights and stimulates research, given that it ensures that a company requesting a health registry permit from COFEPRIS (Comisión Federal para la Protección Contra Riesgos Sanitarios) also holds the intellectual property rights based on the registry of the Mexican Institute of Intellectual Property Rights, IMPI (Instituto Mexicano de la Propiedad Intelectual).

Although today patents are more frequently used to encourage research, this method is not necessarily the best one, as it fails to take into account the differences among types of medicines and levels of development in different countries. In addition, from the perspective of economic effectiveness, patents create temporary monopolies that contribute to higher prices.

In order to provide greater incentives for research, other options besides patents should be considered. Examples could include reducing research costs by simplifying regulatory processes and supporting “open source” type research methods where scientific advances are shared openly.<sup>101</sup> These are alternatives that should be actively explored to lower research costs. In the international arena, the duration of patents might be reduced as the network of markets protecting intellectual property rights expands.

In August of 2003, the World Trade Organization countries finally agreed on a plan that will allow countries facing health crisis and are unable to

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<sup>98</sup>NOM-042-SSA2-2002 Project of Basic Health Services. Promoción y educación para la salud en materia alimentaria. (Health promotion and education in matters of nutrition.)

<sup>99</sup>Rubalcava and Teruel (2004).

<sup>100</sup>President Vicente Fox issued the decree on September 19, 2003, which reforms Article 167 of the Reglamento de Insumos para la Salud (Health Input Regulation) and Article 147 of the Reglamento de la Ley de la Propiedad Industrial (Industrial Property Law Regulation).

<sup>101</sup>The open-source technique is a method of decentralized production where the production source or formula is shared via Internet. Anyone can see the formula or even suggest modifications to it, and is committed to sharing their own changes under the same terms. This method of operation has generated considerable success in the area of software (Linux was created in this way) and it remains to be seen whether it will have the same impact on the pharmaceutical sector.

manufacture medicines to purchase the drugs from countries with manufacturing capacity through the issuance of licenses that would exempt them from IPR requirements. Moreover, the World Trade Organization has confirmed the flexibility in the TRIPS (Agreement on Trade-Related Aspects of Intellectual Property Rights) so that countries can confront different health situations that may arise, while reiterating the need to protect intellectual property rights as a means of promoting the development of new treatments. Nevertheless, analysts on the subject have questioned the possibility of applying it in practice because it introduces a price discrimination plan that is very controversial both in economic and political terms, as seen in the debate in the U.S.A. regarding the importation of Canadian medicine.

The inventory of public goods in Mexico serves as a starting point in the analysis of priorities for the health sector. The more public the good or service, the more likely it is to suffer from underinvestment. This

does not mean, however, that investing in all public goods is advisable, but that the costs and benefits of each should be analyzed. A society can have specific difficulties to tackle in setting priorities, but costs and available resources obviously influence investment decisions.

To conclude, the availability and quality of public goods in a society reflect the importance assigned to creating conditions that improve the quality of life of its citizens. They are also an indicator of a country's degree of development and its ability to reach a consensus among different political leaders for their common well-being. In general, public goods reach much greater sectors of the population and thus help reduce inequalities in a society. Acknowledging the importance of public goods in the area of health in Mexico and the incorporation these considerations in the analysis of public policies will contribute to the country's human resource development, its economic growth, and its modernization.

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# VII. CONCLUSIONS AND RECOMMENDATIONS

