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Investing in Health for Economic Development

The Case of Mexico

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Abstract

Health is an asset with an intrinsic value as well as an instrumental value. Good health is a source of wellbeing and highly valued throughout the world. Health is not only the absence of illness, but capacity to develop a person's potential. Health is also an important determinant of economic growth. Given the importance of health, both as a source of human welfare and a determinant of overall economic growth, the Popular Health Insurance (Seguro Popular) was first introduced in Mexico as a pilot programme by the federal government in 2001, becoming part of the formal legislation in 2003. This study looks at the current situation, and some of the early findings and improvements made so far with regard to public health coverage in Mexico.

Keywords: health, healthcare, poverty, determinants of economic growth, MDGs
JEL classification: I12, I18, H51

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1 Introduction

Health is an asset with an intrinsic value as well as an instrumental value. Being healthy is a source of wellbeing and one of the goals most valued by human beings throughout the world.[1] Health is not only the absence of illness, but also the capacity of developing a person's potential throughout life. As the pioneer work by Nobel Prize winner Robert Fogel[2] shows, health is also an important determinant of economic growth. This author finds that between one-third and one-half of Britain's economic growth in the past 200 years is due to improvements in the population's caloric intake, which resulted in better health and higher productivity.

Given the importance of health, both as a source of human welfare and a determinant of overall economic growth, in January 2000 the World Health Organization created the Commission on Macroeconomics and Health (CMH). The Commission released its report in December 2001. This is what it had to say with respect to middle-income countries such as Mexico:

> 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.
>
> 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.

Additionally, the CMH suggested the creation of similar commissions on a national level. Following this suggestion, the Mexican Commission on Macroeconomics and Health (MCMH) was created on 29 July 2002. 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.

In this paper, I present the main findings of the Commission in the following areas: the relationship between health, economic growth and poverty traps in Mexico; an assessment of the health status of Mexicans; and an assessment of Mexico's investment in health. In the last section, I briefly examine two programmes that have been designed to reduce extreme poverty and improve the health status of the poor: *Oportunidades* (opportunities) and *Seguro Popular* (popular health insurance).

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[1] See, for example, World Bank (2001).

[2] See, for example, Fogel and Wimmer (1992).

As we shall see, the empirical evidence suggests that in Mexico health is an important determinant of economic growth and poverty traps. Unfortunately, the country is lagging behind in health indicators; they are below the expected level for a country with its level of development as well as, in several cases, below the rate of progress required by the Millenium Development Goals. This means that there are lost welfare improving opportunities both for the economy as a whole as well as for the poor. Furthermore, Mexico is plagued with great disparities in health indicators across income brackets, ethnic groups and regions. Families living in extreme poverty and the poorest municipalities have indicators similar to those found in some poor countries in Africa and Asia, while the richest households and municipalities show health indicators similar to some countries in Europe.

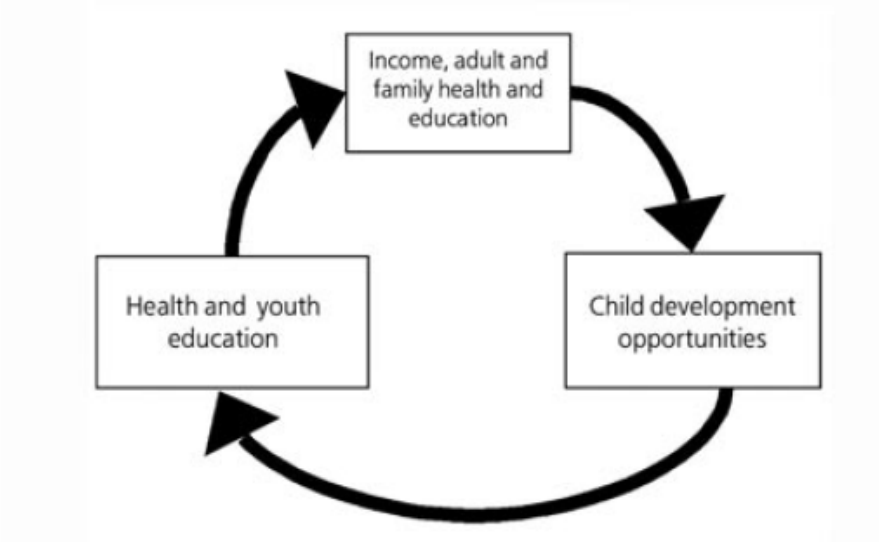
Finally, we shall see that public health spending is at best neutral from the distributive point of view and that the health system (especially prior to the introduction of the Seguro Popular) leaves without access to health insurance around 50 per cent of the population the majority of which belong to the bottom four income deciles. In this group, out-of-pocket payments represent 40 per cent of total spending on healthcare and, as would be expected, this spending pattern is highly regressive. Given these results, there is no doubt that investing in health in Mexico can result in higher economic growth, the elimination of poverty traps and a more equitable society. It can also create more efficient health systems by pooling risks.