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## **Main conclusions:**

### **I. Health and economic growth**

1. Health is not only the absence of illness, but also the capacity of developing a person's potential throughout his/her life. In this sense, health is an asset with intrinsic value (being healthy is a source of well-being) and instrumental value.
2. In instrumental terms, health causes economic growth because it reduces production losses caused by illness in workers, increases adult productivity through improved nutrition, increases school attendance and improves learning, maximizes the use of resources that were totally or partially unavailable due to illness, and frees up resources that would otherwise have to be allotted to treating illnesses.
3. The results of historical research studies find a powerful link between health and economic growth. Robert W. Fogel finds that between one third and one half of economic growth in England in the last 200 years is due to improved nutrition in the population. Studies of numerous countries in different eras have confirmed a similar impact of health on economic growth.
4. Research results on a macroeconomic level carried out using data for a considerable number of countries state that health (including nutrition) positively affects growth and education. For example, an increase in life expectancy from 50 to 70 years (a 40% increase) would raise the growth rate by 1.4 percentage points per year<sup>102</sup>, a 10% decrease in malaria is associated with an increased annual growth of 0.3%<sup>103</sup> and malnutrition causes a decrease in the annual GDP per capita growth worldwide of between 0.23 and 4.7% . For Latin America and the Caribbean, health, measured as the probability of surviving to the next age group, has a strong long-term relationship with growth.
5. A study on the direct relation between health and growth in Mexico, for the 1970-1995 period, using life expectancy and the mortality rate for different age groups as health indicators, suggests that health is responsible for approximately one third of long-term economic growth.



## **II. Health and poverty traps**

1. Health is one of the main determinants of poverty both directly and indirectly (e.g.: the impact of health upon education) and is also related to its persistence over time; that is, the so-called poverty traps.
2. International organizations have studied the effects of health and malnutrition on education. In general, results show that school performance is negatively affected by micronutrient deficiencies and by the presence of protein-energy malnutrition, as well as by vision and hearing problems. At the same time, hunger leads to a lack of attention. The impact of health on educational performance is not seen only in deficiencies in the consumption of nutrients. Early childhood development is a critical element for the cognitive, emotional and physical progress of individuals. Moreover, proper childhood development depends to a large extent on adequate prenatal care for the mother, childbirth performed under adequate medical supervision, and suitable and proper preventive and curative medical attention during childhood.
3. When the members of a family are healthy, the father and mother have the opportunity to look for and keep jobs, and they can generate wealth, feed and protect their children, and send them to school. Healthy, well-fed children have better school performance and this will have a positive impact on income in the future. In addition, if the parents are sure that their children are highly likely to live to be adults, they will usually have fewer children and can thus invest more in the health and education of each one.
4. For a poverty trap to exist, several elements must be combined. The principal ones are increasing returns to education (remuneration progressively increases for those who have higher education levels) and a population that can clearly (and statistically) be

divided in two groups, one with low human capital and another with high human capital. In Mexico there is evidence of a poverty trap.

5. The existence of a poverty trap has strong economic implications. Dismantling it would release the economic energy of the poor population. This economic impact could potentially be greater than that of the so-called demographic bonus, which increases the savings of a generation. On the other hand, the presence of a trap decreases the impact the demographic bonus.

## **III. Failures in the market and under-investment in health**

1. Since there are increasing returns to education and since nutrition and health offer great yields in education and future income at a relatively low cost, the foregoing conclusions show that there is an important and systematic degree of under-investment in health and education. This implies that the mechanisms of the market system for human capital investment are failing.
2. These market failures can occur due to:
  - a. Imperfect parenting such as the absence of parents or undernourished parents; their lack of health or knowledge.
  - b. Imperfect credit and insurance markets.
  - c. Uncertainty or lack of information or foresight regarding the benefits of early childhood development or nutrition, health, and education.
  - d. Impatience or excessive risks due to poverty since although investment in human capital has the necessary returns, the problems inherent to the poor population, such as a lower life expectancy, imply they will not be willing to invest as much.
  - e. Lack of availability of necessary public goods for health and education. Examples would be the effective supply of drinking water, drainage, health services, and micronutrients; information, communication, and transport infrastructure.