The main recommendation of this paper is that the government should invest more institutional and financial resources in public policies that improve the nutrition and health status of young children of poor households and award financial protection to the poor and lower middle classes from the impact of catastrophic illness.

2 Health, economic growth, and poverty traps

Health as human capital affects growth directly through, for example, its impact on labour productivity and the economic burden of illness. It also has an indirect effect since child health affects the future income of people through the impact that health has on education such as enrollment, attendance and cognitive abilities. A study on the direct relationship between health and growth in Mexico (1970-95) using life expectancy and mortality rates for different age groups as health indicators, suggests that health is responsible for approximately one-third of long-term economic growth (Mayer-Foulkes 2001). It has been shown that childhood health is an important determinant of school achievement throughout the cycle and that health during early childhood determines the income that child will receive on reaching adulthood. Figure 1 depicts this cycle in very simple terms.

Figure 1: Intergenerational cycle of human capital formation



Source: Galor and Mayer-Foulkes (2004).

In addition, 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—the so-called poverty trap. Children from poor households are more likely to face chronic and recurrent health problems which affect their cognitive ability and cause them to miss school. In turn, their incomes as adults will be lower. Parents with low education and income will invest less in their children's human capital and the cycle gets repeated on and on. In Mexico there is evidence of a poverty trap (Mayer-Foulkes 2001). Given this, investing in health is warranted both from the growth and equity perspectives. Furthermore, given the important role played by health in the economy, protecting health assets from the impact of systemic (for example, transitional costs from economic reforms, epidemics, economic crises and natural disasters) and idiosyncratic shocks (illness, death, unemployment, or a bad harvest) is also crucial. Protection from the shocks produced by the latter is usually taken care of within a country's social insurance system.

However, despite their enormous impact, there are no systematic policies and institutions that address the impact of aggregate shocks on health. This presents us with a problem since there is increasing evidence that, for example, macroeconomic crises and natural disasters have a negative impact on investment in human capital.[3] In Mexico, for example, during the 1980s crisis, there was a slow down in the decline of

[3] See, for example, World Bank (2001).

infant mortality and the mortality of pre-schoolers caused by nutritional deficiency increases. This result emphasizes the importance of having adequate social safety nets in place, and their required funding, to cope with the impact of aggregate shocks on human capital accumulation (Lustig 1995).

3 Health indicators

Some of the health indicators in Mexico are below those for countries with equivalent per capita income. According to one study, the expected infant mortality rate, controlling for Mexico's level of development, is 22 per cent below the actual observed rates; in other words, Mexico reported twenty thousand infant deaths above the norm (Bertozzi and Gutiérrez 2003).

If we use the Millenium Development Goals as a benchmark to measure progress, how does Mexico fare? In what follows we will examine the actual cumulative progress for the relevant MDGs compared to the required progress assuming a linear process with 1990 as the baseline.[4]

3.1 Goals

Goals 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 1988 and 1999 was about 22 per cent less that what was required to fulfill the Millennium Development Goal. In addition, between 1992 and 2002, 'food poverty'[5] fell by only 10 per cent, less than the required rate. That is, the rate of progress observed so far is insufficient to meet the quantitative goals set by the MDGs.

Goal 4: reduce infant mortality rates by two-thirds and increase the proportion of children vaccinated against measles

Between 1990 and 2003, Mexico has shown a progress rate of 43.3 per cent in the reduction of infant and child mortality rates, which is satisfactory since the required rate is around 44 per cent. Also, Mexico has had a significant improvement in vaccination rates, especially against measles. In 1990 only 75.3 per cent of infants under 12 months old had been vaccinated against this disease and in 2002 the number was 96 per cent.

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[4] The required rate of progress is usually defined in very simplistic terms; it is the accumulated progress one should observe if one assumes a linear process between 1990 and 2015. Although this may not be the case in reality, there are no available empirical estimates to gauge this. For details, see Organización de las Naciones Unidas para el Desarrollo (México) y Gobierno de la República de México (2005).

[5] Food poverty refers to the individuals whose income is not enough to cover the cost of a pre-defined basic food basket. In Mexico food poverty is considered analogous to extreme poverty.

With respect to Goal 4, therefore, Mexico is showing progress consistent with the specific quantitative goals of the MDGs. However, as we saw above, in the case of IMR the starting point for Mexico is higher than it should be given its level of development.

Goal 5: Reduce maternal mortality rate by three fourths

The cumulative progress achieved on maternal mortality between 1990 and 2003 is 26.7 per cent, lower than the required rate to achieve the goal. Mexico also has a lower than expected proportion of births attended by trained medical personnel (only at 86 per cent). Thus, in the case of maternal health, Mexico is underperforming.

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

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. Also, one factor of concern is that between 1990 and 2003 the incidence of people diagnosed with HIV/AIDS per 100,000 inhabitants increased from 4.4 per cent to 8.2 per cent.

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. 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

Goal 7: Sustainable access to safe drinking water

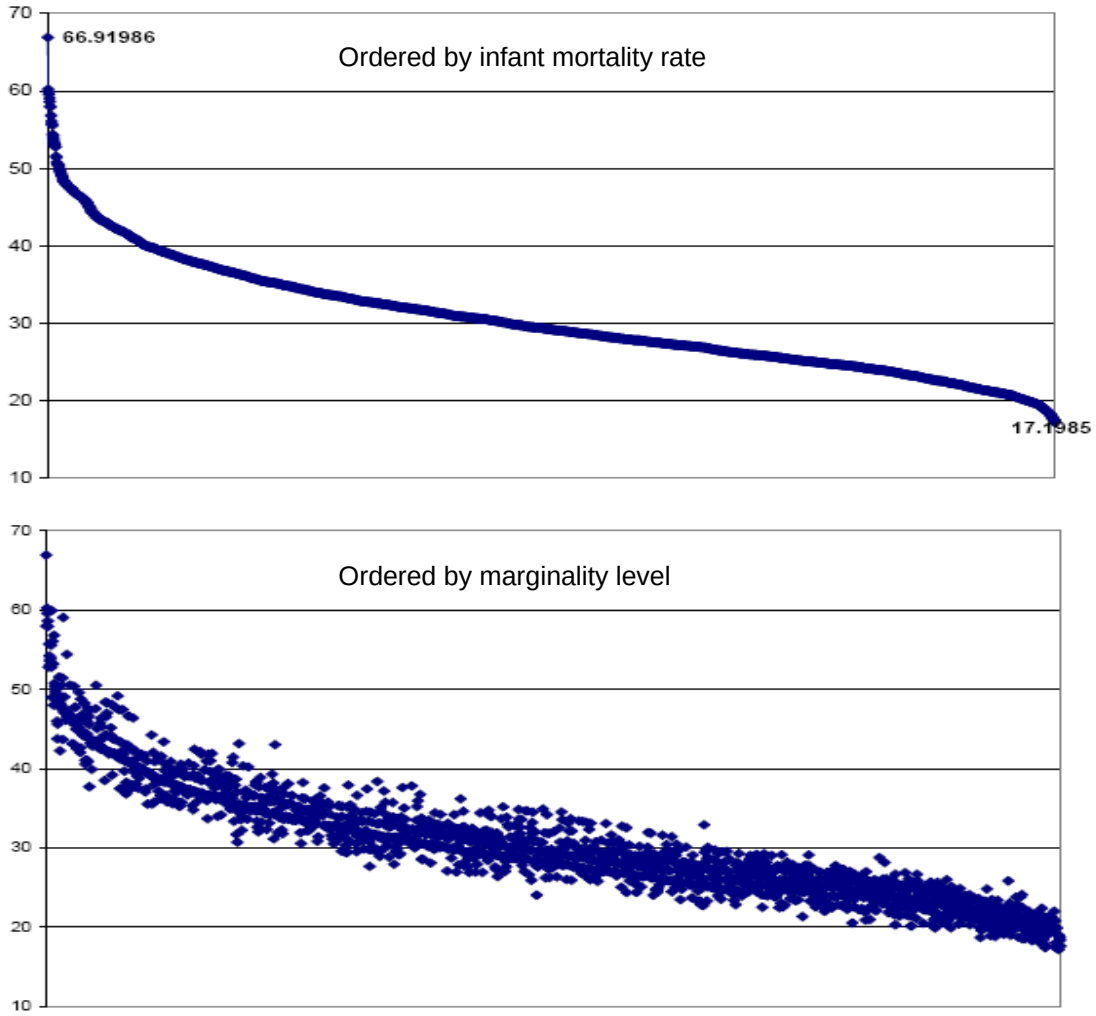
In terms of environmental conditions and sanitation, measured through access to drinking water, on average Mexico is very close to achieving the target suggested by the Millennium Development Goals. However, it is still not adequate for a country of its level of development.

4 Beyond the Millennium Development Goals

4.1 Reducing inequality by setting sub-national goals

In Mexico, there are enormous disparities in health indicators across states and municipalities. For example, in the poorest municipality in the state of Chiapas, infant mortality (at 66.2 per thousand live births) is similar to that of countries much poorer than Mexico like Sudan. In contrast, the Benito Juarez district in Mexico City, with a rate of 17.2, has levels similar to Western Europe and Israel (Figure 2).