#### **IV. Systemic and Idiosyncratic Shocks and Social Protection**

1. If health is an asset, it is important not only to create incentives and implement policies to invest in health, but also to avoid, or at least minimize, its deterioration in adverse situations. These adverse situations can be idiosyncratic (for example, illness, death, unemployment, or a bad harvest) or systemic (for example, epidemics, economic crises and natural disasters).
2. Macroeconomic crises have a negative impact on investment in human capital. In Mexico, during the crisis of the 80's, there was deterioration of those indicators most sensitive to changes in income levels: infant mortality and the mortality of preschoolers caused by nutritional deficiencies increased, reversing the tendency observed in the previous decade.
3. Poverty traps that are created by adverse systemic shocks not only expose numerous people to a situation of poverty, but also exclude them from contributing productively (or as productively as possible) to the economy of the country. To avoid these consequences, it is important to have an adequate social protection network (safety nets) that minimize the impact on families from systemic shocks
4. Acquiring insurance is one of the ways in which individuals use financial markets to protect themselves from possible idiosyncratic adverse events that could temporarily or permanently reduce their consumption level. Particularly in the case of adverse health shocks, individuals can protect themselves by acquiring private medical insurance or accessing state-sponsored insurance. Nevertheless, personal and family access to formal insurance mechanisms is limited by problems with information as well as by practices in which certain private providers get the most profitable part of the market.
5. Credit constraints, including the lack of formal or informal insurance, reduce the ability of individuals to curb their intertemporal consumption. One of the most common effects of an adverse health

shocks are the additional expenses that individuals or households have to make. Due to these expenses, low-income people who have no access to formal insurance mechanisms are exposed to a vicious cycle of illness and poverty.

6. Either due to market failures or due to systemic shocks, public health investment plays an important role in protecting health as an asset against adverse situations.

#### **V. Health levels in Mexico**

1. Health levels in Mexico are below those for countries with equivalent per capita income levels. For instance, the expected infant mortality rate, controlling for Mexico's level of development, is 22% below the actual observed rates. This means that, for 1988, Mexico reported twenty thousand infant deaths above the norm.
2. Achievements in terms of the Millennium Development Goals in Mexico are mixed: for example, there is adequate progress in reducing infant mortality rates, but it is insufficient in reducing maternal mortality rates and nutritional poverty or extreme poverty.

There has been a 32.7% advance in the rate of maternal mortality, which is below the rate of reduction required to be consistent with the aims of the Millennium Development Goals. Therefore, reducing maternal mortality represents one of Mexico's greatest challenges. In addition, the advances made in reducing food poverty have been limited, and lower than the required level. In terms of the Millennium Development Goals, Mexico's progress is adequate for some (such as infant mortality) and inadequate for others (such as hunger and maternal mortality).

3. The main factors behind the high incidence of maternal mortality are the persistence of problems related to the lack of timely access to health services, and of appropriate care during pregnancy, childbirth and postpartum, in rural and

in marginalized suburban areas. There are great contrasts among states, with the highest rates in the southern and central areas of the country, and with 50% of these deaths concentrated in six states.

4. In Mexico, there is enormous disparity in health levels across states. In some areas in the state of Chiapas, (a state whose per capita income is 3,600 dollars in purchasing power parity), infant mortality (at 66.2 per thousand live births) is similar to that of countries much poorer than Mexico like Sudan (with a per capita income of 1,800 dollars in purchasing power parity). In contrast, the Benito Juarez district in Mexico City, with a rate of 17.2, has levels similar to Western Europe and Israel.
5. There is also great differences in childbirth coverage under medical supervision. Half of the states have more than 90% coverage, but there are states with less than 60% coverage. At the municipal level, according to the Encuesta Nacional de Salud (2000), the percentage of childbirths attended in the 386 highly-marginalized municipalities is slightly higher than 36%. In contrast, in the 247 least-marginalized municipalities, coverage in clinics is almost 94%. Some studies present even more alarming numbers: in some indigenous communities the percentage of births attended by medical personal is under 10%.
6. Health-related goals for Mexico should include confronting new challenges such as the increase of cardiovascular diseases and diabetes mellitus. The incidence of diabetes has increased greatly in recent years; at the end of the 70's it was the fourth cause of death in our country and now it is considered the first, causing 12% of all deaths in Mexico. Chronic illnesses of this nature are associated with changing income levels as well as demographic changes; therefore, establishing and evaluating a feasible, relevant goal in this area is no trivial matter, but one of extreme importance for Mexico.
7. Regarding goals that Mexico must take on, it is important to go beyond the Millennium Development Goals in several dimensions: moving up the time frame for specific targets, establishing targets at the sub-national level to reduce the large existing gaps and including the fight against illnesses and diseases not considered in the Millennium Development Goals (such as hypertension and diabetes mellitus)

## **VI. Investment in Health**

1. Investing in health includes expenditures on all those activities whose primary objective is to reestablish, maintain, improve and protect health in a country or state during a definite period of time. Investment occurs both within a health system and outside it. Outside the health system, the most important investments include nutrition, infrastructure for sanitation and potable water, and housing.
2. Within the health system, the most relevant investment activities include: health promotion and disease prevention; treatment of pathologies and reduction of premature deaths; providing care for people with chronic diseases, deficiencies, disabilities, or health-related handicaps; chronic illness care; the provision and administration of public health care; provision and management of public health care; taking steps to develop health programs, health insurance and other mechanisms of financing, and the administration of the health system.
3. The situation of health care financing in Mexico can be analyzed considering the level of investment, the breakdown of its sources, and the distribution of resources channeled into the health system. Health investment in Mexico is less than what is required or expected of a country with a comparative level of development and needs. Likewise, it has been

observed that resources are distributed among the population in an unequal manner. Finally, resources are not necessarily spent on care that yields the best results for the population as a whole.

4. In 2003, Mexico's total investment in health care was 6.1% of the GDP, lower than the Latin American average (6.3%) and relatively low if compared with the level of investment observed in 2001 in other countries with similar income levels, such as: Chile (7.0%), Costa Rica (7.2%), Brazil (7.6%), and Uruguay (10.9%), and with those recorded, on average, for the Organization for Economic Co-operation and Development (OECD) countries. In Canada, for example, total expenditures on health reached 9.9% in 2003, and in the United States, these represented 14.6% of the GDP in 2002.
5. In 2001 public investment represented 44% of the total investment in health, while in Latin American countries with similar or even lower income to that of Mexico, such as Argentina and Nicaragua, they had a higher percentage of public investment (48.5 and 53.4%, respectively).
6. One of the main objectives of the modern health system is to promote equity through financing plans that protect all the population against catastrophic expenditures for health needs, and particularly against risks that could generate a poverty trap. Likewise, this would promote greater equality in access to opportunities to improve health conditions. The Mexican system, however, has an inadequate performance. A high proportion of persons (over 50%) does not have any kind of insurance; out-of-pocket payments represent more than half of total health expenditures, as seen previously, and thus a high percentage of Mexican homes are at risk of incurring catastrophic expenses, thus impoverishing themselves in order to have access to the medical attention they require.
7. A comparative international study by the World Health Organization in 2000 indicated that the most critical problem presented by Mexico at the end of the millennium, being ranked 144th among 189 countries, was that of "equity in contributions" for the reasons described above; more than half of the population was excluded from social security systems and almost all of the money circulating in the private sector was from out-of-pocket payments. Additionally, the health system, measured by other indicators, was ranked in positions 55 and 64, clearly not acceptable for the ninth largest economy in the world.
8. Out-of-pocket payments tend to be greater, as a percentage of total family income, in the poorest homes. According to the national home income and expense survey (Encuesta Nacional de Ingreso y Gasto de los Hogares, ENIGH) in 2002, although the average out-of-pocket payments per family are greater in absolute terms as income increases, the Mexican population in the lowest income decile spends, in direct payments, approximately 6.3% of its income on health attention, while homes in the highest-income decile spend 2.6% of theirs.
9. Expenditures made in favor of the uninsured population are highly progressive (and pro-rural) and expenditures benefiting the insured population are highly regressive (and pro-urban). The combined effect of the sum of both expenditures means that the distribution of total public health expenditures is slightly regressive on a national level, although it becomes practically neutral if contributions of beneficiaries (workers and employers), in the case of the Mexican Institute of Social Security (Instituto Mexicano del Seguro Social, IMSS), are excluded and only federal government contributions through general taxes are considered. However, the differences is still important, since the uninsured make up more than 50% of the population and receive less than 33% of total public health expenditures.
10. While there are marked differences in resource allocation among population groups,

geographical inequities in resource allocation can also be observed, resulting from the historical distribution of federal funds to states based on the requirements determined by the supply of services. Distribution shows a 6 to 1 difference between the state with the greatest per capita public resources and the state with the lowest per capita resources; this difference cannot be explained by variations in health conditions or needs among states. Per capita expenditure for the Federal District's insured population is six times greater than expenditure for the state of Mexico. Likewise, per capita expenditure for the uninsured population is four times greater in Baja California Sur than in Chiapas.