Figure 2: Infant mortality rate at a municipal level in Mexico, 2000



Source: Data based on CONAPO (2001).

There are also large differences in childbirth coverage under medical supervision. Half of the states have more than 90 per cent coverage, but there are states with less than 60 per cent coverage. The percentage of childbirths attended in the 386 highly marginalized municipalities is around 36 per cent. In contrast, in the 247 least marginalized municipalities, coverage in health clinics is almost 94 per cent. Furthermore, in some indigenous communities the percentage of births attended by medical personnel is under 10 per cent. Given the low levels of health found in some regions of the country, Mexico's goals should be established at the state and municipal levels. For example, one could set as a goal that no municipality has an infant or maternal mortality rate above the national average in 1990, which were 37 (infant deaths per 1,000 born alive) and 110 (deaths per 100,000 infants less than a year born alive), respectively, even if this implies a relative reduction above that specified by the MDGs. Once the goal is chosen, one could estimate the rate of progress by municipality indicator using the following formula:

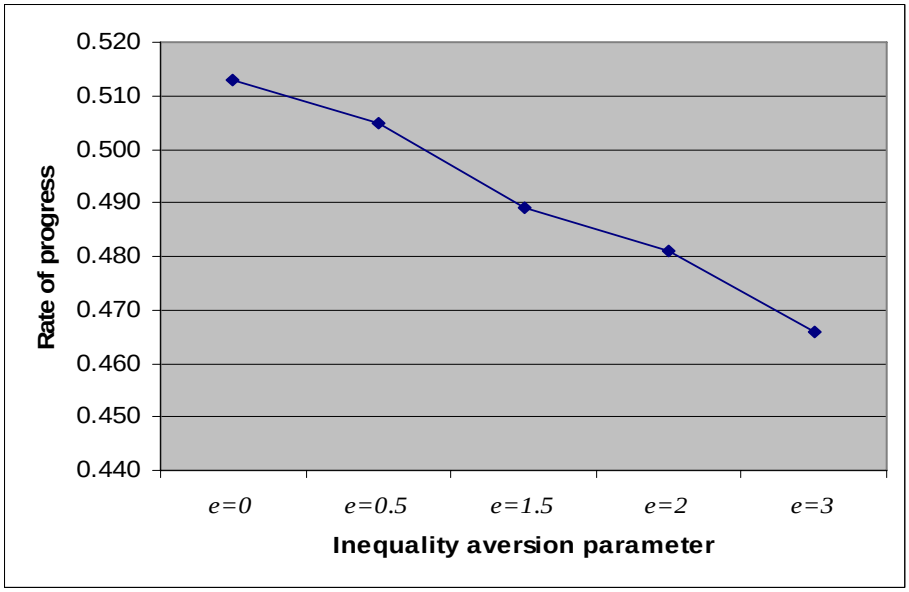
$$\text{Rate of progress indicator in } (t) = \frac{\textit{objective value in } 2015 - \textit{value in } (t)}{\textit{objective value in } 2015 - \textit{initial value}}$$

This rate of progress indicator has a value between 0 and 1. Using the harmonic mean, we can also define an inequality-sensitive indicator as (μ):

$$\mu = \left[\frac{1}{N} \sum_{i=1}^{N} I_i^{1-e} \right]^{\frac{1}{1-e}}$$

In this expression, *e* stands for the 'inequality aversion' parameter, *I* is the indicator by municipality (or state) and N is the total number of municipalities (or states).[6]

Figure 3: Rate of progress 'corrected' by the inequality aversion parameter for infant mortality rate at a municipal level in Mexico (2000)



Source: Data based on CONAPO (2001).

If *e*=0, the indicator reduces to the standard mean used for monitoring progress in the Millennium Development Goals at the national level. However, if *e* is positive, we are giving more weight to the lowest performers and the larger the parameter *e*, the more averse to inequality. The selected indicator gets smaller, as the degree of inequality aversion increases. In Figure 3, one can observe how the rate of progress of the infant mortality rate at a municipal level declines when we 'correct' the measure using the inequality aversion parameter.[7]

6 This approach is based on the methodology proposed by Foster et al. (2005).

7 These estimates are from Juan Carlos Garcia Fierro (Garcia 2005).

4.2 Coping with new health challenges

In addition to confronting the health challenges typical of poor countries, as a high-medium-income country Mexico is facing diseases that are more typical of wealthier countries. For example, incidence of diabetes has increased greatly in recent years; at the end of the 1970s it was the fourth cause of death but now it is considered the first, causing 12 per cent of all deaths in Mexico. Therefore, the health-related goals for Mexico should include confronting new challenges such as the increase of cardiovascular diseases and diabetes mellitus, both associated with changing income levels as well as demographic changes.

5 Is Mexico investing well in health?

In order to respond I shall try, in turn, to answer the following two questions: Are resources invested in health sufficient? Are they well allocated in terms of social equity goals? We shall see that, health investment in Mexico is less than what is required or expected of a country with its level of development and needs. Also, we shall find that resources are distributed among the population in an unequal manner and not enough resources are devoted to protecting the bulk of the population, the poor in particular, from the effects of catastrophic health shocks.

5.1 Total investment in health

In 2003, Mexico's total investment in healthcare[8] was 6.1 per cent of GDP, lower than the Latin American average (6.3 per cent) and lower than other countries with similar income levels, such as Chile (7.0 per cent), Costa Rica (7.2 per cent), Brazil (7.6 per cent), and Uruguay (10.9 per cent). Furthermore, in 2001 public investment represented 44 per cent of the total investment in health, while in Latin American countries with similar or even lower income to that of Mexico had a higher percentage of public investment, such as, Argentina (48.5 per cent) and Nicaragua (53.4 per cent). That is, just based on spending figures, Mexico has been under investing in health. It is important to note, however, that public expenditure on health as a percentage of GDP has increased 15 per cent since the year 2000, primarily as a consequence of introducing the Seguro Popular.

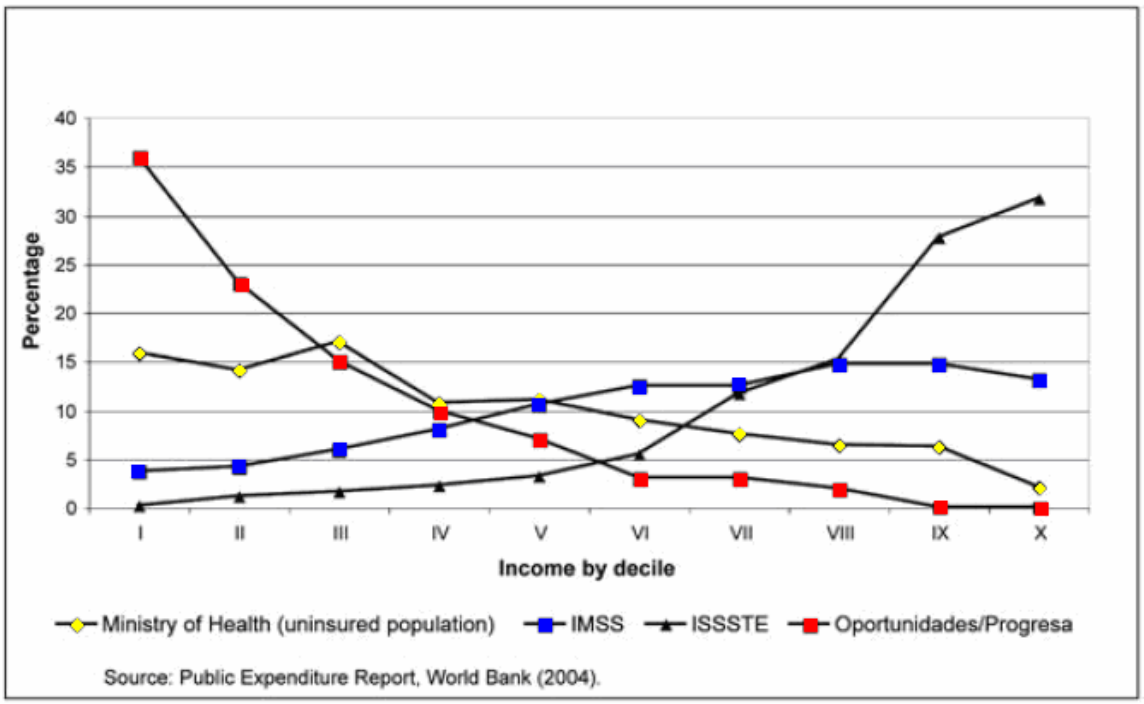
5.2 Progressivity of public spending in health

In Mexico there is a remarkable contrast between expenditures made in favour of the non-insured population—such as those channeled through the health ministry and the conditional cash transfer Oportunidades—which, as shown in Figures 4 and 5, is highly progressive and pro-rural, and expenditures benefiting the insured population—such as

8 These percentages refer to spending done 'inside' the health system. Investment in health that occurs 'outside' the health system such as food production, sanitation infrastructure, potable water and housing is not included in these figures.

those channeled through the two largest social insurance schemes, the Mexican Institute of Social Security (IMSS) for private sector workers and Institute of Social Security Servicing State Workers (ISSSTE) for public sector workers, which is highly regressive and pro-urban (Figures 4 and 5).[9]

Figure 4: Distribution of social expenditure by income decile, 2002



Fifty per cent of the population are uninsured and receive less than a third of total public health expenditures. A rigorous analysis of the incidence of public health spending reveals that the distribution of total public health expenditures is slightly regressive on a national level, although it becomes practically neutral if contributions through general taxes of beneficiaries (workers and employers) are considered.[10] Given the existing disparities in health indicators and their low level in certain parts of the country and in poor households, this is not good news.