11. Using the marginality index prepared by National Population Council (Consejo Nacional de la Población) for the analysis, we can observe that those states with a lower index of marginalization are those receiving higher quantities of public resources and, at the same time, that their population has greater social security coverage. In contrast, in the states presenting a higher rate of marginalization, fewer public resources are allotted to health and most of their population is not protected by social security. This variation in coverage, together with the fact that in states with high marginalization fewer resources are spent, on the average, on the uninsured population, causes a great disparity.
12. There are several government programs that provide health benefits, but the most important in terms of resources and coverage is the Human Development Program Oportunidades. It has the advantage of being one of the few programs that have been subject to a rigorous impact evaluation, including its impact on health indicators.
13. Oportunidades is associated with an 11% decrease in maternal mortality and 2% in infant mortality. In the case of maternal mortality, the effect of Oportunidades is stronger in medium and very highly marginalized municipalities, and in the case of infant mortality, in very highly marginalized

municipalities. Additionally, in the case of infant mortality, the program's effect is higher in very highly marginalized municipalities.

14. After only one year of operation, average food consumption in Oportunidades homes was 11% higher, compared to homes that did not participate in the program. This increase is due mainly to greater expenses in fruit, vegetables, and animal products. Average caloric intake in homes increased 7.8%.
15. Investment in health has important returns: according to World Bank estimates (2004), for countries with an institutional quality index that is equal to the mean, a 10% increase in public expenditures in health as a proportion of the GNP is associated with a 7% reduction in maternal mortality rates, a 0.69% reduction in mortality rates for children under the age of five, and a 4.14% decrease in the number of underweight children under five.

## **VII. Health Insurance**

1. Those who confront illness in the absence of mechanisms that allow protection from health risks may also become impoverished or fall into a poverty trap. This situation does not affect all the population in the same way. Most are likely to incur catastrophic health expenses or fall into a poverty trap as the family's income level decreases. This indicates a highly disparate situation as to the impact of poor health on the population.
2. Health insurance is fundamental to reducing the impact of idiosyncratic health shocks on health and poverty traps. And, the more insurance plans fail to cover the poorest groups, the greater the probability of having families trapped in poverty.
3. From a purely economic perspective, insurance can be seen as the other side of the coin of human capital investment. Insurance prevents

the deterioration of human capital in the face of adverse health shocks that individuals or families have not been able to avoid.

4. The proportion of the population that is insured in Mexico is relatively low; as mentioned before, more than 50% have no health insurance whatever. Although the health system has public insurance programs and plans for those without access to social security, this coverage is limited. Those who have no health insurance at all can have access to public health services. However, as is reflected by the high percentage of out-of-pocket payments in private expenditures, these services are not providing an adequate level of protection, especially from a financial point of view.
5. Some of the desirable elements that a health insurance system in Mexico should have are: universal coverage through a single risk-sharing fund, which would eliminate problems derived from asymmetric information; an overall legal and regulatory framework that includes aspects such as tax collecting, risk sharing, and the payment for and provision of health services (bringing together all those bodies involved in the sector and covering all citizens); separation of the functions of financing from those of risk-sharing and the function of providing services; basic coverage that can be the responsibility of the government but does not necessarily have to be provided by the State; and a group of services that is more cost-effective in economic terms and acceptable for society.
6. The health care system, in its present form, does not yet comply with the conditions desirable in an insurance plan, although there are initiatives as to voluntary insurance plans that make it possible to advance gradually towards the ideal model. Universal coverage requires the currently uninsured population to have access to a formal insurance plan with mainly public financing. This would represent an important advance towards the consolidation or aggregation of risks for the

uninsured population. Channeling a good part of out-of-pocket payments through a formal pre-payment plan would be a significant improvement to minimize the health risks to which families are currently exposed.