In Figure 5 we show the concentration coefficients in order of increasing inequality of the most important components of public expenditures on social protection and targeted programs. The results confirm the previous findings and indicate that most of the public spending goes to programmes that are regressive. The figure also gives us information regarding which policies and programmes are progressive.[11] Two salient ones are the

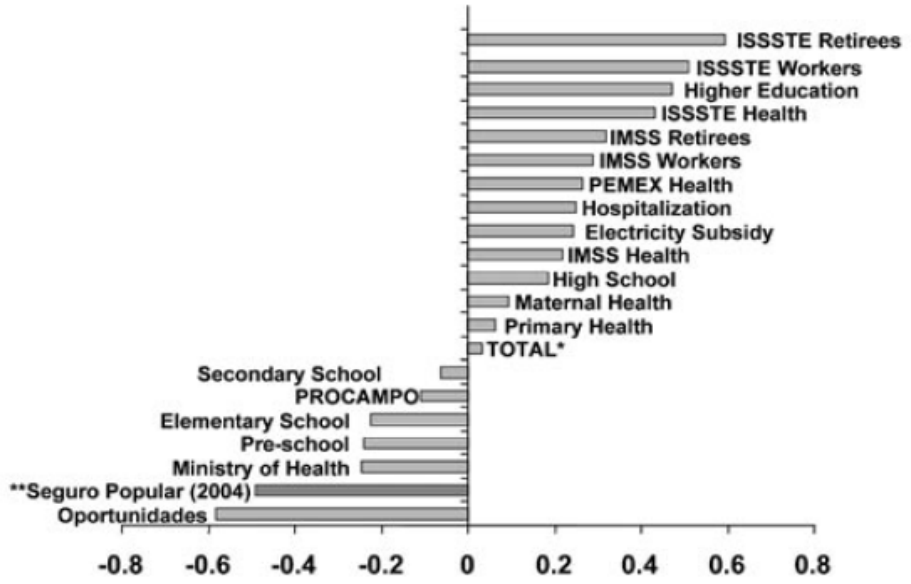
[9] In Figure 4, the categories are mutually exclusive.

[10] Scott (2004). It is important to note that the neutrality of net health expenditures is not observable in Figure 4 because the latter does not include the contributions side.

[11] Public spending is assigned to individual households depending on the implied consumption of the analysed service. For example, public spending on secondary education per household is estimated

conditional cash transfer programme Oportunidades and the social protection against health shocks programme Seguro Popular.

Figure 5: Concentration coefficients of public expenditure on health and nutrition, 2000-02



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.

Geographical inequities are also quite striking, resulting from the historical distribution of federal funds to states. For example, per capita public health expenditures are six times larger in Mexico City than in the State of Mexico despite their being right next to each other with similar health conditions and needs. Even more worrying is the fact that Baja California receives four times as much in federal health expenditures per capita than Chiapas while the GDP per capita is 2.9 higher in the former. In general, states with a lower rate of backwardness are those receiving higher quantities of public resources. In contrast, in the poorer states, fewer public (federal) resources are allotted to health and most of their population is not protected by social security.

Public spending in health has positive returns. According to one study,[12] for countries with an institutional quality index that is equal to the mean (3.5 in a scale of 1 to 5), a 10

dividing the total public spending on secondary education by the number of students in secondary education, and then applying this amount to the number of students attending secondary school in the specific household.

12 World Bank (2004). The value of 3.5 corresponds to the CPIA average considered for the analysed group of developing and industrialized countries to which the index's maximum value of 5.0 was assigned.

per cent increase in public expenditures in health as a proportion of GNP is associated with a 7 per cent reduction in maternal mortality rates, 69 per cent reduction in mortality rates for children under the age of five, and 4.14 per cent decrease in the number of underweight children under five years old.

6 Investing in health for the poor: Oportunidades and Seguro Popular

6.1 Oportunidades

Oportunidades is a conditional cash transfer programme designed to reduce income poverty in the short-run and at the same time induce changes in behaviour in poor households. Its main objective is to address 'parenting failures' and 'market failures' (in the credit market, for example) in human capital development faced by poor households. In order to receive the benefit, eligible households must send their children to school and have health visits. In other words, it is expected that the conditions imposed on households will result in higher investments in health, nutrition and education of their children thereby increasing the chances of the next generation.

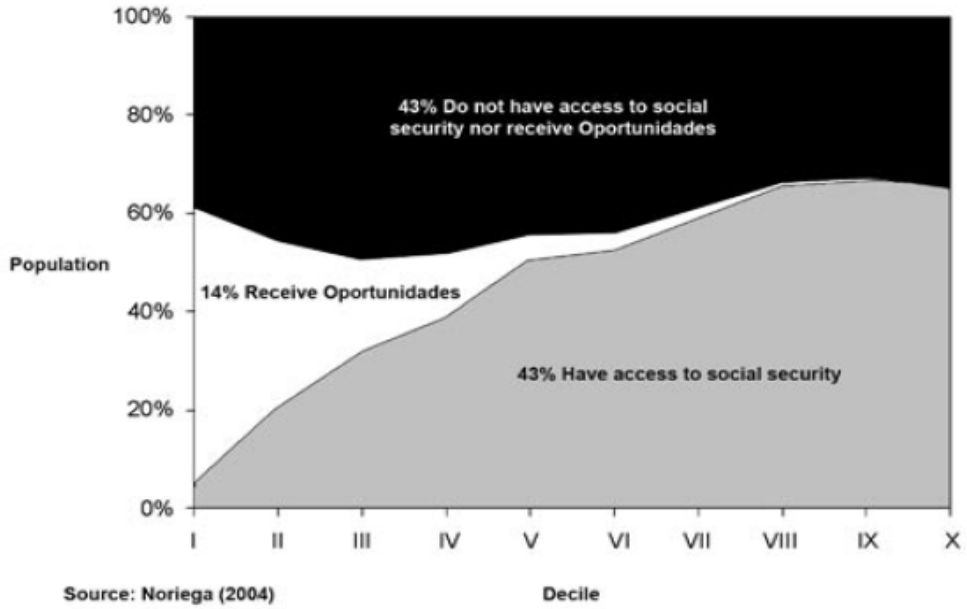
Currently, the programme reaches about 5 million families in more than 7,500 locations in the country, in rural and urban zones, with a budget of over 25 billion pesos. This represents 100 per cent of the households living below the food poverty line in 2002. With Oportunidades, a substantial proportion of the poorest households have access to targeted health benefits as can be seen in Figure 6. Nevertheless, even with the programme, around 40 per cent of the poorest households do not have access to social insurance. Furthermore, as discussed below, Oportunidades is effective in terms of increasing the human capital of the poor but it does not shield them from the impact of catastrophic health shocks.[13]

Rigorous impact evaluation studies reveal that Oportunidades has been effective in improving the health and nutrition status of pregnant and lactating women and small children. Children under three who participated in the programme increased their attendance at growth monitoring check-ups between 30 and 60 per cent. Beneficiaries between 0 and 5 years of age registered an incidence of illness 12 per cent lower than that of children who did not participate in the programme. Moreover, data suggest that children in the programme grew 1 cm more and that they face a lower probability of inadequate growth (height per age) (Gertler 2000; Behrman and Hoddinot 2000). In addition, being a beneficiary of the programme is associated with an 11 per cent decline in maternal mortality and 2 per cent decline in infant mortality. In the case of maternal mortality, the effect is stronger in medium and very highly marginalized municipalities,

[13] There are a number of issues raised around the suitability of conditional cash transfers. For a thorough discussion of them see de Janvry and Sadoulet (2005).

and in the case of infant mortality, in very highly marginalized municipalities (Hernandez et al. 2002).

Figure 6: Coverage of Oportunidades and access to social security, Mexico



Average food consumption and caloric intake in beneficiary households rose by 11 per cent and 7.8 per cent, respectively, after just one year of operation, compared to households that did not participate in the programme. This increase was due mainly to higher spending in fruit, vegetables and animal products. Associated to this is an improvement in adult health. In the 18-50-year old group there has been a significant decrease (19 per cent) in the number of days on which the individuals had difficulty performing their daily activities due to health problems, as well as a significant (7.5 per cent) increase in the number of kilometers they can walk without getting tired.

6.2 Popular Health Insurance (Seguro Popular)

The other side of the lack of coverage by the formal social security system and the insufficiencies of the health ministry are large out-of-pocket expenditures. Mexico is one of the countries with the largest share of out-of-pocket payments as a proportion of total spending in health—the latter represented 53 per cent of the total. As we know, these payments are neither equitable nor efficient. There clearly was a missed opportunity of pooling risks and thereby contributing to more equitable financing and more efficient health investments. This is one of the reasons for the government to launch a programme such as the Seguro Popular.