### **VIII. Public goods in the health sector**

1. Public goods in the health sector contribute to economic growth through several mechanisms: increase in labor productivity (for example, by controlling transmissible diseases, distributing micronutrients, and organizing information campaigns about good health); savings in health expenditures and increased productivity in the sector; increasing the attractiveness of investing in human resources, in workers' longevity, and a lower depreciation rate for that investment (for example, the absence of illness, epidemic control, safe foods, work safety, research and developing new treatments, potable water systems, and others); promotion of technological development (for example, standardized information systems, protecting intellectual property rights, learning about new treatments, the discovery and dissemination of new technologies); an improved environment for investment; market expansion (for example, access to safe foods and potable water, systems assuring the quality of health services, information campaigns, and others); infrastructure for the handicapped.
2. Public goods in the health sector contribute to reducing poverty traps, for instance through eradicating illness with vaccination campaigns, pollution control, disaster prevention policies, health and safety provisions in the workplace, and epidemic monitoring, among others.
3. Public goods in the health sector also include the protection of intellectual property rights to ensure progress in scientific research, the dissemination of information, intervention to provide preventive

treatment or vaccinations, epidemic monitoring, pollution control, and a system to ensure a potable water supply, among others.

4. The government can compensate for the underinvestment which exists, by definition, in public goods. This does not mean, however, that it is advisable to invest in all public goods, but that an analysis should be made of the costs and benefits of each one.
5. The availability and quality of public goods in a society are a reflection of the importance assigned to creating conditions to improve the quality of life of its citizens, the country's development, and its ability to make decisions based on the consensus of different political leaders for the common good.

## **Main Recommendations**

1. Regarding goals that Mexico must take on, it is important to go beyond the Millennium Development Goals in several dimensions: moving up the time frame for specific targets, establishing targets at the sub-national level to reduce the large existing gaps and including the fight against illnesses and diseases not considered in the Millennium Development Goals (such as hypertension and diabetes mellitus).
2. To generate a process to define health targets at the national and state level, and, when possible, at municipal levels. This involves considerably reducing existing gaps and defining new challenges. These goals should be defined in areas which make them socially and politically legitimate as well as financially and institutionally feasible. The goals should include general health aspects such as food consumption, sanitation, housing and the environment.
3. To eradicate malnutrition and poor nutrition among children. To revise and develop policies that guarantee good nutrition in Mexico in terms of supporting and rationalizing production and distribution of foods, promoting good dietary habits, and assuring a sufficient supply of micronutrients.
4. To revise and overhaul current investment programs in public health at all government levels (federal, state and municipal) in order to make them coherent with agreed-upon goals. In particular, it would be desirable to increase total expenditures, reassign funds towards preventive medicine and programs with a specific focus, and redistribute funds among regions and socioeconomic groups in order to make the system more progressive. Moreover, complementary public investments (for instance, in sanitation) should meet current needs.
5. To guarantee timely access to appropriate medical attention in cases of pregnancy, childbirth and postpartum care in marginalized rural and urban areas in order to reduce maternal and perinatal mortality and morbidity.
6. To guarantee continuity, improvement and adaptation to the new challenges of current social programs with proven impact upon health. One clear example is the Human Development Program Oportunidades, IMSS-Oportunidades, the Seguro de Salud para la Familia del IMSS and the Seguro Popular; others are the Liconsa milk distribution program (Programa de Abasto Social de Leche), the Programa de Apoyo Alimentario (offering nutritional support), Arranque Parejo en la Vida (which focuses on services to mothers and infants in the perinatal period), and the Healthy Communities Program (Programa de Comunidades Saludables). These efforts should be carried out in coordination with attention to educational aspects of early childhood development.
7. To encourage social involvement in which citizens insist on government accountability and promote the accumulation of social capital in order to expand

access to health and education services; likewise, to encourage public actions to promote equal access to educational and health care services, as well as other basic services.

8. To develop a hierarchy of public goods in the health sector coherent with agreed-upon goals and adapt the public investment programs accordingly.
9. To ensure the proper functioning of social protection networks in order to avoid poverty traps in situations of crises, natural disasters and idiosyncratic adverse shocks.
10. To take steps towards a universal medical insurance system with desirable characteristics: a single fund with risk sharing; a legal and regulatory framework that contemplates the overall aspects of collection, risk sharing, payment and provision of health services; basic coverage under public responsibility; separation of the functions of financing with risk-sharing from the function of providing services and more cost-effective services in economic terms, acceptable from the social perspective.



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