The Popular Health Insurance (Seguro Popular) is a new financing and health insurance model first introduced as a pilot programme by the federal government in 2001. It

became part of the formal legislation of the Mexican health system in 2003. It offers access to publicly subsidized health insurance to all households that are currently not part of any of the existing social insurance programmes. It offers access to a package of essential health services and healthcare associated with ruinous illnesses. It is co-financed by the federal and state governments and the beneficiaries. The design of this relatively new programme is such that the financing of health insurance will be much more progressive because the out-of-pocket expenditures associated with ruinous illnesses in particular will be significantly reduced as the programme expands. At present, there are around 3 million families which participate in the scheme but almost all belong (or claim to belong) to the bottom of the income scale and do not contribute to the system. The government's goal is that by 2010 the Popular Health Insurance will cover all those currently uninsured.

Reliance on out-of-pocket payments exposes families to huge expenses which can drive them further into poverty or make the non-poor poor. According to the national household income and expenditure survey of 2002, the population in the lowest decile spends around 6.3 per cent of its income on out-of-pocket healthcare payments while households in the top decile spend 2.6 per cent.[14] The likelihood of becoming poor was quite high. The direct impact of out-of-pocket expenditures in health increased the incidence of poverty by 10 per cent, from 20.3 per cent to 22.5 per cent. This also explains the importance of launching a universal coverage social protection system in health such as the Popular Health Insurance.[15]

Furthermore, the impact on poverty is underestimated because it does not include the indirect and intertemporal effects. It has been shown that—in the absence of formal protection mechanisms—when faced with shocks, households make decisions to smooth consumption that can lock them and their children into permanent poverty. For example, affected households tend to rely more on child labour and, hence, children's school attendance and/or achievement suffer. As we saw above, this will cause those children to be less productive and earn lower incomes when they become adults which in turn will translate into worst conditions for their own children. The vicious circle is played all over again. According to Knaul et al. (2005)

> Simulation results show that important impacts on the performance of the Mexican health system will occur in terms of fair financing and catastrophic expenditures, even before achieving the universal coverage goal in 2010. A reduction of 40 per cent in out-of-pocket financing and a

[14] It is important to note that the non-insured must pay for the health services provided by the health ministry and that the amount paid is to a large extent arbitrary because it depends on the on-location assessment of the patient's ability to pay, among other factors.

[15] The Seguro Popular was launched in January 2004. For a description of this reform, see Secretaría de Salud (2004).

Popular Health Insurance coverage of 100 per cent will decrease catastrophic health expenditures from 3.4 per cent to 1.6 per cent.

Furthermore, with full coverage Mexico will change its ranking position from 144 (out of 191 countries included in the study done by the World Health Organization) to 44, equal to Italy. Even before full coverage is reached, progress in fairness of health financing will be very significant. In sum, the Seguro Popular can significantly improve efficiency by pooling risks, and equity by protecting households and individuals from the impact of catastrophic health shocks.

7 Concluding remarks

In Mexico, as in other countries, health as human capital is an important determinant of economic growth and poverty. Low health levels are linked to the so-called poverty traps. Health indicators and their progress in the past fifteen years are below what is expected in a country with its level of development and the specific goals set within the framework of the MDGs. They are also very unequal with poorer socioeconomic groups and municipalities showing health levels similar to those found in some sub-Saharan African and South Asian countries. There is a clear imperative to focus on improving the health status of the population to unleash higher economic growth and lower poverty rates. In particular, those improvements should be concentrated in the socioeconomic groups and municipalities that are more backward. Given the large inequities in health indicators, Mexico should set its MDGs using an inequality sensitive aggregate indicator and specific goals by municipality.

An analysis of health expenditures reveals that there is large room for improvement both in terms of efficiency and equity. First of all, Mexico spent less than comparable countries. Second, out-of-pocket spending represented a much larger share of total spending than in other countries. Third, public spending in health was at best neutral from the distributive point of view. And, fourth, more than 50 per cent of the population were not covered by social security.

With the introduction of the Seguro Popular, these problems are being corrected and the expectation is that by the time it reaches full coverage in 2010, Mexico’s health system will move from 144th place to 44th place in terms of fairness in financing of healthcare. Also, the conditional cash transfer programme Oportunidades has shown to be very effective in improving health and nutrition of children and mothers of beneficiary household.

Oportunidades and Seguro Popular are good examples to show that the Mexican government is committed to accelerating the improvement in health indicators, in particular for the poor. However, policy instruments should be linked to attaining some specific goals at the municipality levels. In particular, to lowering infant and maternal

mortality rates to make them at least as good as the national average in 1990. If actions are not linked to outcomes at the level of municipalities, sharp contrasts are likely to continue for quite some time.

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